

Document Name:



## *TARAVOSH JAM Presentation*



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**TARAVOSH JAM Presentation**



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## TARAVOSH JAM Presentation

About us:

**TARAVOSH JAM co.** is a Iranian eng., design and (E.P.C.)Process package contracting company operating in the field of Oil, Gas, Petrochemical and power plant.

This company has considerable experience and knowledge in the design and supply Process package with high Engineering and Management competency.

**TARAVOSH JAM co.** Is known for having honorable relationships with our customers, executing projects safely, efficiently and meeting the environmental needs.

Our expertise of process technologies in the oil, gas, petrochemical and power plant industry has enabled the **TARAVOSH JAM co.** to develop skills and know-how in IRAN base on international standard and software

**TARAVOSH JAM co.** can service our customers with a broad range of other leading processes through partnerships and strategic alliances with other international famous licensors and companies.

TARAVOSH JAM Company has attention on:

Best quality /Met nice time schedule /reasonable price /design as per requirement /standard construction

The specialists in **TARAVOSH JAM co.** has training courses in following companies:

- 1- Thyssen Krupp Stahl AG (Germany)
- 2- Deutsche Babcock (Germany)
- 3- Foster Wheeler (Spain)
- 4- I.H.I. ( Japan)
- 5- J.S.W. ( Japan)

**TARAVOSH JAM co.** offers the following services:

- Design & detail design services
- Procurement and providing the Refineries, Power Plant & Off-Shore equipments
- Commissioning , retrofitting, improvement Services for process unit& power plant
- EPC process unit (U),package(P)&equipment(E) (Engineering, Procurement & Construction).

U-1- Flare Gas Recovery Unit	U-2- Amine & MEG Reclaiming Unit	U-3- Mini Refinery Unit
P-1- Multi Media Fine Filter Package	P-2- Catalyst Recovery Package	P-3- Fire Heater Package(FURNACE)
P-4- Fuel Gas Package	P-5- Chemical Injection Package	P-6- Condensate Polisher Package
P-7- Gas Dehydration Package		
E-1- Steam Deaerator	E-2- Vacuum Deaerator	E-3- Trace Gas Stripping Deaerator
E-4- Incinerator	E-5- Heat recovery steam generator -HRSG	E-6- Three Phase Separator
E-7- Gas filter Coalescer	E-8- Sample Cooler	

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# Chapter1

## *Description and Capability*



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### **Engineering Services**

**TARAVOSH JAM co.** absorb high technology with best Iranian expert base on international standard in frame time schedule Taravosh Jam has knowledge to supply engineering services as following in refinery , petrochemical & power plants.

- 1- Front End Engineering Design
- 2- Detail engineering for oil and gas and petrochemical & power plants;
- 3- Consulting and Optimizing for units of gas refineries;
- 4- Seismic Retrofitting equipments &structure;
- 5- Design of oil & gas loading and unloading system;
- 6- Design storage tank, pressure vessel & Heat exchanger;
- 7- Design and optimization of boilers & HRSG;
- 8- Training
- 9- HAZOP study, HSE study
- 10- Consulting and supervision (MC services):
  - Supervision for design part;
  - Supervision for procurement;
  - Supervision for construction and pre-commissioning;
  - Commissioning- Operability test- Performance test

### **Procurement the Refineries, Power Plant & Off-Shore equipments**

Taravosh Jam company sales and supplies many equipments of Oil & Gas field, refineries, petrochemical & power plant with N.I.O.C standard from main manufacturer in the world with certificate.

- ❖ 2 &3 Phase Separator internal
- ❖ Pump
- ❖ Vacuum Pump
- ❖ Diaphragm pump oil well
- ❖ Housing & lifting oil well
- ❖ Ejector
- ❖ Instrument
- ❖ Control valve
- ❖ Safety valve
- ❖ Turbine

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### **Maintenance and retrofitting**

Taravosh jam Co. is doing maintenance, retrofitting commissioning and main repair process equipment base on practical experience and knowledge about them.

We could improve process problem, training and Hazope study for following process unit.

- 1- Gas process unit
- 2- Steam boiler
- 3- Heat recovery steam generator(HRSG)
- 4- Steam Deaerator
- 5- Vacuum Deaerator
- 6- Fine Filter
- 7- Filter(Catalyst, Gas, Water)
- 8- Separator
- 9- Inclinator
- 10- Amine & MEG Unit
- 11- Gas Dehydration Unit
- 12- Water Treatment Unit
- 13- Water SWEETING UNIT

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### U - 01 - FLARE GAS RECOVERY UNIT



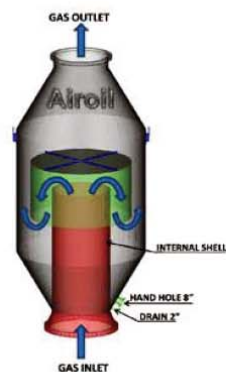
Taravosh Jam Co. is an Iranian EPC contractor for establishing the Flare Gas Recovery Unit. The system will save flare gas and reduce emission of CO<sub>2</sub> and NO<sub>x</sub>. The environmentally friendly system will extend the lifetime of your flare tips.

#### Advantage:

- Save gases and energy
- Reduce pollution
- Produce electricity & water

#### Recommended Methods:

- 1.Process modification for zero flaring (pressurized and recovered gas)
- 2.Gas incinerator with waste heat boiler to produce mp steam up to 20 bars
- 3.Gas sweetening unit with ability to produce electrical power with gas generator



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### U - 02 - AMINE & MEG RECLAIMING UNIT



Taravosh Jam Co. is an Iranian EPC contractor for establishing the Amin & MEG Reclaiming Unit. Amine & MEG are used in Gas Treating Units, by passing time these materials will be contaminated and will make some problems for lines even with using Amine & MEG recovery units. Replacing these materials cost money and cause shutting down operation. Solution is to use Amine & MEG Reclaiming unit. This solution is a new method in the world and does not require shutting down the operation, or costly material purchases and disposal problems. Amine & MEG reclaiming unit could be done stationary or mobile so it could be used for reclaiming Amine & MEG, continuously or when needed.



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### U - 03 - MINI REFINERY UNIT



Taravosh Jam Co. is an Iranian EPC contractor for establishing the Mini Refinery Unite. This Unite turns crude oil / condensate gas / mazut into useful products. In the capacity of / 5,000 20,000 / 10,000 barrels per day are delivered within 12 months. (As skid mounted)

<b>Feed</b>	Crude oil	Condensate gas	Mazut
<b>Product</b>	Diesel, petrol, kerosene, bitumen, lubrication oils	Diesel, petrol, kerosene	Diesel, bitumen

- **Atmospheric Distillation Unit**

Atmospheric distillation unit feed by distillation process separates into different fractions.

- **Catalytic Reforming Unit**

Catalytic reforming is a unit of the optimization process of high-octane petrol.

- **Sulfur Recovery Unit**

This unit is used to retrieve sulfur of petrol.

- **Utility Units**

Tanks, compressed air, steam boiler ...





## P - 01 - MULTI MEDIA FINE FILTER PACKAGE



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Multi media fine Filter. The multi-media filters shall remove suspended organic matter and inorganic particles from the water with removal efficiency of up to particles larger than  $2\mu\text{m}$ .

### Advantage :

- High Removal Efficiency of %98 at  $2\mu\text{m}$
- Higher flow rate
- Low backwash requirement
- Low cost of maintenance

### Backwash Of Multi-Media Filters

In order to reduce pressure drop the filters are periodically taken out of service and cleaned by backwashing to remove the filtered material. Backwashing is usually accomplished by first injecting air to break up the bed and then expanding or fluidizing the bed with to scour the particles and then flushing with water alone.



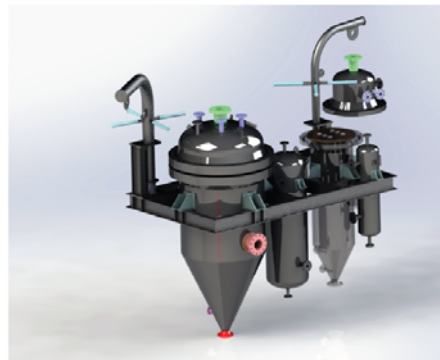
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### P - 02 - CATALYST RECOVERY PACKAGE

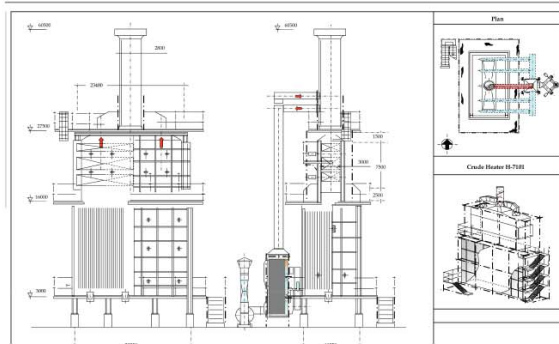


Taravosh Jam Co. is an Iranian EPC contractor for catalyst recovery package.  
In this package after recovery , the catalyst will be sent to the main unit and The system is automatically cleaned



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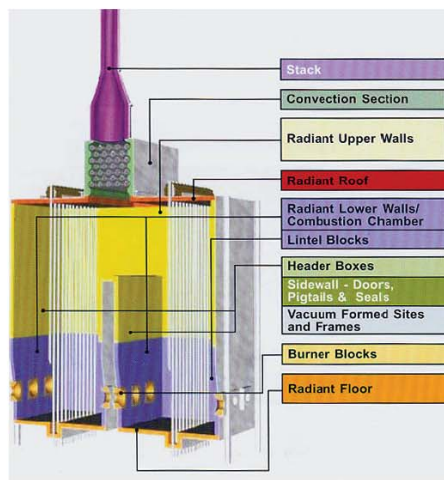
### P - 03 - FIRE HEATER PACKAGE (FURNACE)



Taravosh Jam Co. designs and supplies heat transfer equipment like fire heater to the process and power industries in very size and type.

Taravosh Jam Co. uses the latest Computer Aided Design & Engineering (CAD/CAE) and draughts techniques to designs furnace. Good experience in boilers design and good basic knowledge in heat transfer help to us to design fire heaters in high performance.

Careful planning and international sourcing of materials and fabrication ensure every project is planned to meet the highest quality and safety requirements on schedule in Taravosh Jam Company.





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### P - 04 - FUEL GAS PACKAGE



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the fuel gas packaging. Most users of fuel gas require gas that is free of liquids and solids. This is particularly critical in gas turbine applications where severe damage may be caused to the turbine if the gas is not ultra clean and dry. Metered fuel gas is normally required at a steady operating pressure and at a safe temperature. The clean fuel gas is maintained above both dew point and hydrate formation temperatures.

#### Advantages:

- Increases reliability of gas engines and turbines
- Decreases maintenance costs and reduces unscheduled downtime
- Increases recovery of liquids
- Contains no moving parts, simple to operate and maintain



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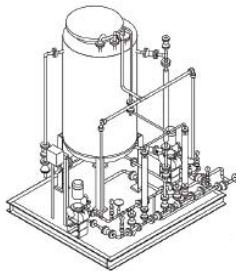
### P - 05 - CHEMICAL INJECTION PACKAGE



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Chemical Injection package. These packages are for sending chemical to process package.

The complete system includes:

- Skid Structure
- Chemical storage tank
- Two dosing pumps (as per API 678)
- Instruments
- Electrical local panel
- Valves
- Calibration column
- Filter
- Mixer



## P - 06 - CONDENSATE POLISHER PACKAGE



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the condensate polisher package.

In this package The condensate is collected and then used as boiler feed water. Prior to re-use, the condensate must be purified or "polished", to remove impurities .therefore a condensate polisher is used which is a device used as part of the steam cycle. It is filled with polymer resins which are used to remove or exchange ions such that the purity is near distilled water.

### **Applications:**

- The removal of impurities both dissolved (i.e. silica oxides and sodium) and suspended matter (ex. iron oxide ) particulates which have the potential to cause damage to the boilers, steam generators, reactors and turbines.
- The removal of minerals has the secondary effect of maintaining the pH balance of the water near neutral by removing ions that would tend to make the water more acidic. This reduces the rate of corrosion where water comes in contact with metal.
- The condensate deoiling package is used to remove potential hydrocarbon traces from steam condensates. It supply with client request.





## P - 07 - GAS DEHYDRATION PACKAGE



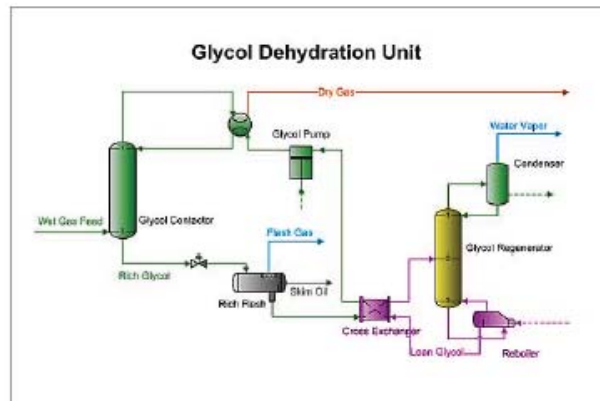
Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Natural gas Dehydration package.

Natural gas usually contains a large amount of water. This water causes several problems for downstream processes and equipment, such as corrosion or freezing in pipelines.

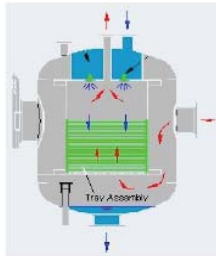
Glycol-based gas dehydration is a technology for the removal of both water and CO<sub>2</sub> from natural gas.

### Process description :

Glycol is fed to the top of an absorber, where it comes into contact with the wet natural gas stream. After leaving the contactor, the rich glycol is routed to the regeneration package for purification.



## E - 01 - STEAM DEAERATOR



Taravosh Jam is an Iranian EPC contractor for fabrication of the Steam Deaerator. Deaerator (thermal or pressurized) is a Degasification device that is used for the removal of air and other dissolved gases from the feed water to steam-generating boilers by heating steam.

deaerators are designed to remove oxygen down to levels of 7 ppb by weight or less as well as essentially eliminating carbon dioxide.

- **Spray -Tray-Type Deaerator**

Includes a vertical tower (or horizontal for capacity more than 400Ton/hr) which minimizes the amount of vent steam

- **Spray-Type Deaerator**

Does not include a tower. This type is an economic system

- **Packing-Type Deaerator**

**Advantages:**

- Prevent corrosion & thermal stress of boiler;
- Increase thermal efficiency;
- Provide NPSH for Feed water pump;
- Serves as the Deaerated boiler feed (5min. to 20 min.).



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### E - 02 - VACUUM DEAERATOR



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Vacuum Deaerator. Vacuum Deaerator is for cold water systems 40-10 °C. The make-up water, is led to the upper section of the tower. Deaerator tower has 3 sections (best model). The vacuum pump creates the necessary vacuum so that the make-up water boils in lower temperature. When the water boils, the oxygen is liberated and removed by means of the vacuum pump. At the deaerator tank oxygen scavenger is added to remove the residual dissolved gases.

**Function:**

- water injection in oil and gas reservoirs
- water providing for desalting crude oil
- water providing for water sweetening plant
- water providing for utility consumptions

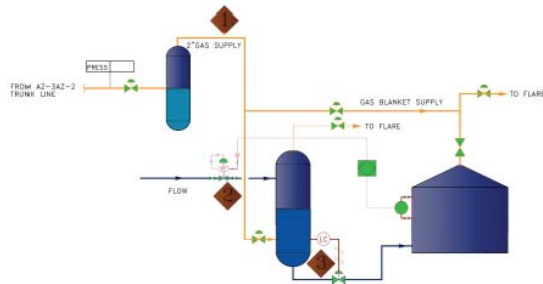


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### E - 03 - TRACE GAS STRIPPING DEAERATOR



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Trace Gas Stripping Deaerator. This system combines vacuum stripping and inert gas stripping to offer a unit that operates with the mass transfer process being assisted by a small quantity of inert gas admitted into the deaerator column.

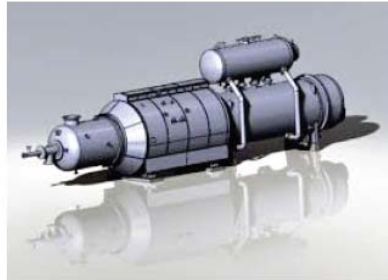




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### E - 04 - INCINERATOR



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Incinerator. Gas incinerators are used to burn hazard waste gases completely. It could be replaced by flare system to burn the flare gas completely. Incinerator has a capability to join to HRSG (Heat Recovery Steam Generator) to produce steam up to 20 bars.

#### Advantage:

- High combustion efficiency
- Low emission
- Produce steam up to 20 bar
- Reduce fuel cost VS. steam generation

#### Applications:

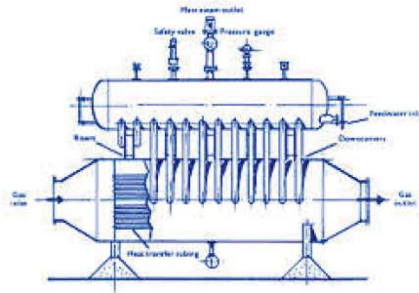
- Desalting units
- Gas refineries
- Tail gas unit treatment
- Oil refineries
- Petrochemical plants
- Flare system





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### E - 05 - WAST HEAT BOILER (FIRE TUBE)

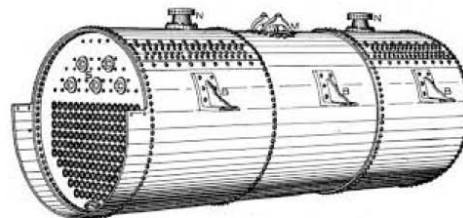


Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Waste Heat Boiler(Fire Tube). this type of Boiler is also known as heat recovery boiler or process gas cooler. this plant takes hot flue gas and Produce LP or MP steam up to 20bar for the following plant:

- Sulfur recovery unit
- Incinerators
- Small gas turbine
- Furnaces

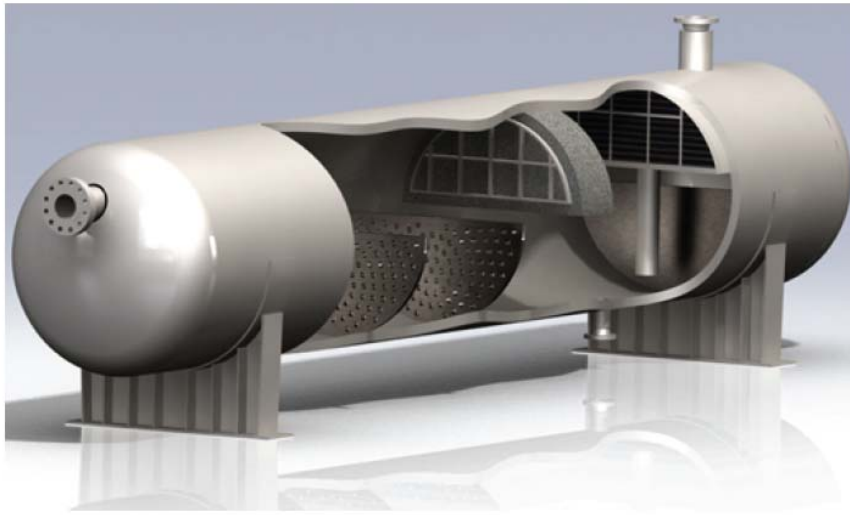
#### Advantage:

- Heat recovering from high temperature exhausts flue gas
- Producing LP or MP steam up to 20bar with high purity
- Reducing flue gas temperature in stack
- Reducing refractory cost of stack
- Reduce heat emission to atmosphere



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### E - 06 - THREE PHASE SEPARATOR (Oil/Water/Gas)



Taravosh Jam Co. is an Iranian EPC contractor for fabrication of the Three Phase Separator. The three phase separator is designed to separate a measure water, gas and oil rates. The separators are equipment with internal components that facilitate and improve the phase separation and with complete instrumentation and control valve that allow us to provide our customers with accurate information concerning the well performance of oil wells.

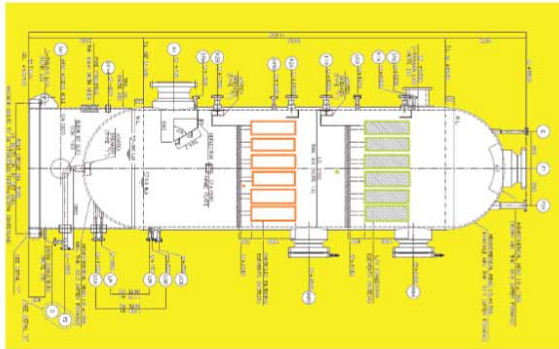
**Features:**

- High pressure separators with best cladding
- Min Water ppm on oil/ min. ppm oil in waste water
- Sand removal to provide best maintenance period



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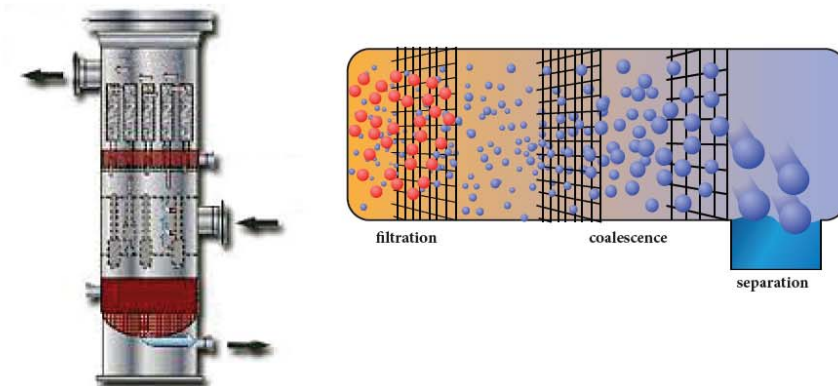
### E - 07 - GAS FILTER COALESCER



Taravosh Jam is the Iranian EPC contractor for fabrication of the Gas Filter Coalescer. Technology consists of solids filtration, coalescence and separation.

**Principal Of Operation:**

The first step is to remove the solid contaminants using a cartridge filter. Solids can increase the stability of an emulsion and can plug the coalescer, thereby reducing its efficiency. Removing solids will precondition the fluid for optimum coalescer performance. During coalescence, the droplets to be separated from the bulk fluid are captured by the high-performance coalescer medium. The droplets then move through the coalescer media (with progressively larger pores) and are coalesced to form larger droplets. Lastly, the large droplets are released. After the droplets are released from the media, the phases are separated either by phase separators or by gravity in the settling zone.



## E - 08 - SAMPLING COOLER



Taravosh Jam is the Iranian EPC contractor for fabrication of the sampling cooler. This equipment is a heat exchanger for cooling of boiler water , steam , process samples such as crude oil, gas and any chemical fluid . The following equipment could be also supplied in order to complete the sampling equipment:

- Simplified Cubicle (enclosure of sampling rack)
- Press Reducer & Safety Valve
- Thermometer & Pressure Indicator
- Flow Indicator & Flow Meter
- Analyzer & Transmitter



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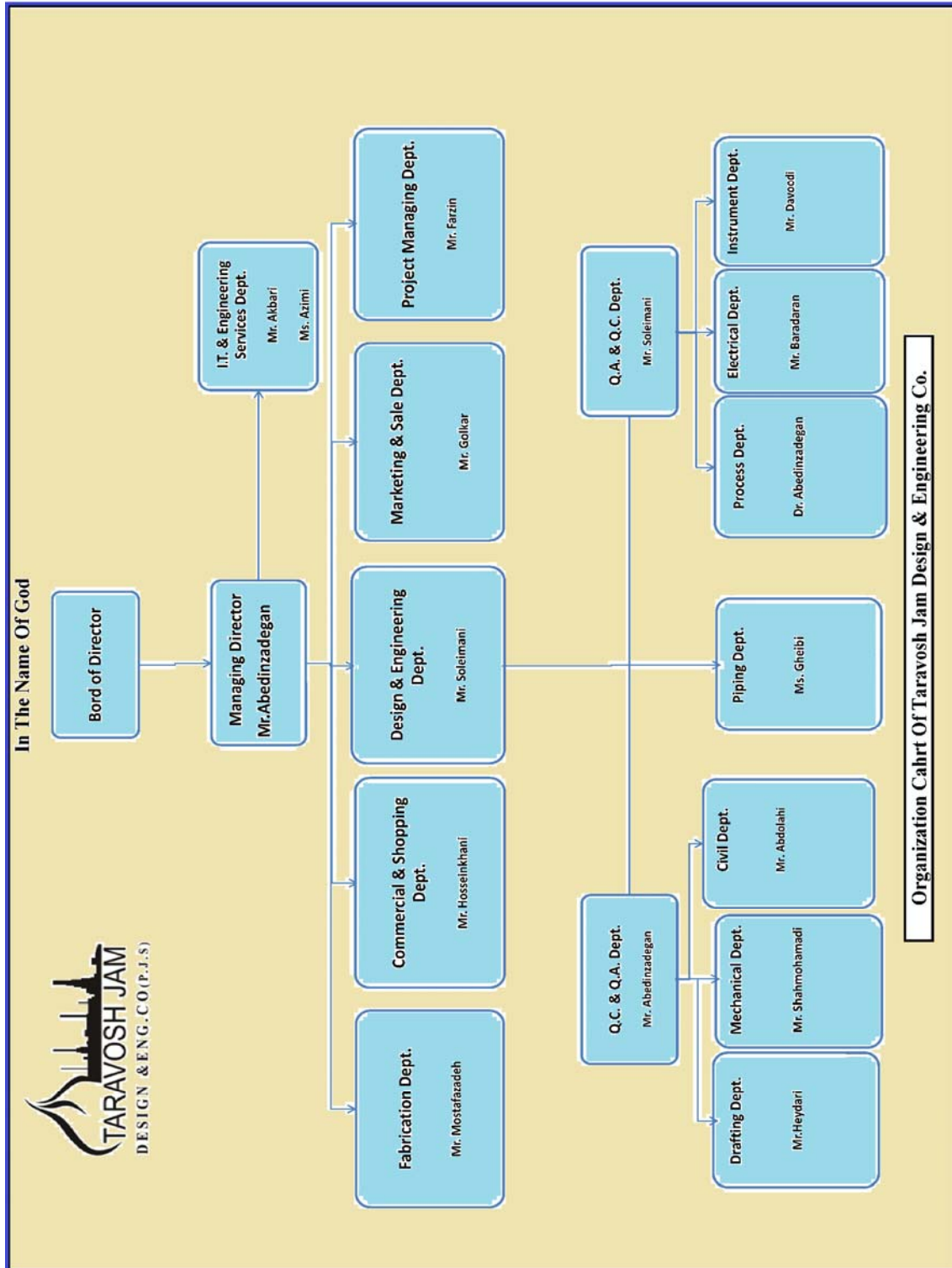
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## Chapter2

# *Organization Chart*

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## Chapter3

# *Personal Description of the Key Engineers*

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### Personal Description

#### A- PERSONAL DATA

Family Name : Abedinzadegan Abdi  
Name : Hamid  
Date of Birth : 27.6.1962  
Marital Statu : Married  
Experience : 22 Years



#### B- PERSONAL EXPERIENCE

##### 1. Sept. 1988- Feb. 1989

AZAR-AB industrial Co.  
Design & engineering Department  
Pressure vessel & Equipment design section  
Mechanical design engineer: Design review of no. 33 pressure vessels with Max. 20 barg design pressure and Max. 33 mm thickness for Isfahan lube oil (N.I.O.C) as design engineer . (applied code was ASME section VIII Div.1)  
Total weight of vessels : 200 tons .

##### 2. Feb. 1989-Oct. 1991

AZAR-AB Industrial Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Mechanical design engineer : Design review of no. 28 thick wall pressure vessels with Max. 89 barg. design pressure and Max. 107mm for Kangan gas refinery (N.I.G.C) as design engineer.  
(applied codes were ASME section VIII. Div 1 & BS 5500).  
Total weight of vessels : 2000 tons .

##### 3. Oct. 1991- Sept. 1992

Krupp Industrietechnik GmbH (Germany ;Duisburg )  
Design engineering Department  
Design engineer: Design of various components and complicated equipment  
By using of finite element software such as : SAP – ANTRASS – ASKA , as Assistant of design engineers.



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### **4. Sept. 1992- Jan. 1993**

**AZAR-AB Industrial Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Manager of pressure vessel section: Design of no. 7 pressure vessels with  
Max. 47 barg design pressure and Max. 37 mm thickness for utility of crystal  
melamine (N.I.P.C). (applied code was ASME section VIII. Div.1)  
Total weight of vessels : 220 tons .**

### **5. Jan. 1993- July 1993**

**AZAR-AB Industries Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Manager of pressure vessel section: Design of no. 8 pressure vessels with  
Max. 20 barg design pressure and Max. 22 mm thickness for Butachlor Arak  
(N.I.P.C). (applied code was ASME section VIII. Div.1).  
Total weight of vessel :180 tons.**

### **6. July1993- Feb. 1995**

**AZAR-AB Industries Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Manager of pressure vessel section: Design of no. 23 storage tanks, material  
S.S. and c.s. for butachlor arak (N.I.P.C.)  
(applied code API 650). Total weight of tanks: 470 tons .**

### **7. Feb.1995- March 1996**

**AZAR-AB Industrial Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Manager of pressure vessel & equip. sec. : Design of no. 33 storage tanks,  
c.s. material, fixed & floating roof tanks (N.I.P.C). (applied code was API 650 &  
API 620). Total weight of vessels : 2300 tons.**

### **8. March 1996-Feb. 1997**

**AZAR-AB Industrial Co.  
Design & Engineering Department  
Pressure vessel & Equipment Design Section  
Manager of pressure vessel & equip. section: Design of one 1.33 million  
barrel storage tank, high strength c.s. material (A537-Gr I) floating roof tank for  
I.O.O.C. (applied code was API 650). Total weight of vessels : 4000 tons.**



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### **9. Apr. 1997- Dec. 1997**

**AZAR-AB Industrial Co.**  
**Design & Engineering Department**  
**Pressure vessel & Equipment Design Section Manager of pressure vessel & equip. section: Design of no. 2 tall towers with Max. 30 barg pressure and Max. 37 mm thickness for Sarkhoon gas refinery (N.I.G.C). (applied code was section VIII Div.1)**  
**Total weight of vessels : 120 tons.**

### **10. Feb. 1997- Jun. 1998**

**AZAR-AB Industrial Co.**  
**Design & Engineering Department**  
**Pressure vessel & Equipment Design Section**  
**Manager of pressure vessel & equip. section: Preparing a practical work for selection of suitable technology and also programming ten years (from 1998 to 2007) plan and strategy for AZAR-AB Ind. Co.**

### **11. Jun. 1998- March 1998**

**AZAR-AB Industrial Co.**  
**Design & Engineering Department**  
**Research & development Dept.**  
**Manager of research & development: Research & Development about Design & Fabrication of boiler accessories such as: silencer or chemical dosing, etc.**

### **12. March 1998- Present**

**FANN AZMAYAN POOYA (FAP) Design & Engineering Co.**  
**Deputy of Managing Director/Member of the Board/Head of Eng. Dept.:**  
**He works as fully integrated and responsible for the private joint stock activity in FAP team.**

## **C- EDUCATION**

**B.Sc. : Mechanical engineering**  
**1979 : Polytechnic university of Technology, Tehran, Iran**

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### **D- SPECIAL TRAINING COURSES**

Special training courses as follows :

Pressure vessel & Heat exchanger design by Japanese company (J.S.W.) in Japan (360 Hr) in 1989.

Structural design of Boiler plant by Japanese company (I.H.I) in Tehran Japanese company IHI in Japan (500 Hr) 1990.

Mechanical & structural design of industrial plant parts by using finite element program in KRUPP INDUSTRIE TECHNIK GmbH in Germany (1 year) 1991-1992.

### **E- COMPUTER SKILLS**

Finite element stress analysis software : ASKA, SAP 90.

Drafting software: Auto-Cad (release 14)

Mathematical & graphic packages: EXCELL, WORD.

Operating systems: DOS, WINDOWS 3.11, WINDOWS 95 and NT

Programming language: FORTRAN, BASIC

Programming capability in Quick Basic concerning to ASME Sec.VIII Div.1

### **F- STANDARDS**

ASTM, ASME, ANSI, API, BS, ISO, NFPA, AWS, AISI, AISC, MSS, ISA, JIS, DIN, TRD, AD-Markblätter.

### **G- FOREIGN LANGUAGES**

He has good command in written & spoken in English and German languages.

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تاریخ: ۲۷/۱۲/۱۷  
شماره: ۱۹۵۳۹  
پست:



برفح ا... الذین آمنوا منکم والذین اتوا العلم درجات  
آرژوش

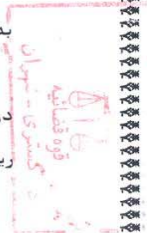
### گواهی میشود

خواجه حمید عابدین زادگان فرزند مرتضی دارای شناسنامه شماره ۱۱۶۱ صادره برادر از تهران متولد سال ۱۳۴۱ در تاریخ شهریور ۶۷ دوره تحصیلات کارشناسی (مهندسی) در رشته مهندسی مکانیک (حرارت و سیالات) از دانشکده مهندسی مکانیک دانشگاه صنعتی امیرکبیر (پلی تکنیک تهران) را با میانگین کل ۱۵/۲۴ پانزده و بیست و چهار صد به پایان رسانیده و به اخذ درجه کارشناسی (لیسانس) نائل گردیده است.

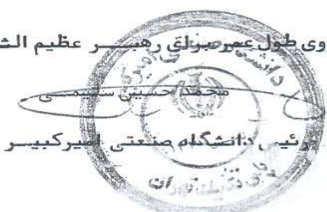
نامبرده در مدت تحصیل جمعا "بهدت" ۴ سال از مزایای آموزش رایگان بهره مند بوده و ۴ صدقه خدمت در ایران دارند. ضمنا "در مدت تحصیل جمعا" مبلغ دویست و چهل هزار ریال (۲۴۰۰۰۰) ریال از کمکهای صندوقهای رفاه دانشجویان بصورت وام بهره مند بوده است.

این گواهی فقط به منظور استخدام در ایران صادر شده و ارزش دیگری ندارد. دانشنامه و اصل مدارک تحصیلی نامبرده پس از انجام تعهد خدمت مربوط به مدت ۴ سال و استهلاك بدهی وامهای دریافتی و اعلام وزارت فرهنگ و آموزش عالی مبنی بر بلامانع بودن ارائه مدارک تحصیلی صادرخواهد شد. پس از استخدام لازم است ماهانه معادل میزان دریافتی تا استهلاك بدهی به حساب شماره ۲۰۱۱۱۴ صندوقهای رفاه دانشجویان نزد بانک ملی ایران واریز و فیسش پرداخت به صندوقهای رفاه دانشجویان ارسال گردد.

ضمنا "برای دریافت دانشنامه این گواهینامه باید مسترد گردد ۰٪ این گواهی برای ترجمه و خارج از ایران هیچگونه ارزش و اعتباری ندارد.



با آرزوی طول عمر و عزیزی رهبر عظیم الشان انقلاب



## TARAVOSH JAM Presentation



# IHI

Ishikawajima Harima Heavy Industries Co., Ltd.

No. 1005

Date 15 March 1990

## Certificate

*This is to certify that*

MR. HAMID ABEDINZADEGAN

*has completed the technical training  
course of our company in the field of*

Engineering and Design Course

1. Basic Design of Boiler Steel Structure
2. Strength Calculation by Computer for Steel Structure
3. Basic Knowledge of Material Quality

*from* 1 December 1989 *to* 15 March 1990

  
Hiroshi Yanuki  
Associate Director &  
General Manager  
Boiler Plant Division

**TARAVOSH JAM Presentation**



**JSW**

**THE JAPAN STEEL WORKS, LTD.  
MURORAN PLANT**

**TRAINING CERTIFICATE**

**4th AUG., 1989**

**MR. HAMID ABEDINZADEGAN**

We hereby certify that Mr. Hamid Abedinzadegan completed the training on Design Engineering of Pressure Vessels and Heat Exchangers in the Muroran Plant of The Japan Steel Works, Ltd., which was performed in July 1989 up to Aug., 1989.



**Yohei Nambu  
General Manager,  
Pressure Vessel & Structure Department**





## TARAVOSH JAM Presentation



### KRUPP INDUSTRIETECHNIK

Duisburg, 15.01.1992

Mr. Hamid. Abedinzadegan Abdi, Design Engineer of Mach. Sec, is performing an apprentice ship in the design department for statical calculations since October 1, 1991.

Mr. Abdi executed statical calculations of various components, at first simpler structures "by hand" and later more complicated items with a frame-type computer programm. He shows great interest in his work and is making good progress in the understanding of the different approaches to structural engineerig.

His progress in the comprehension of the German language is satisfactory.

His politeness and behaviour makes him a well liked guest in my department.

FT 13 - Grote -

## TARAVOSH JAM Presentation



### KRUPP INDUSTRIETECHNIK

Duisburg, den 30. September 1992

#### Praktikantenzugnis

Herr Hamid Abedinzadegan-Abdi, geboren am 27.06.1962 in Teheran/Iran, war vom 01. Oktober 1991 bis zum 30. April 1992 in unserer **Abteilung Technik/Konstruktion Stahlbau innerhalb der Sparte Fördertechnik** als Praktikant tätig.

Zunächst wurde er mit der Bearbeitung einfacher statistischer Systeme - der Ermittlung der Beanspruchungen und Nachweise der Tragfähigkeiten - vertraut gemacht.

Dabei arbeitete sich Herr Abedinzadegan-Abdi in die entsprechenden Normen (BG 86, ISO 50 49/1, DIN 18 800 und zugehörige) für die Konstruktion von Geräten des Tagebaus und der Umschlagtechnik ein. Weiterhin benutzte er tiefergehende Rechensysteme für komplizierte und komplexe Stabwerke.

Herr Abedinzadegan-Abdi führte die ihm übertragenen Aufgaben zu unserer vollen Zufriedenheit mit viel Interesse und Eigeninitiative durch.

Ab dem 01. Mai 1992 bis zum 30. September 1992 wurde Herr Abedinzadegan-Abdi in der **Abteilung Technische Mechanik innerhalb der Sparte Systemtechnik** mit modernen Verfahren der Strukturanalyse von komplexen Systemen des Maschinenbaus vertraut gemacht.

Aufgrund seiner sehr guten Ausbildung und guter Vorkenntnisse hat sich Herr Abedinzadegan-Abdi auch hier unter Anleitung in der relativ kurzen Zeit in das Handling moderner FEM-Programme im Bereich der mittleren Datentechnik mit ihren graphischen Pre- und Postprozessoren zügig eingearbeitet.

So konnte ihm die Berechnung einer komplizierten flächen- bzw. volumenhaften Tragstruktur aus dem Bereich hochgenauer optischer Teleskope übertragen werden, die er zur vollen Zufriedenheit ausführte.

Herr Abedinzadegan-Abdi hat gezeigt, daß er den Umgang mit großen Programmpaketen und vernetzten Rechnerwelten mit verschiedenen Betriebssystemen schnell erfassen kann, so daß er zukünftig in der Lage sein wird, modernste Berechnungsverfahren auch in anderen Umfeldern erfolgreich anzuwenden.

Wir wünschen Herrn Abedinzadegan-Abdi, der auch persönlich ein sehr angenehmer Mitarbeiter war, für seinen weiteren Werdegang alles Gute.

KRUPP INDUSTRIETECHNIK GMBH

 KRUPP INDUSTRIETECHNIK GMBH  
Duisburg-Rheinhausen

FORM B5185 3/92

Franz-Schubert-Straße 1-3  
D-4100 Duisburg 14  
Telefon 0 20 651 78-0  
Telex 855 486-43 k.r.d.  
Teletex 0 20 65 3943 = KIDU  
Telefax 0 20 651 78-28 90  
Telegramm krupp rheinhausen

Krupp Industrietechnik GmbH  
Vorsitzender des Aufsichtsrates: Dr.-Ing. E. h. Gerhard Neipp  
Sitz der Gesellschaft: Duisburg - Handelsregister, Amtsgericht Duisburg, Abt. B-Nr. 3462  
Geschäftsführung: Heribert J. Wiedenhus (Vorsitzender)  
Dr. rer. pol. Reinhold Glück - Dipl. Ing. Lorfer Mohn - Hans-Jürgen Herbat - Dipl. Soz. Rudolf Köchmeister  
Dr. rer. pol. Bodo Schultheiß - Anton Schwarzinger



# TARAVOSH JAM Presentation



## VELOSI TIV BAYERN



*This is to certify that*

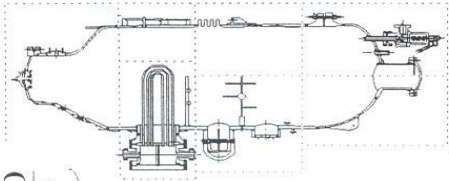
**MR. HAMID ABEDIN-ZADEGAN**

OF FANN AZMAYAN POOYA DESIGN & ENGINEERING CO.

*has successfully attended the following course*

**ASME SEMINAR**

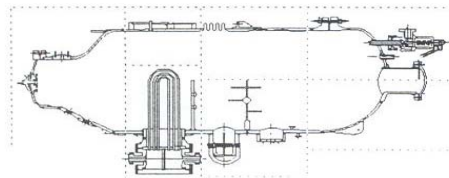
**HELD ON FEB. 14, 15, 16, 1999 AT TEHRAN, IRAN**



GENERAL MANAGER

A handwritten signature in black ink, appearing to read 'Hamid Abedin-Zadegan'.

Date May 01, 1999



CERT 002

# TARAVOSH JAM Presentation



تاریخ صدور: ۷۳/۳/۲۳  
شماره: ۱۴۷۳

وزارت صنایع معدنی  
سازمان گسترش و نوسازی صنایع ایران

شرکت صنایع آذرآب

باستناد قرارداد استخدامی با شرکت کروب - گواهی می نمایم:  
آقای حمیدعباسدین زادگان - فرزند مرتضی - شماره شناسنامه ۱۱۶۱ -  
متولد سال ۱۳۴۱ - محل تولد تهران - دریاخ ۷۱/۷/۵ -  
دوره آموزش طراحی سازه های فلزی و راب مشظور نیل به استنادار دمطلوب  
استراکچر - شرکت کروب آلمان - جعبه میزبان ۳۱۵۰ (دو هزار و یکصد و ساعت  
بامهویت پایان رسانیده است.

مدیر آموزش پروژه مبتنی بر آذرآب

م/

# TARAVOSH JAM Presentation

  
  
صنایع آذرباب

  
وزارت صنایع مکنین  
سازمان گسترش و نوسازی صنایع ایران  
**شرکت صنایع آذرباب**

تاریخ صدور: ۲۳/۳/۲۲

شماره: ۱۴۷۴

باستناد گواهی صادره بشماره ۱۱۰۰۵ از دفتر گواهی می نماید:

آقای حمیدعابدین زادگان عبدی فرزند مرتضی شماره شناسنامه ۱۱۶۱

متولد سال ۱۳۴۱ محل تولد تهران تاریخ ۶۸/۱۲/۲۴

دوره آموزش طراحی پایه اسکلت فلزی بویلر منظور نیل به استاندارد مطلوب

در محل دفتر مرکزی آذرباب جمعا به میزان ۲۶۴ (دویست و شصت و ساعت چهار)

باموفهتت بپایان رسانیده است

مدیر آموزش و پرورش صنایع آذرباب

۴/

## TARAVOSH JAM Presentation



### Personal Description

#### A- PERSONAL DATA

Family Name : Soleimani  
Name : Mehran  
Date of Birth : 22.01.1963  
Marital Status : Married  
Experience : 22 Years



#### B- PERSONAL EXPERIENCE

##### 1. Oct. 1988-July 1990

**AZAR-AB industrial Co.**

**Design & engineering Department Thermal design section**

**Basic design engineer: He has instructed at thermal design section covering all kind of basic design calculation of Package, Industrial and Utility Boiler plants (Duty, performance, furnace exit temp., press. drop , metal temp. , life time ,control valve selection ,stack dimension ,etc.) in order to work and carry out**

**“ Shahid-Rajai Thermal Power Plant “ project in the team work .**

**Shahid Rajai Power Plant: 4x250 MW (4x840 T/hr) Boiler 146 Bar @ 540 ° C**

##### 2. July. 1990-Dec 1991

**AZAR-AB industrial Co.**

**Design & engineering Department**

**Thermal design section Manager of Basic Design Section: He has instructed and then was responsible for the thermal and basic design of Package, Industrial and Utility Boiler Plants. The technical proposal and price schedule of boiler plants also prepared in this section. The following projects have been proceeding during his responsibility in this section:**

- Abadan Petrochemical Co. : 3x40 T/hr Boilers, 19 Bar @ 208 ° C
- Isfahan Refinery : 1x227 T/hr Boiler, 45 Bar @ 395 ° C
- Lavan Petrochemical Co. : 2x25 T/hr Boilers, 41 Bar @ 385 ° C

## TARAVOSH JAM Presentation



### 3. Aug 1990-Oct 1992

D-babcock (Germany ;Oberhausen )

Basic & process section:

He was in a position, together with a technical manager, to perform boiler's equipment arrangement planning for different boiler plant

(Fire tube, Package & utility boilers).

- Basic design
- Mechanical design
- Detail design
- Quality control
- Commissioning
- Burner

### 4. Dec.1992- March 1998

AZAR-AB Industrial Co.

Design & Engineering Department Process Design Section

Process design group manager: He has instructed at process design section covering commissioning analysis, Layout drawings, flow diagram ,P&I diagram ,

Purchasing all main equipment (f.d.fan, burner, pumps, turbine driver, sampling equipment, deaerator, chemical pumps, and water softening equipment, flash &blow down tanks) and boiler manual in order to work and carry out the projects in the team work such as:

- Kharg Petrochemical Co. : 2x50 T/hr Boilers , 21 Bar @ 316 ° C
- Razi Petrochemical Co. : 1x73.5 T/hr Boiler, 26 Bar @ 288 ° C
- Alumina Plant Jajarm : 3x40 T/hr Boilers , 18 Bar @ 221 ° C
- Shiraz Petrochemical Co. : 1x110 T/hr Boiler , 42 Bar @ 450 ° C
- Arak Refinery : 1x227 T/hr Boiler , 45 Bar @ 395 ° C
- Shiraz Refinery : 2x120T/hr Boilers, 41 Bar @ 380 ° C
- Methanol Kharg Co. : 2x60 T/hr Boilers , 39 Bar @ 390 ° C
- Khangiran Gas Treating Plant : 2x90.7T/hr Boilers,37 Bar @ 321 ° C
- Bidboland Gas Treating Plant : 1x83.8T/hr Boiler , 37 Bar @ 321 ° C
- Montazer Ghaem Heat : 5x170 T/hr Boilers,80 Bar @ 540 ° C

(Joint with Foster Wheeler, Spain)

Recovery Power Plant



## **TARAVOSH JAM Presentation**

### **5. Nov 1996-Aug 1997**

Moshanir Co. (Part Time)  
Heat Recovery Department

He was consult engineer for tender preparation for flowing project:

- Kish island : 1x83T/hr Boiler, 10 Bar @ 190 ° C

Recovery Power Plant

### **6. March 1998-Present**

#### **FANN AZMAYAN POOYA (FAP) Design & Engineering Co.**

Member of the Board/Project Manager: He works as fully integrated and responsible for the private joint stock activity in FAP team.

### **C-EDUCATION**

**B.Sc.** : Mechanical engineering (thremal &fluid)  
1984-1988 Isfahan technical university

**M.s.c.** : Mechanical engineering (conversion energy)  
1988-1990 Tabriz technical university

### **D- SPECIAL TRAINING COURSES**

He had successfully performed following special training courses:

- Boiler basic design training course : I.H.I. Co., AZAR-AB Ind. Co. (360 hr, 1989)
- Boiler O.J.T. design course : I.H.I. Co., AZAR-AB Ind. Co. (SC Type up to 200 t/h)  
(200 hr, 1990)
- Boiler plant design course : I.H.I. Co., AZAR-AB Ind. Co. (SD Type up to 360 t/h)  
(200 hr, 1991)
- Boiler basic & plant design course : D-babcock., Germany (15 months, 1992)
- Boiler plant design course : I.H.I. Co., AZAR-AB Ind. Co. (200 hr, 1993)
- Managing training course : AZAR-AB Ind. Co , (40 hr, 1997)



## ***TARAVOSH JAM Presentation***

### **E- COMPUTER SKILLS**

**He is capable to work and use below mentioned computer systems & programs**

- **Basic design & analysis software:**

**Duty, Performance, Circulation, Press drop, Metal temp**

- **Drafting software: Auto cad (release 14),**

**Mathematical & graphic packages: EXCEL, MATLAB, and WORD**

- **Operating systems: DOS, Windows 95 and NT**

**Special software: control valve & safety valve sizing program, DELTAP,  
Electrical tracing calculation, Pump & Fan Sizing**

- **Programming language: FORTRAN, BASIC**

### **F- STANDARDS**

**He is also capable to work and design with below mentioned standards:**

**ASTM, ASME, ANSI, API, BS, ISO, NFPA, JIS, DIN, TRD.**

### **G- FOREIGN LANGUAGE**

**He has good command in written & spoken in English and German languages.**

**Personal Description**

# TARAVOSH JAM Presentation



جمهوری اسلامی ایران  
وزارت نفت



برای اطلاع بیشتر از امکانات شرکت ما با یکبار زنگ بزنید به شماره ۰۲۱۷۷۷۷۷۷۷۷

بیت الله المکرم العالی کرام الله تعالی

## دانشگاه صنعتی خواجه نصیر

وزارت نفت ایران

دو رویت  
تصویر بر اثر اسکن است  
و طبق کلیه ضوابط شرکت صنعت نفت

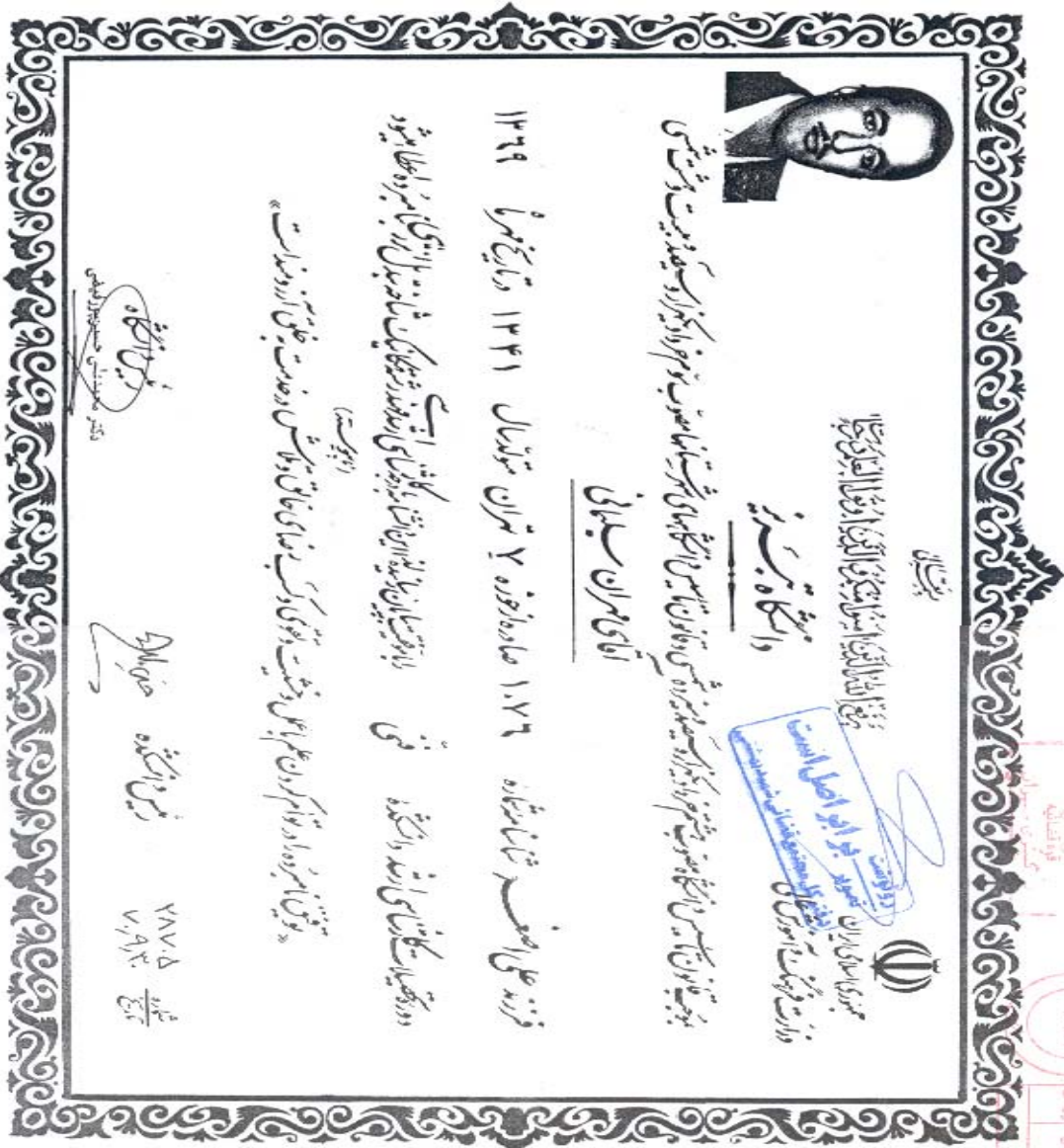
آقای تهران سلیمان فرزند علی هنر شناسه ۱۳۶۶ صادره تهران متولد سال ۱۳۴۱


در تاریخ تیر ماه ۱۳۶۷ دوره تحصیلات ابتداء بنده تکلیف را با موفقیت بنیادین بنیانید

لذا این دانش نامه با درجه کارشناسی در رشته مهندسی مکانیک  
 (مکانیک ادوات و پمپا)  
 توفیق شایسته او را در کمربند مهندسی و تخصصی در زمینه مکانیک محض و انرژی آرزو داریم

پیشانی شایسته  
 دکتر سید حسن حسینی  
 رئیس هیئت مدیره

# TARAVOSH JAM Presentation





پیشانی

مجلس شورای اسلامی استان البرز

دانشگاه تبریز

وزارت فرهنگ، آموزش عالی و امور دانشجویان

جمهوری اسلامی ایران

دانشگاه تبریز

پوینت نوبل تبریز

دانشگاه تبریز

فرزند علی اصفیاء شانا شاهزاده ۱۰۲۶ هجری قمری ۱۳۴۱ در تاریخ مهرماه ۱۳۶۹

با توجه به این نامه و با توجه به اینکه این دانشجو در رشته مهندسی عمران در مقطع کارشناسی در دانشگاه تبریز در سال ۱۳۹۳ با معدل ۱۷٫۹۳ فارغ التحصیل شده است.

توقیف این نامه در دفتر کار این دانشجو در تاریخ ۱۳۹۳/۰۹/۲۳ در صورت فعلی از طرف وزارت

دانشگاه تبریز

رئیس دانشکده عمران

۷۸۷۵  
۷۰۹۳

۱۰۰۰۱۳

۰۰۰۰۰۲۰۰

۰۲۷۷۵۴۱۰۵۵

## TARAVOSH JAM Presentation



# BABCOCK

**BABCOCK LENTJES  
KRAFTWERKSTECHNIK  
GMBH**

### ZEUGNIS

Herr Mehran Soleymani, geboren am 22.01.1963 im Iran, war vom 01.11.1992 bis zum 29.09.1993 in unserem Unternehmen als Trainee tätig. In dieser Zeit hatte Herr Soleymani durch aktive Mitarbeit die Möglichkeit, seine Fachkenntnisse anzuwenden, zu vertiefen und zu erweitern sowie Organisation und Arbeitsablauf bereichsübergreifend kennenzulernen. Sein Einsatz verlief wie folgt:

01.11.1992 - 08.11.1992	Einführung in die Omnical - Organisation
09.11.1992 - 31.12.1992	Basic Engineering, Dreizug- und Strahlungs- kessel
01.01.1993 - 30.04.1993	Konstruktion und Abwicklung, Strahlungs- kessel und Umbau
01.05.1993 - 30.06.1993	Betrieb, Arbeitsvorbereitung, Fertigung
01.07.1993 - 31.07.1993	Qualitätskontrolle
01.08.1993 - 31.08.1993	Kraftwerkstechnik
01.09.1993 - 29.09.1993	Brennertechnik

Herr Soleymani hat die ihm gebotene Möglichkeit einer sorgfältigen praxisnahen Fortbildung wahrgenommen. Er zeigte während dieser Zeit großes Interesse und rege Mitarbeit. Sein Verhalten war jederzeit einwandfrei.

Wir wünschen Herrn Soleymani für die Zukunft alles Gute.

46049 Oberhausen, 29. September 1993

**BABCOCK LENTJES KRAFTWERKSTECHNIK GMBH**

Aufsichtsrat: Dr. rer. pol. Heyo Schmiedeknecht, Vorsitzender; Geschäftsführung: Dipl.-Ing. Siegfried Kostrzewa, Vorsitzender; Dr.-Ing. Jörgen Brauckmann;  
Dr. rer. pol. Dieter Dänzler; Dipl.-Ing. Volker Hoppe; Dipl.-Ing. Rainer Schumacher.

**Sitz der Gesellschaft:**  
Duisburger Str. 375  
4200 Oberhausen 1  
Postanschrift:  
Postfach 10 03 47-48  
4200 Oberhausen 1

Reg.-Gericht:  
Oberhausen  
HRB 2273  
USt.-IDNr.  
DE 811 264 753

Telefon:  
(02 08) 8 33-0  
Telefax:  
8 56 95 1 dbab d  
Telefax:  
208 313 dbab

Telefax:  
(02 08) 2 60 91  
Telegramme:  
babcock  
oberhausenheint

Deutsche Bank AG, Oberhausen  
Dresdner Bank AG, Oberhausen  
Commerzbank AG, Oberhausen  
Stadtparkasse Oberhausen  
LZB in NRW, Oberhausen  
Postbank Essen

Kto.-Nr. 4 181 517  
Kto.-Nr. 3 643 001  
Kto.-Nr. 4 003 000  
Kto.-Nr. 101 014  
Kto.-Nr. 36 508 022  
Kto.-Nr. 133 33-431  
BLZ 365 700 49  
BLZ 365 800 72  
BLZ 365 400 46  
BLZ 365 500 00  
BLZ 365 000 00  
BLZ 360 100 43



# TARAVOSH JAM Presentation



تاریخ صدور: ۲۸/۸/۱۳۷۱  
شماره: ۱۶۱

وزارت صنایع مینین  
سازمان گسترش و نوسازی صنایع ایران

شرکت صنایع آذرآب

باستناد تأییدیه دفتر I.H.I. گواهی می نماید:

آقای **مهران سلیمانی** فرزند **علی اصغر** شماره شناسنامه **۱۰۷۶**  
متولد سال **۱۳۴۱** محل تولد **تهران** در تاریخ **۱۱/۱۱/۶۹**  
دوره آموزش **طراحی پایه** را به منظور نیل به استاندارد مطلوب  
در محل **واحد آموزش شرکت آذرآب جمعا بیزران** **۱۶۰** ساعت  
باموفقیت پایان رسانیده است.

مدیر آموزش و پژوهش آذرآب  
**حسین پورلی**

Boiler Basic Design  
IHI- Iran (AZARAB)  
960 Hours

# TARAVOSH JAM Presentation



تاریخ صدور: ۲۳/۳/۲۳  
شماره: ۱۴۶۰

وزارت صنایع معدنی  
سازمان گسترش و نوسازی صنایع ایران  
صنایع آذرباب

## شرکت صنایع آذرباب

باستناد قرارداد استفاده با شرکت گواهی می نماید:

آقای مهران سلیمانی بابکوک آلمان  
فرزند علی اصغر شماره شناسنامه ۱۰۷۶

متولد سال ۱۳۴۱ محل تولد تهران در تاریخ ۲۲/۷/۴

دوره آموزش سیستمها و تجهیزات بویلر را به منظور نیل به استاندارد مطلوب

در محل شرکت بابکوک آلمان جمعا به میزان ۲۱۵۲ ساعت (دو هزار و یکصد و پنجاه و دو)

با موفقیت پایان رسانیده است.

مدیر آموزش و پژوهش آذرباب

Boiler System & Equipment  
D-Babcock\_Germany  
2152 Hours

# TARAVOSH JAM Presentation



تاریخ صدور: ۷۷/۸/۹  
شماره: ۳۸۹۷



وزارت صنایع  
سازمان گسترش و نوسازی صنایع ایران

شرکت صنایع آذرآب

باستناد و تأییدیه امور اجرایی و احداث آموزش - کواچی می نمایم:

آقای مهران سلیمانی - فرزند علی اصغر - شماره شناسنامه ۱۰۷۶  
متولد سال ۱۳۴۱ - محل تولد تهران - دبیرانخ ۷۲/۱۲/۱۶  
دوره آموزش PLANT - رایب منظور - نیل به استاندارد مطلوب  
در محل دفتر مرکزی شرکت صنایع آذرآب تهران - (۱۴۴) ساعت  
یکصد و چهل و چهار  
باموفیقت بپایان رسانیده است



Boiler Plant & main Equipment Design  
IHI- Iran (AZARAB)  
960 Hours



# TARAVOSH JAM Presentation



تاریخ صدور: ۷۷۶۴۴  
شماره: ۱۳۴۱/۱۸۱۴



وزارت صنایع  
سازمان گسترش و نوسازی صنایع ایران

شرکت صنایع آذرآب

باستناد گواهی سازمان مدیریت صنعتی - گواهی می نماید:

آقای مهران سلیمانی - فرزند علی اصغر شماره شناسنامه ۱۰۷۶

متولد سال ۱۳۴۱ - محل تولد تهران - در تاریخ ۷۶/۱۰/۱۴

دوره آموزش سرپرستی - راپه منظور - نمل به استاندارد مطلوب

در محل سازمان مدیریت صنعتی - جمعا به میزان ۴۲ ساعت

باموفیت پایان رسانیده است



Management Course  
By Industrial Management Co.  
42 Hours

# TARAVOSH JAM Presentation



تاریخ صدور: ۷۷/۱۱/۱۳  
شماره: ۱۸۱۵۷۲/۱

وزارت صنایع  
سازمان گسترش و نوسازی صنایع ایران  
استان صنایع آذربایجان

## شرکت صنایع آذرباب

باستناد گواهی شرکت فستو - گواهی می نماید:

آقای مهرداد سلیمانی - فرزند علی اصغر - شماره شناسنامه ۱۰۷۴

متولد سال ۱۳۴۱ - محل تولد تهران - در تاریخ ۷۴/۱۱/۳۸

دوره آموزش کدیر سور و کادربرد آن را به منظور تسهیل به استاندارد مطلوب در صنعت

در محل شرکت فستو پنوداتیک - جمالیان - ۳۲ ساعت

باموضوعیت پایان رسانیده است

Compressor  
FESTO- Iran  
32 Hours



## TARAVOSH JAM Presentation



### A- PERSONAL DATA

Family Name : : Abedinzadegan Abdi  
Name : : Majid  
Date of Birth : : 10.02.1961  
Marital Status : : Married  
Experience : : 22 Years

Professional Affiliations : Registered Professional Engineer in Alberta,  
Member of the Association of Professional Engineers, Geologist and Geophysicist  
of Alberta (APEGGA), Canada

### B- PERSONAL EXPERIENCE

#### 1.Jan 1999- Present

Research Institute of Petroleum Industries (RIPI)  
National Iranian Oil Company Head of Gas Research Dept.: Supervision of the Gas Research  
Department and project manager of several natural gas treating and gas to liquid conversion  
projects. Also a part time consultant with the FANN AZMAYAN POOYA CO.

#### 2..Jan.1998-Jan 1999

Gas Liquids Engineering Ltd.  
Senior Project Engineer: Consulting work in gas processing and conditioning. Plant review, trouble  
shooting, retrofit design and computer simulation of refrigeration and acid gas removal processes  
using PROSIM, TSWEET and HYSIM process simulators. He was the project manager or  
cooperated in several small to medium size propane refrigeration, amine plants, compressor stations  
and cryogenic projects in Canada, Iran, Lybia, Poland and other countries.

#### 3.May 1997-Dec.1997

The University of British Columbia , Department of Chemical Engineering  
Postdoctoral Fellow: Conducted applied research on the characterization of degradation  
pathways and reaction kinetic studies for gas treating alkanolamine solutions formulated  
from diethanolamine (DEA), methyl diethanolamine (MDEA) and di-isopropanolamine  
(DIPA). Different experimental reaction systems including differential and concentration  
measurements for chemical using gas chromatography, ion chromatography and mass  
spectrometry (GCMS) was used in these projects.

## ***TARAVOSH JAM Presentation***

### **4.May 1993-May 1997**

**The University of British Columbia , Department of Chemical Engineering**  
**Research/Teaching assistant:** Conducting applied research on the development of a novel distillation process for the recovery of diethanolamine from spent solutions used in gas plants; lab instruction, supervision and teaching assistance for several chemical engineering courses (Ph.D. program).

### **5.Sep. 1987-May 1993**

**National Iranian Oil Company, Research Institute of Petroleum Industries**  
**Process Design/Development Engineer:** More than six years of experience in the development of oil and gas processes comprising the design, manufacturing supervision, start-up and trouble-shooting of gas process pilot plants. As the engineer responsible for the development of gas treating processes, he was directly involved in all process design (i.e. calculations, preparation of PFD and P&ID and equipment data sheets), manufacturing supervision, commissioning, start-up and trouble-shooting stages of the work. He has an extensive experience to predict outcomes and successfully translate processes from pilot to production scale.

### **6.Sep. 1986-Sep. 1987**

**N.I.D.I.**  
**Process Design Engineer:** Design calculations on various pieces of process equipment such as evaporators, crystallizers, heat exchangers, and a cooling tower as well as the design and calculations of the feeding system to electrochemical cells of a solid-fuel plant.

### **7.1990-1993**

**Iranian University of Science and Technology Department of Metallurgy and Material Science**  
**Sectional Instructor:** Teaching of Industrial Instrumentation and Fluid Mechanics courses at second and third year level. He also supervised one undergraduate fourth-year project on the design and performance study of hydro cyclones.

## **C- EDUCATION**

- : Department of Chemical Engineering , Ph.D.  
The University of British Columbia, Vancouver, B.C., Canada      May 1993-1997  
M.Sc.: Chemical Engineering,
- 1986-1988    Tehran Polytechnic (Amir Kabir University of Technology), Tehran, Iran  
B.Sc.: Chemical Engineering,
- 1986-1989    Tehran Polytechnic (Amir Kabir University of Technology), Tehran, Iran

## ***TARAVOSH JAM Presentation***



### **D- COMPUTER SKILLS**

- Process simulation software: Extensively worked with the old version of ASPEN (both with Data regression and process simulation modules), MAX, PROSIM and TSWEET, familiar with HYSIM and HYSIS
- Mathematical and graphic packages: SIGMA PLOT, EXCELL, ORIGIN, LOTUS 1.2.3, VISIO, GNU Plot.
- Solid background in numerical analysis.
- Hardware equipment: SUN, Next, PCs
- Programming languages: FORTRAN 77, BASIC (GW and QUIK), some experience with VISUAL BASIC
- Operating systems: UNIX, DOS, WINDOWS 95 and NT

### **E- FOREIGN LANGUAGE**

**He has good command in written & spoken in English Language.**

# TARAVOSH JAM Presentation



# The University of British Columbia

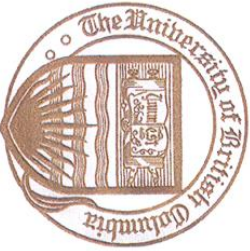
Vancouver, Canada

The Chancellor of The University of British Columbia  
with the approval of the Senate upon the recommendation of

The Faculty of Graduate Studies  
has conferred the degree of  
Doctor of Philosophy  
on

**Muhammad Abedinzahegan Abdi**

In Witness Whereof and by the authority duly committed  
to us we have hereunto set our hand and seal  
November 1997



*[Signature]*  
Registrar

*[Signature]* William L. Sanders  
Chancellor  
*[Signature]* Mark Piper  
President  
*[Signature]* Frieda Conroy  
Dean



Document Name:

***TARAVOSH JAM Presentation***



Chapter4  
*Software*



## TARAVOSH JAM Presentation

No.	Required For	Software	Application
1	Stationary Equipment	1.1- PV-ELITE 1.2- TANK 1.3- Aspen B-JAC 1.4- ANSYS	Pressure Vessel Mechanical design Fixed Roof Storage Tank Mechanical Design Heat Exchangers Mechanical Design Organization Design of Linear & Non-Linear Systems
2	Piping & Plant	2.1- Auto Pipe 2.2-CADWORX 2.3-PDMS	a) 3-D Modeling b) Piping & Equipment Arrangement c) Stress Analysis d) Piping Isometrics Generation e) Bill of material
3	Civil & Steel Structure	3.1- SAP 2000 3.2- ETABS 3.3- SAFE 3.4- STAAD III	Dynamic & Static Analysis of Structures Non-Linear Structures & Buildings Design Foundation Design Structural Design
4	Process	4.1- HTRI 4.2- Aspen HTFS 4.3- Olga 6.0 4.4- PvtSim 18	Thermal Design of : - Oil & Gas Plant - Fired Heaters - Shell & Tube Heat Exchangers - Air Coolers - Boilers
5	Project Control	5.1- PRIMAVERA 5.2- MS PROJECT	a) Project Planning b) Project Scheduling c) Project Controlling d) Reporting
6	Drafting	6.1- AUTOCAD 2008 6.2- AUTOCAD P&ID	For Drafting (Mainly 2-D) For P&ID Drafting
7	General	7.1- WINDOWS XP & Vista  7.2- MS OFFICE	- Microsoft Word - Microsoft Excel - Microsoft Power Point - Microsoft Access
8	Boiler Design		BOILER PROCESS & BASIC DESIGN AND FUNCTIONAL DESIGN SOFTWARE AND PROCEDURES.
9	Deaerator Design		In-House Software, Based on Crane Company's Procedures
10	Storage Tanks (Fixed & Floating Roof)	COADE TANK 3.1	For Mechanical Calculation Storage Tanks
11	Electrical Design	ETAP 6	For Electrical Design
12	Others		In-House Software for Tower Diameter, Safety Valve & Control Valve Sizing, Pressure Drop Calc., etc.

Document Name:

## TARAVOSH JAM Presentation



No.	Device	Type	Description	Qty.
1	Computer	Pentium 4 / 2.4 GHZ	CD drive 52, CDRWNec9400A HDD 40, Monitor 17" LG Flat, 2GB RAM	8
2	Computer	Pentium 4 / 3000 GHZ Athlou 64	DVD CD Rom, RW, HDD 120, monitor LG 17" Flat, VGA. RADEON 7000, 64mb, 2GB RAM	1
3	Computer	Core 2 DUO3	DVD RW, HDD 500, 4Gb Ram	2
4	Note Book	Acer Pentium 4, Intel inside	2GB mb DDR. SD Ram DVD. CD. RW	3
5	Note Book	Sony Vaio GRZ 660	DVD RW.CD. 512 mb DD Ram	2
6	Note Book	HP Pentium 4 Processor	Pavilion zx 5000 ea	1
7	Note Book	Toshiba MK 4021	DVD. CD Rom/HDD	4
8	Note Book	Compaq 716EA	DVD Rom	1
9	Note Book	Fujitso Siemens Esprimo V5505	Dual core 1,6 GHZ Ram 1 GB/HDD 160 GB/DVD RW	4
10	Note Book	Fujitso Siemens Esprimo V6505	Core2DUO 2 Ram 265 GB/HDD 250 GB/DVD RW	8
11	Printer	HP Color Laser jet 5500-A3 COLOR		1
12	Printer	HP Color Laser jet 5200-A3		1
13	Printer	HP 2014		2
14	Printer	HP 1100		1
15	Printer	HP 1200		1
16	Printer	HP 1300		1
17	Printer	HP 1320		2
18	Printer	SAMSUNG A4 COLOR		2
19	Copy Machine	Canon ir1600 A3		1
20	Copy Machine	Sharp SF 7370		1
21	Scanner	HP A4 2100		1
22	Scanner	HP A4 2400		1
23	Scanner	HP A4 5590		1
24	Scanner	HP A4 2400		1
25	Scanner	HP A4 5590		1

Document Name:

***TARAVOSH JAM Presentation***



Chapter5  
*Reference List*

## TARAVOSH JAM Presentation

### In Hand Projects :

ITEM	PROJECT	CLEINT	OWNER	DESCRIPTION	YEAR
1	Pig Launcher	SADRA	POGC PH22/24	ENGINEERING	2012
2	Pig Launcher	SADRA	POGC-PH17&18	ENGINEERING	2012
3	Pig Launcher\Receiver	SAZEH	POGC-PH12	ENGINEERING	2012
4	Fine Filter-RESADAT	SADRA	I.O.O.C.	E.P.C. -530 M3/HR	2012-2013
5	Vacuum Deaerator Sirri	Power Control Co.	I.O.O.C.	E.P.C. -1050 M3/HR	2012-2013
6	Catalyst Recovery BANDAR ABBAS GAS CONDENSATE REFINERY	Faradast Energy Co.	PERSIAN GULF STAR OIL Co.	E.P.C.	2013-2014
7	Vacuum Deaerator YADAVARAN	Jahan Pars Co.	SINOPEC	E.P.C. -95 M3/HR	2013
8	NO.19-Sample Cooler Yadavaran	Sinopec – S.S.K.	PEDEC	E.P.C	2014
9	NO.93-Sample Connection Yadavarann	Sinopec	PEDEC	E.P.C.	2015
10	Commissioning of Steam Plant	Karoon Pet rochemical	N.I.P.C	Commissioning & Design of Control System (Logic)	2015
11	Commissioning of Economizer	Tehran Refinery	N.I.O.C	Finalized Design Document & Management of Erection & Commissioning	2015

Document Name:

***TARAVOSH JAM Presentation***



# Chapter6

# *Standards*



## **TARAVOSH JAM Presentation**

### **Process**

API 12J	Specification for Oil and Gas Separators (Note: Main separation, dehydration and desalters to be based on Vendor design and guarantee.)
API 14 C	Analysis, Design, Installation and Testing of Basic Surface Safety Systems for Offshore Production Platforms.
API RP 14E	Recommended Practice for Design and Installation of Offshore Production Platform Piping Systems
API RP 14J	Recommended Practice for Design and Hazard Analysis for Offshore Production Facilities
API RP 520	Sizing, Selection and Installation of Pressure Relieving Systems in Refineries, part 1 and 2
API RP 521	Guide for Pressure Relieving and Depressuring systems
DnV RP C202	Recommended Practice for relief, depressuring and disposal systems
NACE RP0475-98	Recommended practice for control of internal corrosion in steel pipelines and piping systems

### **Mechanical**

API 2C	Specification for Offshore Cranes
API 9A	Specification for wire rope
API RP 11PGT	Recommended Practice for Packaged Combustion Gas Turbines
API Std 560	Fired Heaters for General Refinery Service
API Std 610	Centrifugal Pumps for General Refinery Service
API Std 613	Special purpose gear unit for refinery services.
API Std 614	Lubrication sealing and control oil systems for special purpose Applications
API Std 615	Sound control of mechanical equipment for refinery service
API Std 616	Gas turbine for refinery service .
API Std 617	Centrifugal compressors for general refinery service
API Std 660	Shell and Tube Heat Exchangers for General Refinery Service
API Std 661	Air cooled Exchangers for General Refinery Service
API std 662	Plate and Frame Heat Exchangers
API Std 670	Vibration, axial position and bearing temperature monitoring
API Std 671	Special purpose coupling for refinery service
API Std 674	Positive displacement pumps - reciprocating
API Std 675	Positive displacement pumps – Controlled volume
API Std 676	Positive Displacement pumps - rotary
API Std 682	Shaft sealing systems for centrifugal and rotary pumps
API Std 1581	Specification and Qualification Procedures for Aviation Jet Fuel Filter / Separators
ASME VIII	Pressure vessel codes divisions 1 and 2
ASME PTC-10	Power Test Code – Compressors and exhausters
ASME PTC-22	Performance Test Code – Gas Turbine Power Plants

## TARAVOSH JAM Presentation

ALEMA 1994	Plate and Fin Heat Exchangers
ISO 1940	Mechanical vibration – Balance requirements of rigid rotors
ISO 3046 part 1,3 -7	Reciprocating Internal Combustion Engines (performance)
ISO 5199	Technical Specification for Centrifugal Pumps – Class II
ISO 8528	Reciprocating Internal Combustion Engine Driven AC Generating Sets
ISO 3662	Hydraulic fluid power pump and motor geometry
ISO 4413	Hydraulic fluid positive displacement pumps
STD ASHRAE	Guide and Data Book for heating ventilation and air conditioning (latest edition)
TEMA	Standards of Tubular Exchanger Manufacturers Association

### Piping

API std 1104	Specification for welding of pipelines and related facilities
API 5L	Specifications for line pipe
API 6D	Specification for pipeline valves (gate, plug, ball and check valves)
API 6FA	Specification for fire test for valves
API 590	Steel line blanks
API 594	Wafer-type check valves
API 598	Valve inspection and testing
API 600	Steel gate valves - Flanged and butt-welding ends, bolted and pressure seal bonnets
API 602	Compact design carbon steel gate valves for refinery use
API 607	Fire test for soft-seated quarter-turn valves
API 609	Lug- and wafer-type butterfly valves
ASME B1.1	Unified inch screw threads
ASME B1.20.1	Pipe threads general purpose
ASME B16.5	Pipe flanges and flanged fittings (NPS ½ through NPS 24)
ASME B16.9	Factory-made wrought steel butt welding fittings
ASME B16.10	Face-to-face and end-to-end dimensions of valves
ASME B16.11	Forged fittings, socket-welding and threaded
ASME B16.20	Metallic gaskets for pipe flanges – Ring joint, Spiral-wound and Jacketed
ASME B16.21	Non metallic flat gasket for pipe flanges
ASME B16.25	Butt welding ends
ASME B16.34	Valves - Flanged, threaded and welding ends
ASME B16.36	Steel Orifice Flanges
ASME B16.47	Large diameter steel flanges (NPS 26 through NPS 60)
ASME B18.2	Square, hexagonal bolts and nuts
ASME B31.3	Chemical Plant and Petroleum Refinery Piping
ASME B31.4	Pipeline transportation systems for liquid hydrocarbons and other liquids
ASME B31.8	Gas transmission and distribution piping system
ASME B36.10M	Carbon steel pipe
ASME B36.19M	Stainless steel pipe
ASTM	ASTM standards Iron and steel products (various volumes)
BS 1560	Spiral wound gaskets for steel flanges
BS 1873	Steel globe and globe stop and check valves (flanged and butt-welding ends) for the petroleum, petrochemical and allied industries
BS 5351	Steel ball valves for the petroleum, petrochemical and allied industries

## **TARAVOSH JAM Presentation**

BS 5352	Steel wedge gate, globe and check valves 50 mm and smaller for the petroleum, petrochemical and allied industries
BS 6755	Part 1 Testing of valves - Specification for production pressure testing requirements
BS 6755	Part 2 Testing of valves - Specification for fire type-testing requirements
ISO 10474	Steel products - inspection documents
MSS SP-75	Specification for high test wrought butt welding fittings

### **Pipelines**

ISO 3183-3	Steel Pipe for Pipelines – Class C
ISO 15590-1	Induction Bends, Fittings and Flanges for Pipelines Part 1: Induction Bends
BS 4515	Welding of Steel Pipelines on Land and Offshore
BS 8010 Part 3	Code for Practice for Pipelines
BS 8010 Part 4	Pipelines on land and subsea: Operations and maintenance
DNV RP B401	Cathodic Protection Design
API 6D	Specification for Pipeline Valves, End Closures, Connectors and Swivels, 1994
ASME B31.4	Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia and Alcohol
ASME B31.8	Gas Transmission and Distribution Systems
MSS SP-44	Steel Pipeline Flanges
MSS SP-75	Specification for high test wrought butt welding fittings
AFNOR 49-711	Steel Tubes External Coating with three layers Polypropylene layers. Application by extrusion

### **Safety and Environmental**

IP15	IP model code of safe practice, part 15, area classification code for petroleum installations
ICAO	International Civil Aviation Organization, annex 14 to the convention on international civil aviation aerodromes
CAP 437	Offshore Helicopter landing areas - guidance on standards, Civil Aviation Authority
SOLAS	Safety Of Live At Sea convention, International Maritime Organization
API RP 14G	Fire Prevention and Control on Open Type Offshore Production Platforms
NFPA 10	Standard for portable fire extinguishers
NFPA 11	Standard for low expansion foam
NFPA 11A	Standard for Medium- and High-Expansion Foam Systems
NFPA 12	Standard on Carbon Dioxide Extinguishing Systems
NFPA 13	Installation of Sprinkler Systems
NFPA 15	Standard for Water Spray Fixed Systems for Fire Protection
NFPA 16	Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
NFPA 20	Standard for the Installation of Stationary Fire Pumps for Fire Protection
NFPA 750	Standard on Water Mist Fire Protection Systems
NFPA 2001	Standard on Clean Agent Fire Extinguishing Systems

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### Instruments

API	Manual of Petroleum Measurement Standards
API 14 C	Analysis, Design installation and Testing of Basic Surface Safety Systems for Offshore Production Platform.
API RP 14F	Design and Installation of Electrical System for Offshore Production Platform
API 525	Testing Procedure for Pressure Relieving Devices discharging against Variable Back Pressure
API RP 526	Flanged steel safety relief valves
API 527	Seat Tightness of Relief Valves
API 528	Safety relief valves nameplate nomenclature
API RP 551	Process Measurement Instrumentation
API RP 552	Transmission Systems
API RP 554	Process Instrumentation and Control
API STD 670	Non-contacting vibration and axial position monitoring system
ANSI B.1 65	Pipe flanges and flanged fittings
ANSI B16.104	Control valves seat-leakage
EN 50081	Electro-Magnetic Compatibility – Generic Emission Standard - Pt. 2 Industrial Environment
EN 50082	Electro-Magnetic Compatibility – Generic Immunity Standard - Pt. 2 Industrial Environments
HS	Offshore Installations – Prevention of Fire and Explosion and Emergency Response
HSE	Offshore Installations – Guidance on Design, Construction and Certification 4th edition 1990
IEEE 802.4	Token bus network
IEC 60354-4-43	Electrical installation of building protection for safety. Protection against over current.
IEC 600 534	Industrial process control valves
IEC 60654	Operating conditions for industrial process measurement and control equipment.
IEC 60 584	Thermo couples
IEC 60 751	Industrial platinum resistance thermometer sensors
IEC 60 1131	Logic operation languages
IEC 61508	Functional Safety: Safety Related Systems
IEC 60363	
IEC 60535-2	
ISA	Standards and Recommended Practices for Instrumentation and Controls
ISA 5.1 to ISA 5.5	Instrumentation Symbols and Identification
ISA-S 18.1	Annunciate sequences and specifications
ISA-RP 7.1	Pneumatic control circuit pressure test.
ISA-S71.04	Environmental conditions for process measurement and control systems: Airborne contaminants
ISA-S75.1	Flow equation for sizing control valves
ISA-S 84.01	Application of safety instrumentation system for the process industries
ISO 1000	SI units and recommendation for use of their multiples and of certain other units.
ISO 5167	Measurement of Fluid Flow by means of Orifice Plates, Nozzles and Venturi Tubes inserted in Circular Cross Section Conduits Running Full
ISO 5168	Measurement of Fluid Flow - Estimation of uncertainty of a flow-rate measurement
ISO 10303	Plant data interchange
NAS 1638	Cleanliness requirements of parts used in hydraulic systems
NFPA	National fire protection association
SOLAS	Safety of live at sea
IMO	International Maritime and Organization

## TARAVOSH JAM Presentation

IEC 1508	Functional safety of safety related systems
DIN V 19250	Fundamental safety aspects to be considered for measurement and control equipment
Telecommunication	Refer to Design Basis Telecommunication SNID-SD-J-0003

### Electrical

IEC 60034	Rotating electrical machines.
IEC 60038	IEC standard voltages.
IEC 60044	Instrument transformers
IEC 60050	International electro-technical vocabulary.
<b>IEC 60051</b>	<b>Direct acting indicating analogue electrical measuring instruments and their accessories.</b>
IEC 60056	High-voltage alternating-current circuit-breakers.
IEC 60059	IEC standard current ratings.
IEC 60060	High-voltage test techniques.
IEC 60068	Environmental testing.
IEC 60071	Insulation co-ordination.
IEC 60072	Dimensions and output series for rotating electrical machines.
IEC 60076	Power transformers.
IEC 60079	Electrical apparatus for explosive gas atmospheres
IEC 60079-0	Part 0 : General requirements
IEC 60079-1	Part 1 : Construction and verification test of flameproof enclosures of electrical apparatus
IEC 60079-2	Part 2 : Electrical apparatus, type of protection 'p'
IEC 60079-3	Part 3 : Spark test apparatus for intrinsically-safe circuits
IEC 60079-4	Part 4 : Method of test for ignition temperature
IEC 60079-6	Part 6 : Oil-immersion 'o'
IEC 60079-7	Part 7 : Increased safety 'e'
IEC 60079-11	Part 11 : Intrinsic safety 'i'
IEC 60079-12	Part 12 : Classification of mixtures of gases of vapors with air according to their maximum experimental safe gaps and minimum igniting currents.
IEC 60079-13	Part 13 : Construction and use of rooms or buildings protected by pressurization
IEC 60079-14	Part 14 : Electrical installation in hazardous areas (other than mines)
IEC 60079-15	Part 15 : Electrical apparatus with type of protection 'n'
IEC 60079-17	Part 17 : Inspection and maintenance of electrical installations in hazardous areas (other than mines).
IEC 60079-18	Part 18 : Encapsulation 'm'
IEC 60079-19	Part 19 : Repair and overhaul for apparatus used in explosive atmospheres (other than mines or explosives)
IEC 60079-20	Part 20 : Data for flammable gases and vapors relating to the use of electrical apparatus.
IEC 60083	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC.
IEC 60085	Thermal evaluation and classification of electrical insulation.
IEC 60095	Lead-acid starter batteries
IEC 60099	Surge arrestors
IEC 60112	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions
IEC 60129	Alternating current disconnections and earthing switches
IEC 60137	Insulating bushings for alternating voltages above 1000 V.
IEC 60146	General requirements and line commutated converters. (Semiconductor convertors)



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IEC 60152	Identification by hour numbers of the phase conductors of 3-phase electric systems
IEC 60156	Insulating liquids-Determination of the breakdown voltage at power frequency - Test method.
IEC 60158	Low-voltage control gear.
IEC 60183	Guide to the selection of high-voltage cables.
IEC 60186	Voltage transformers.
IEC 60196	IEC standard frequencies.
IEC 60204	Electrical equipment of industrial machines.
IEC 60214	On-load tap-changers.
IEC 60228	Conductors of insulated cables.
IEC 60230	Impulse tests on cables and their accessories.
IEC 60255	Electrical relays. (All-or-nothing electrical relays)
IEC 60265	High-voltage switches.
IEC 60269	Low-voltage fuses.
IEC 60282	High-voltage fuses.
IEC 60287	Electric cables - Calculation of the current rating.
IEC 60289	Reactors.
IEC 60298	A.C. metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
IEC 60304	Standard colors for insulation for low-frequency cables and wires.
IEC 60331	Fire-resisting characteristics of electrical cables
IEC 60332	Tests on electric cables under fire conditions
IEC 60354	Loading guide for oil-immersed power transformers
IEC 60364	Electrical installations of buildings
IEC 60420	High-voltage alternating current switch-fuse combinations
IEC 60439	Low-voltage switchgear and control gear assemblies
IEC 60445	Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system.
IEC 60446	Identification of conductors by colors or numerals
IEC 60449	Voltage bands for electrical installations in buildings
IEC 60466	A.C. insulation-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 38 kV
IEC 60478	Stabilized power supplies, d.c. output
IEC 60502	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ( $U_m = 1.2$ kV) up to 30 kV ( $U_m = 36$ kV).
IEC 60529	Degrees of protection provided by enclosures (IP code)
IEC 60542	Application guide for on-load tap changers
IEC 60549	High-voltage fuses for the external protection of shunt power capacitors
IEC/TR 60616	Terminal and tapping markings for power transformers
IEC 60617	Graphical symbols for diagrams
IEC 60621	Electrical installations for outdoor sites under heavy conditions (including open-cast mines and quarries).
IEC 60623	Vented nickel-cadmium prismatic rechargeable single cells
IEC 60632	High-voltage motor starters
IEC 60644	Specification for high-voltage fuse-links used with motor circuit applications
IEC 60664	Insulation co-ordination for equipment within low-voltage systems
IEC 60686	Stabilized power supplies, a.c. output
IEC 60694	Common specifications for high-voltage switchgear and control gear standards.
IEC 60721	Classification of environmental conditions
IEC 60722	Guide to the lightning impulse and switching impulse testing of power transformers and reactors.
IEC 60724	Guide to the short-circuit temperature limits of electric cables with a rated voltage not exceeding 0.6/1.0 kV.
IEC 60726	Dry-type power transformers

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IEC 60742	Isolating transformers and safety isolating transformers. Requirements
IEC 60749	Semiconductor devices - Mechanical and climatic test methods
IEC 60754	Test on gases evolved during combustion of materials from cables
IEC/TR 60755	General requirements for residual current operated protective devices
IEC 60757	Code for designation of colors
IEC 60781	Application guide for calculation of short-circuit currents in low-voltage radial systems.
IEC 60787	Application guide for the selection of fuse-links of high-voltage fuses for transformer circuit application.
IEC 60800	Heating cables with a rated voltage of 300 / 500 V for comfort heating and prevention of ice formation.
IEC 60801	Electromagnetic compatibility for industrial-process measurement and control equipment.
IEC 60811	Common test methods for insulating and sheathing materials of electric cables
IEC 60812	Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA).
IEC 60814	Guide for the selection of insulators in respect of polluted conditions
IEC 60836	Specification for silicone liquids for electrical purposes
IEC 60839	Alarm systems.
IEC 60853	Calculation of the cyclic and emergency current rating of cables
IEC 60865	Short-circuit currents - Calculation of effects
IEC 60867	Insulating liquids - Specifications for unused liquids based on synthetic aromatic hydrocarbons.
IEC 60885	Electrical test methods for electric cables. Protection against indirect contact by automatic disconnection of supply
IEC/TR3 61200	Electrical installation guide - Part 704: Construction and demolition site installations.
IEC 61310	Safety of machinery - Indication, marking and actuation
IEC 61312	Protection against lightning electromagnetic impulse
IEC 61378	Convertor transformers
IEC/TR2 61423	Heating cables for industrial applications
IEC/TR2 61430	Secondary cells and batteries - Test methods for checking the performance of devices designed for reducing explosion hazards - Lead-acid starter batteries.
IEC/TR2 61438	Possible safety and health hazards in the use of alkaline secondary cells and batteries - Guide to equipment manufacturers and users
IEC 61442	Electric cables - Test methods for accessories for power cables with rated voltages from 6 kV ( $U_m = 7.2$ kV) up to 30 kV ( $U_m = 36$ kV).
IEC/TR3 61459	Co-ordination between fuses and contactors/motor-starters - Application guide.
IEC 61557	Electrical safety in low voltage distribution systems up to 1000 V a.c. and 1500 V d.c. - Equipment for testing, measuring and monitoring of protective measures.
IEC 61558	Safety of power transformers, power supply units and similar
IEC/TR2 61633	High-voltage alternating current circuit-breakers - Guide for short-circuit and switching test procedures for metal-enclosed and dead tank circuit-breakers.
IEC/TR2 61634	High-voltage switchgear and control gear - Use and handling of sulphur hexafluoride (SF <sub>6</sub> ) in high-voltage switchgear and control gear
IEEE 519	Recommended practices and requirements for harmonic control in electrical power systems.

## Structural

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AISC	Manual For Steel Construction
API RP2A	Recommended Practice for Planning, Design and Construction of Fixed Offshore Platforms (20 <sup>th</sup> WSD)
API RP 2B	Specification for Fabricated Structural Steel Pipe
API RP 2G	Recommended Practice for Production Facilities on Offshore Structures
API RP 2L	Recommended Practice for Planning, Designing, and Construction Heliports for fixed Offshore Platforms
API RP 5L	Specification for Line Pipe
API RP2X	Ultrasonic Examination of Offshore Structural Fabrication and Guidelines for Qualification of Ultrasonic Technicians
ASME B 18.22.	Plain Washers
ASTM 370	Testing Of Materials
AWS D1.1	Structural Welding Code - Steel
AWS A2.4	Symbols for Welding and NDT
AWS A3.0	Welding Terms and Definitions
BS 4360	Specification for Weldable Structural Steel
BS 7191	Weldable Structural Steels For Fixed Offshore Structures
BS8100parts1&2	Lattice Towers and Masts
BS2853:1957	The Design and Testing of Steel Overhead Runway Beams
CAP 437	Offshore Helicopter Landing Areas: a Guide to Criteria, Recommended Minimum Standards and Best Practice
D.En. 1990	Offshore Installations: Guidance on Design, Construction and Certification
DnV	Rules for Classification of Fixed Offshore Installations
DnV	Buckling Strength Analysis Classification
DnV RP B401	Recommended Practice, Cathodic Protection Design
EEMUA 158	Construction specification for fixed offshore structures in the North Sea
ISO 898	Mechanical Properties of Fasteners
ISO 3506	Corrosion-Resistant Stainless Steel Fasteners - Specifications
ISO 7090	Plain washers, chamfered - normal series -Project Grade A

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# Chapter7

## QA/QC

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### **1 - General**

The terminology used to define the terms and conditions of this section shall have the same meaning as the definitions clarified in ISO 9000 Series. The Contractor shall familiarize itself with these terms and conditions and ensure the same translations are understood at all levels of the CONTRACTOR's project organization and are included in the quality documents developed for usage in the performance of the WORK.

### **2 - Quality Management System**

The CONTRACTOR shall establish, implement and maintain an effective, documented Quality Management System that covers all activities related to individual elements of the WORK. The Quality Management System shall comply with the requirements of BS EN ISO 9001:1994 "Quality Systems, Model for Quality Assurance in design, development, production, installation and servicing". Document records shall be kept by the CONTRACTOR to verify that the system is being effectively implemented and maintained by the CONTRACTOR and by its SUBCONTRACTORS and suppliers.

### **3 - QA/QC Management**

The CONTRACTOR shall nominate a qualified, competent and experienced QA/QC Manager and shall ensure that the QA/QC Manager has the organizational freedom to ensure that the Quality Management System is being fully implemented during all phases of the performance of the WORK. The CONTRACTOR shall ensure that sufficient quality control personnel, qualified to perform the activities associated therewith, are provided to assist the QA/QC Manager and to regulate inspection and testing activities.

The CONTRACTOR's organization chart should include the quality assurance and quality control structure.

### **4 - Quality Assurance Plan**

The CONTRACTOR shall develop a project specific Quality Assurance Plan for the performance of the WORK that defines clearly the Quality Management System and the CONTRACTOR's organizational structure to be applied to the various stages of such performance. The Quality Assurance Plan shall set out the quality practices, resources and the sequence of major activities to be performed and shall include the following as a minimum:

- Signed Policy Statement;
- Clearly defined project objectives and achievement targets for the quality standards;
- An updated listing of corporate and project specific procedures;

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- An Activity Matrix clarifying primary and secondary responsibilities;
- An internal / external Audit schedule
- Organization charts showing reporting / communication lines and interfaces to SUBCONTRACTORS and Suppliers

The Quality Assurance Plan shall not make excessive references to corporate management manuals or procedures.

### **5 - Quality Control**

#### **5.1 - General**

The CONTRACTOR shall ensure that the design-output meets the design-input requirements, in connection with which the CONTRACTOR shall only use competently, qualified quality control personnel certified to a recognized standard for performing and recording inspection activities.

The Quality Control department shall act as an independent group from the production department and shall have a direct reporting relationship with the QA Manager. It will be the responsibility of the QC Manager to ensure the required amount of inspection, both visual and NDT, is correctly identified in a weld history sheet and carried out in an expedient manner. Any MATERIAL or EQUIPMENT provided by the CONTRACTOR, or workmanship or final inspections performed that do not conform to the specified requirements shall be correctly reported by the CONTRACTOR using agreed formats.

The Quality Control Department shall be responsible for ensuring that only qualified personnel are used for the performance of welding and NDT activities. The CONTRACTOR shall compile a listing of same detailing the name of the individuals, the level of proficiency (for NDT personnel), the Weld Procedure Specification and the dates qualified. This listing shall be maintained and approved by the QC Manager. Copies of the qualification certificates shall also be kept in the QC department.

The QC department shall maintain an up to date register detailing the EQUIPMENT used, including welding and NDT sets. Such register shall detail clearly the serial numbers and the date each piece of EQUIPMENT was calibrated. Copies of the calibration certificates shall be maintained with the EQUIPMENT.

#### **5.2 - Quality Control Plan**

The CONTRACTOR shall develop a Contract Quality Control Plan for each phase of the performance of the WORK. The Contract Quality Control Plan shall include the following as a minimum and make provision for CONTRACTOR, CLIENT and other Third Party inspection and test codes:

- Activity Number;

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- Activity description;
- Referenced procedure work will be performed against;
- Acceptance criteria;
- Party responsible for performing the inspection;
- Inspection codes against each activity;
- Verifying records.

The Quality Control Plan shall include a definition of the various inspection codes the CONTRACTOR has elected to use.

### **6 - Criticality Assessment**

- 6.1** - Prior to the start of each major structural fabrication exercise, nominated representatives of the CONTRACTOR's engineering group, construction and QC Department, accompanied by others as necessary, shall perform a critical assessment of the design, to establish the best methodology for building, erecting and inspecting the assemblies.
- 6.2** - The results of these assessments shall be documented and issued to the CLIENT REPRESENTATIVE for review and comment. Once agreed, a list of the components and activities considered critical to the safe performance and reliability of the finished structures shall be issued by the CONTRACTOR detailing the extent of any additional inspections that may be required, which are not clearly specified in the Inspection Test and Plans.

### **7 - QA/QC Reporting**

- 7.1** - The CONTRACTOR shall provide QA/QC reports and shall include same in the reports to CLIENT as described in Section V-ADMINISTRATION INSTRUCTIONS, the Article headed REPORTING.
- 7.2** - The weekly report shall provide a brief account of any major activities achieved and will include items such as but not necessarily limited to:
- Status of QA/QC deliverables
  - Results of audits performed
  - Weld procedure status
  - Welder qualification program
  - Weekly look ahead
  - Areas of concern
- 7.3** - The monthly report shall provide a detailed account of activities achieved and will include items such as but not necessarily limited to:

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- Detailed account of planned and achieved activities
- Number of welds to be inspected, number of welds inspected
- Repair rates
- Number of hydro tests to be performed number completed
- Non conformances raised and closed
- Concessions and or waivers requested
- Monthly look ahead
- Areas of concern

### **8 - Document Procedures**

The CONTRACTOR shall prepare project specific procedures, plans, manuals and the like that are required to ensure that the QA/QC activities are carried out in an efficient and professional manner. The CONTRACTOR shall ensure that its SUBCONTRACTORS, vendors and suppliers develop similar documents. The numbering system used for these documents shall comply with the "CONTRACTOR'S Document Numbering System".

### **9 - Subcontractor / Vendor Control**

The CONTRACTOR shall ensure that any elements of the WORK that are performed by SUBCONTRACTORS or the manufacturers of any items purchased by the CONTRACTOR are manufactured and inspected to the highest achievable standard. The CONTRACTOR shall develop inspection surveillance plans detailing the type of components being manufactured by its SUBCONTRACTORS and suppliers, the criticality of such components and the frequency of the inspection of same. The CONTRACTOR shall not rely solely on the inspections performed by the SUBCONTRACTORS and suppliers and periodically the CONTRACTOR shall perform inspections of subcontracted and supplied components at the place of the manufacture of same.

### **10 - Audit by Contractor**

The CONTRACTOR shall prepare and submit as part of the Contract Quality Assurance Plan an internal/external audit schedule in respect of its own audit activities.

### **11 - Quality Records**

The CONTRACTOR shall maintain and shall make available to CLIENT, in the form of Manufactures Record Books (MRB's) and "As-Built" drawings, records that provide objective evidence that the WORK as performed complies with specified requirements. Details of the contents of the MRB's, the records

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maintained and retention periods thereof shall be described within documents listed in the Contractor's Quality Assurance Plan.

### **12 - Non-Conformance**

The CONTRACTOR shall implement a formal system for handling and controlling any deficiencies that deviate from a specified standard. The CONTRACTOR shall ensure that all non-conformances are correctly reported to the relevant party responsible for correcting the deficiency. A register of non-conformances shall be maintained by the QA Manager who shall be responsible for checking the status of the corrective actions to be carried out by the CONTRACTOR.

### **13 - Access for Client**

An element of the representation of CLIENT at the construction WORKSITE, shall be present for the purpose of reviewing documents, welding parameter checks, NDT and coating practices and for the review of the performance of any other activities that CLIENT feels may affect the quality of the finished product. The representative of CLIENT shall be granted free access to all quality records of the CONTRACTOR including audit reports and any other documentation generated for the purpose of maintaining quality.

### **14 - Lessons Learnt**

The CONTRACTOR shall develop a system for identifying and recording occurrences that may or may not have resulted in a non-conformance but that could have had detrimental effects on the integrity of the finished product had it not been identified and corrected in time. Such system shall record the each of such occurrences stating the nature of same, its root cause, what action was taken to rectify the problem and what the consequences would have been had the subject occurrence been ignored.

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# Chapter8

# *Reporting*



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### **1 - General**

The CONTRACTOR shall provide accurate reports as to the progress of the WORK and the cost/schedule information required in accordance with this Article, including but not being necessarily limited to, the highlighting of all trends that may impact upon the CONTRACT PRICE, the CLIENT PLAN and/or PROGRAMME. The reports shall include explanations of any deviations from the CLIENT PLAN and where required, proposals for remedial action accompanied by revised plans, schedules and projections that may be required by CLIENT.

### **2 - Weekly Reports**

Throughout the duration of the CONTRACT the CONTRACTOR shall provide a Weekly Report, electronically, to CLIENT.

The Weekly Report shall include but not be necessarily limited to :

- Highlights of significant accomplishments made during the report period including the achievement of the completion of any MILESTONES;
- A short narrative section inclusive of a summary of the status of the WORK and the progress achieved throughout the week and explanations concerning any deviations from the PROGRAMME;
- Areas of concern including delays and anticipated delays and details of any slippages and corrective actions taken by the CONTRACTOR. Such areas of concern should include reference to any items to be provided by CLIENT, if appropriate.
- Quality assurance and quality control reports
- Every other week, the report will also include details concerning the following items;
- The percentage of the WORK complete by phase, MILESTONE and overall compared with the completion planned for same at that date;
- The number of CONTRACTOR PERSONNEL, by discipline, mobilized to the WORK;
- List of data and decisions outstanding from CLIENT;
- Actions for next week;
- Safety record inclusive of lost time incidents, explanation and actions taken or actions proposed to be taken;

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### **3 - Monthly Reports**

Throughout the duration of the CONTRACT the CONTRACTOR shall provide a monthly report. The cut-off point for monthly reports shall be the last day in a calendar month. Where possible the report should also be issued to CLIENT in an electronic format.

The monthly report shall include but not be necessarily limited to :

- a) A narrative section providing details of the following :
- Highlights of significant accomplishments during the report period;
  - Details of the progress achieved in relation to the MILESTONES and Key Dates in the CLIENT PLAN, including the nature and an explanation of any deviations from such MILESTONES and Key Dates, the consequences of such deviations and the corrective actions taken;
  - Details of any trends, critical activities and slippages;
  - Highlights of significant events that are anticipated to be completed in the month subsequent to the month under review (a four weeks look-ahead);
  - Areas of concern that are affecting or which may affect the performance of the WORK;
  - Brief details of all outstanding CONTRACTOR/CLIENT actions and decisions implemented or proposed to manage identified areas of concern;
  - Safety record inclusive of lost time incidents, explanation and actions taken or proposed to be taken and the information required in accordance with the Article headed ACCIDENT AND INCIDENT REPORTING;
  - A summary of the implementation of quality assurance identifying audits and reviews performed, corrective action requests raised, auctioned and “closed-out”, non-conformance and other quality control reports as described in Section 8 QUALITY ASSURANCE, the Article headed QA/QC REPORTING.

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# Chapter9

## *HSE*

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- 4 - Safety Orientation & Education**
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- 6 - Personal Safety Equipment**
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- 8 - Fire Protection**
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- 10 - Tools – Hand & Power**
- 11 - Cranes & lifting Equipment**
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- 13 - Concrete Forms & Shoring**
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- 19 - Vessel & Confined Space Environment (V/CS)**
- 20 - Abrasive Blasting**
- 21 - Pressure Testing**
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### **Definition of Terms**

#### **Accident**

An unplanned or undesired event that can result in harm to people, property or the environment.

#### **Exposure**

The measurement of time during which the subject is at risk from a hazard.

#### **FAT**

Factory Acceptance Testing

#### **Fatality**

Death due to a work related incident or illness regardless of the time between injury or illness and death.

#### **Harm**

Includes death, injury, physical or mental ill health, damage to property, loss of production, or any combination of these.

#### **Hazard**

A source or a situation with a potential to cause harm, including human injury or ill health, damage to property, damage to the environment, or a combination of these.

#### **Housekeeping**

Maintaining the working environment in a tidy manner.

#### **HSE**

Health, Safety and Environment.

#### **Incident**

An event that:

- Results in death or injury to person where the injury requires *medical attention* (including first aid);
- Results in injury/damage to persons, property or process;
- Is not in compliance with statutory requirements, safe work procedures or in house guidelines.

#### **Interface Document**

A document that clearly identifies how the Owner's HSE expectations and the Shipyard's HSE management systems will be interlinked during the work programmed.

#### **Lost Time Injury (LTI)**

Work related injury or illness that renders the injured person unable to perform any of their duties or return to work on a scheduled work shift, on any day immediately following the day of the accident.

#### **Medical Treatment Case (MTC)**

Work related injury or illness requiring more than first aid treatment by a physician, dentist, surgeon or registered medical personnel.

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### **MSDS**

Material Safety Data Sheet

### **Near Miss**

A Near Miss is an event where no contact or exchange of energy occurred and thus did not result in personal injury, asset loss or damage to the environment.

### **Personal Protective Equipment (PPE)**

All equipment and clothing intended to be utilized, which affords protection against one or more risks to health and safety. This includes protection against adverse weather conditions.

### **Restricted Work Case**

Work related injury or illness that renders the injured person unable to perform all normally assigned work functions during a scheduled work shift or being assigned to another job on a temporary or permanent basis on the day following the injury.

### **Risk**

A measure of the likelihood that the harm from a particular hazard will occur, taking into account the possible severity of the harm.

### **Risk Assessment**

The process of analyzing the level of risk considering those in danger, and evaluating whether hazards are adequately controlled, taking into account any measures already in place.

### **Risk Management**

The process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, and monitoring and reviewing results.

### **Training**

The process of imparting specific skills and understanding to undertake defined tasks.

### **Unsafe act or condition**

Any act or condition that deviates from a generally recognized safe way or specified method of doing a job and increases the potential for an accident.

### **SWL**

Safe Working Load.

### **Work Programmed**

The work being undertaken by a site on behalf of the Company.

Worksite The premises where any building operations or works of engineering construction related to the work program are being carried out.





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### **1 - Scope**

This plan covers the requirements of the accident prevention rules and safety program to be applied to the contraction work for various Projects that will be performed by the Construction Sub contractor tractor under the supervision of FANN AZMAYAN POOYANDEH Company. (Hereinafter called Contractor).

The primary purpose of this plan is to provide a guideline for preventing any accidents which may injure Employees or damage property of the Owner, Contractor and his Contraction Sub contractor tractors (hereinafter called Subcontractor) at the construction site.

Construction Subcontractors shall abide by all safety rules and other regulations imposed at the site by the Laws of the country and the provisions of applicable laws, rules and regulations, including rules and procedures as applicable from the Owner. (PMC Procedures)

### **2 - Organization**

#### **2.1 - General**

The safety requirements stipulated in this plan shall be strictly met and maintained by the safety organization at construction site.

#### **2.2 - Safety Committee**

2.2.1 - Contractor shall organize a safety committee consisting of Contractor's Site Manager, Contractor's Safety Manager, the Subcontractor's Field Safety Manager.

2.2.2 - Safety Committee shall:

- Monitor and ensure the operation of safety program in a proper manner.
- Direct, coordinate and orient the safety activities.
- Promulgate the spread of policy, objectives, rules and/ or regulations.
- Look for, detect, and identify risky conditions.
- Perform a thorough investigation of all accidents and review the recommendations to avoid any repetition of the accident.

#### **2.3 - Responsibility**

2.3.1 - Contractor's Site Manager

Contractor's Site Manager shall

- Have the prime responsibility for ensuring the site safety.
- Establish a realistic safety policy and safety targets for the site.
- Promote the setting up of safety plan, regulations and rules and of a safety training plan, etc.
- Organize and preside over safety committee.
- Direct the Subcontractor's construction Manager, Field Safety Manager and other managers in carrying out their duties and responsibilities.

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### 2.3.2 - Contractor's Safety Manager shall:

- Chair a weekly safety committee meeting.
- Coordinate the safety activities between the Owner and Construction Subcontractor.
- Review and approve the Construction Subcontractor's safety program and procedures, advice and recommend any corrective actions necessary.
- Conduct periodic safety audits to ensure that the established safety program is implemented in a proper manner for construction work.

### 2.3.3 - Subcontractor's construction Manager shall:

- Be responsible for all safety activities, including fire prevention during the construction period.
- Organize the safety committee.
- Submit a safety program including safety measures for the work to the Field Safety Manager prior to commencement of the work.
- Establish, implement and maintain the safety program through the Safety Supervisor and Workers.
- Conduct independent audits to assure conformance with the established safety program and determine the effectiveness of individual elements of the program.

### 2.3.4 - Subcontractor's Field Safety Manager shall:

- Conduct daily safety four report to Contractor.
- Conduct a safety program under the direction of the Construction Manager.
- Patrol the work site periodically to verify that the work is carried out under safe conditions, with no violations of safety requirements.
- Advise promptly the Construction Supervisors and Workers of corrective action when any unsafe conditions or violations are observed.
- Check each work procedure from the safety point of view and advise the Construction Supervisors before commencement of work and, or while working.
- Submit accident report to Contractor Safety Manager and Owner's representative.
- Maintain the published safety literature, safety regulations, codes and other communications in accordance with contract. Advise management of compliance and conditions requiring attention.
- Make thorough analysis of the statistical data through inspection, delineate problem areas, and make recommendations for solutions.
- Check on the use of all types of personal protective equipment, evaluate effectiveness and suggest improvements.

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2.3.5 - Subcontractor's Supervisor/ Foreman shall:

- Organize sites so that the work is carried out in accordance with the safety standards required for the minimum risk to employees and property.
- Know the safety requirements stipulated in the safety program.
- Give precise instructions as to the requirements for correct work method.
- Coordinate with his Subcontractors to avoid any confusion about areas of responsibility.
- Make sure that suitable personal protective equipment is available and in use.
- Ensure that new employees are properly instructed in precautions to be taken before they are allowed to start work.

2.3.6 - Subcontractor's Worker shall:

- Do nothing to endanger him or coworkers.
- Use the correct tools and equipments for the job.
- Keep tools in good condition.
- Use proper personal safety equipment provided at all times.

### **3 - Safety Reports / Meetings & Notices**

#### **3.1 - Accident Reports**

3.1.1 - All accidents are to be immediately reported orally to the supervisor in the cases described below and will be followed by a written report.

- All fatal injuries.
- All injuries requiring first aid treatment.
- All damages, to the Owner's or Contractor's properties.
- All fires.
- All releases or spills of hazardous materials.

3.1.2 - A written accident report shall describe in detail the circumstance, and include the results of the accident investigation and analysis. This report describes the accident classification, cause, time, date, location, etc. Written incident reports shall be submitted to Safety Manager and Owner's representative through Contractor within 12 hours.

3.1.3 - A daily first aid record must be kept on all employees requiring first aid treatment.

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### **3.2 - Safety Committee Meeting**

3.2.1 - A safety committee meeting shall be held on a weekly basis and chaired by the Contractor's Safety Manager and attended by all Safety Committee members.

3.2.2 - All Safety Committee members prior to holding a meeting shall conduct a joint site safety inspection and the inspection results shall be discussed at the meeting.

### **3.3 - Notice for Corrective Actions**

3.3.1 - If the Construction Subcontractor fails or refuses to fulfill his safety responsibility or to correct unsafe conditions or practices, he will be ordered by Contractor to take the necessary corrective action.

3.3.2 - When any negligence of safety and/ or unsafe practices is detected, Contractor shall immediately advise and or instructs the Construction Subcontractor to correct them.

3.3.3 - If the Construction Subcontractor fails to heed the instruction or advice or neglects fire precautions described in the work permit, Contractor shall issue the letter of instruction for corrective action to the Construction Subcontractor. The unsafe work will be stopped. The work will not commence again until corrective action has been taken.

3.3.4 - Daily safety inspections

Daily safety tour shall be made by Subcontractor's Field Safety Manager who will record and submit 1 copy of the daily safety check list to the Contractor's safety Manager.

## **4 - Safety Orientation & Education**

**4.1** - It is mandatory for each employee to attend the Safety Orientation program on his first day of work. No worker will be permitted to work on the site without attending the Safety Orientation Program and attached safety requirements.

**4.2** - The orientation will be given by the Subcontractor's Field Safety Manager and must include followings:

- Brief explanation of the program.
- Safety/ Security control policy.
- Outlines of applicable regulations and requirements for the project.
- Emergency procedures.
- First aid services.
- Each worker's responsibilities.

**4.3** - Biweekly Monday morning (2 times per month) before start of work a safety education is held by the Subcontractor's Field Manager for all workers and staffs and the record of safety education shall be kept and maintained by the Subcontractor.



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**4.4** - Every morning before start of work a safety talk session is held by the Supervisor with the foremen of each work place to instruct and discuss:

- Work procedures.
- Safety instructions for using equipment and tools.
- Particular hazardous conditions and precautions to be taken.
- Workmen's health conditions and other required information.

**4.5** - A written record will be maintained on all employees stating that they have received the safety training and fully understand the rules and regulations. This form will be signed and dated by each employee and kept on file in the Subcontractor's safety Department for auditing and other relevant purposes.

**4.6** - Periodic updating of the safety training procedure and requirements is provided for supervisors and foremen every two or three month.

### **5 - General Plant Regulations**

#### **5.1 - Employee Requirements**

All employees must be in good physical condition, i.e. appear healthy, have adequate hearing and sight, possess all limbs, do not suffer form vertigo, etc.

#### **5.2 - Vehicles and Equipment**

5.2.1 - Employees will comply with all safety rules and signs regarding traffic and vehicle use.

Vehicles must be parked only in areas approved by Contractor. If these areas include factory roadways, vehicles must only park on the sidewalk that traffic signs allow parking. Without such traffic signs, parking is prohibited. This is to permit access of emergency vehicles at all times.

5.2.2 - Speed limit within the site is controlled according to site and road condition, but must not exceed maximum 35 Km/hr.

5.2.3 - All equipment, machinery and tools for use on the job site must be approved by Contractor, and shall be subject to initial and periodic inspection by Contractor, Any equipment, machinery and tools, which have not been approved, must be removed from the site.

5.2.4 - The engines of all vehicles and equipment should be stopped during refueling.

#### **5.3 - Alcohol and/ or Controlled Drugs**

5.3.1 - Alcoholic drinks and / or Controlled Drugs are not to be used or allowed on the site at any time.

5.3.2 - Anyone found under the influence of, or in possession of, alcohol or Drugs will be immediately removed from the site and refused future access.

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### **5.4 - Smoking**

5.4.1 - Smoking is not permitted except in specified areas of workshops and buildings, temporary buildings used may be Contractorlared smoking areas under special permits. Smoking in vehicles on the site is not permitted.

5.4.2 - Smoking is not permitted in any building under construction.

5.4.3 - Smoking is not allowed in the plant except certain designated area.

5.4.4 - Matches and lighters are not allowed in the plant. Cigarette butts should be discarded only in proper receptacles.

### **5.5 - Safety Signs**

5.5.1 - Contractor's Subcontractors and all personnel shall observe the requirements of all safety signs on site.

5.5.2 - Contractor, Subcontractors and all personnel will not remove any safety chain Barrier, tag, marking or sign unless so directed by the proper authority.

### **5.6 - Holographic Equipment and Radios**

5.6.1 - Holographic equipment (camera, video, etc.) are not permitted on the site without prior approval in writing from Owner.

5.6.2 - The use of transistor radios, two- way radios, mobile telephones and pack link system inside the plant is not permitted until approved by Contractor and Owner.

### **5.7 - Time Keeping**

5.7.1 - When Subcontractor wishes to work before or after regular hours, weekends and or Public Holidays, he must have authorization from Contractor.

### **5.8 - Environmental Control**

5.8.1 - The Construction Subcontractor is responsible for the environmental control specified for the job site including all equipment and machines used.

5.8.2 - Do not dispose of any used oil or liquid waste direct to the ground, pit or storm drain. Dispose of these materials only in properly labeled containers.

## **6 - Personal Safety Equipment**

### **6.1 - General**

6.1.1 - Each Construction Subcontractor is totally responsible for providing personal protective equipment for the protection of their employees as needs or requested. It is also the Construction Subcontractor's responsibility to ensure that his employees are well trained and use properly the personal safety equipment at all time in the Site and out of site while working.

6.1.2 - All tools and equipment are required to be maintained in good working condition. The Safety Supervisor shall inspect all tools and equipment periodically.



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### **6.2 - Head Protection**

6.2.1 - Safety hats or helmets are rigid headgear made of various materials and designed to protect the head from impact, flying particles, electric shock, or any combination of the three. Each helmet has two parts, a shell and a suspension cradle.

6.2.2 - Any modification of the safety helmet, especially punching holes in shell, is prohibited.

### **6.3 - Eye and Face Protection**

6.3.1 - Protection of the eyes and face from physical or chemical agents are of prime importance in an industrial environment. And also, due to intensive sun exposure, uncontrolled dust and high humidity, locally used cotton Scarf should be issued to open area workers during construction period.

6.3.2 - To select the type of protection will depend on the properties of possibly imposed hazard, but it should be borne in mind that all eye protection and most face protection devices must be considered as optical instruments. They must be selected, fitted, and used with regard to both the type of hazard and the optical condition of the user.

6.3.3 - Industrial grade safety glasses (with shield) required at all times during working hours in shop or in construction site.

- 1) Welding and cutting
- 2) Excavation
- 3) Driving nails
- 4) Grinding
- 5) Drilling

### **6.4 - Hand Protection**

6.4.1 - The kind of gloves used depends primarily upon the material or equipment being handled.

6.4.2 - Gloves should not be used near rotating machinery as they can be caught and trap the hand.

6.4.3 - Suitable gloves should be worn on most construction work.

### **6.5 - Foot Protection**

6.5.1 - The safety shoe or boot is fitted with a metal toecap. The toecap is capable of withstanding both compression and impact loads.

6.5.2 - Safety footwear for construction work must be able to withstand a compressive load of 1,100 kg and an impact load of 33 kg.

6.5.3 - Foot guards must be worn when using jack hammers, tampers and similar equipment.

**6.6 - Safety Belts (or Harness), Lifelines and Lanyards** should be worn while working elevation is 3 m high from ground or platform level.

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6.6.1 - Lifelines, safety belts, and lanyards shall be used only for worker safeguarding. Any lifeline, Safety belt, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be immediately removed from service and shall not be used again for worker safeguarding.

6.6.2 - Lifelines shall be secured above the point of operation to an anchorage or structural member.

6.6.3 - Safety belt lanyard shall be a minimum of 14mm nylon, or equivalent, with a proper length of falling distance no greater than 1.8 m.

### **6.7 - Safety Nets**

6.7.1 - When workplaces are more than 7.5 meters above the ground or water surface or other surface, and ladders, scaffolds, catch platforms, temporary floors, safety lines or safety belts are not being used, safety nets must be hung with sufficient clearance to prevent contact with the surfaces or structures below.

6.7.2 - Nets must extend 2.5 meters beyond the edge of the work surface where employees are exposed and must be installed as close under the work surface as practical but in no case more than 7.5 meters below such work surfaces.

### **6.8 - Respiratory Protection**

6.8.1 - Where industrial processes create atmospheric Contaminant, which may be hazardous to the health of employees, the first consideration always should be the application of engineering measures to control release of the contaminants.

6.8.2 - In some cases, engineering control measures are not practical and the worker should therefore be supplied with personal respiratory protective equipment.

6.8.3 - Ventilators, fans, air moves, dust mask or a combination of these should be used in dusty atmospheres. Users of dust masks, breathing air masks and respirators must be fit- tested and trained in their use.

## **7 - Signs, Signals & Barricades**

### **7.1 - Accident Prevention Signs, Tags and Markings**

7.1.1 - When hazardous work is to be performed the appropriate signs and symbols must be posted prior to starting work and must be removed or covered promptly when the hazards no longer exist.

7.1.2 - Danger signs must be used only where an immediate hazard exists.

7.1.3 - Caution signs must be used only to warn against potential hazards or to caution against unsafe practices.

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7.1.4 - Accident prevention signs, tags and markings are used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc., until the defective equipment can be repaired or removed.

### **7.2 - Warning Barricades**

7.2.1 - Warning barricades will be erected before work begins or as soon as specific hazard is identified (in some situations a rigid guardrail will be needed).

7.2.2 - Warning barricades must be erected and maintained at least two (2) meters from the edge of an excavation or opening.

## **8 - Fire Protection**

**8.1** - All employees must know where fire extinguishers are and how to use them.

**8.2** - Flammables shall be stored in properly labeled containers.

**8.3** - Accumulation of trash, oily rags, combustible materials and similar fire hazards of any nature will not be permitted.

**8.4** - All welding and cutting torches must be equipped with flame valve and standard operational gauges.

**8.5** - All alleyways, driveways, roads, stairway, ladder and transformers shall be kept clear of hazardous material and equipment.

**8.6** - Refueling of petrol and diesel equipment shall be done only in prescribed areas and with approved equipment. Employees shall take all measures to minimize spills and to clean up immediately and spills which may accidentally occur. Refueling equipment with the engine running is prohibited.

**8.7** - The Construction Subcontractor shall be installing and maintain fire extinguisher and fire fighting equipment to be available all times at the construction site and site office.

8.7.1 - There must be a fire extinguisher, water hose or other fire control equipment easily accessible for each welding, cutting, burning or other such operation 8.7.2 During any hot work operation, a pressurized fire hose and 2-piece of 10lb dry chemical power fire extinguisher must be provided at place of hot work. All Contractor's personnel shall be properly trained and know how to use such extinguishers and fire hose.

## **9 - First Aid**

**9.1** - Construction Subcontractor shall provide First Aid facilities for his employees on the site.

**9.2** - In the event of accident, all possible efforts to keep on lookers from the scene must be made. The only employees required in such areas are those directly engaged in assisting in the emergency.

### **9.3 - Shock**

9.3.1 - Any person who has suffered a severe injury or even someone who has narrowly escaped injury is likely to be suffering from shock.

9.3.2 - It is essential that persons administering first aid be aware of the symptoms of shock and take action to treat these symptoms in addition to the other injuries sustained.

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### **9.4 - Artificial Respiration**

9.4.1 - Electric shock, gassing, drawing, or suffocation may cause berating to stop.

9.4.2 - Artificial respiration must be started immediately and continued until the patient recovers or until professional medical aid takes over. If you are alone, do not leave the patient to seek help until his normal breathing has resumed.

### **9.5 - Chemicals**

9.5.1 - Actions to be taken in the event of worker accidentally comes into physical contract with dangerous chemicals are as follows:

- If splashed by chemical, goggles should be left in place until chemicals have been washed off. Unless chemicals have entered the eyes under the goggles, eye protection should be removed only after the chemicals have been washed from the surrounding area.
- The eyes should be washed with clean water for at least 15 minutes. Chemicals on the skin should be washed off with water using a safety shower where available. When it is necessary to remove clothing, it should be removed while under shower or water spray medical attention is essential in these cases.

### **9.6 - Head Injuries**

9.6.1 - Action in cases of head injury is to get the patient under medical care without delay.

9.6.2 - No head injury should be regarded lightly. Every patient who has had even a mild injury to the head is liable to develop complications, which can be serious. Treatment shall be as follows.

- Loosen all tight clothing around neck, chest, and waist.
- Check to see if the patient is breathing and initiate artificial respiration, if required.
- Ensure that his throat and air passages are clear of secretions, foreign bodies, and false teeth.
- Check for other injuries
- Arrange for the patient to be carefully transported to a hospital.

### **9.7 - Bleeding**

9.7.1 - Every effort should be made to stop bleeding by direct pressure such as by applying a sterilized pad or dressing.

9.7.2 - The wound should be firmly bandaged. Applying mild pressure on the artery between the wound and the heart may control arterial bleeding.

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### **9.8 - Fractures**

9.8.1 - Where a fracture is suspected, the limb must be immobilized. If possible, the injured part should be elevated to reduce discomfort and swelling.

9.8.2 - Fracture of the spine or pelvis must be treated with great care.

9.8.3 - The casualty must not be moved, but should be covered with a blanket and made comfortable. Competent ambulance employee should only remove him.

### **9.9 - Minor wounds**

9.9.1 - All minor wounds, cuts, and scratches should be attended to immediately, as delay increases the risk of infection.

9.9.2 - The wound should be cleaned and then covered with a sterilized dressing or adhesive plaster. If the injury becomes painful, or is inflamed, medical attention should be obtained.

## **10 - Tools – Hand & Power**

10.1.1 - Any tools or equipment deemed unsafe shall be marked promptly and or repaired or replaced.

10.1.2 - Each worker must satisfy himself that all tools and equipment to be used by him are in first class condition and appropriate for the job that they are to be used on. Any defect and/or in proper functioning should be repaired to next user and or supervisors.

10.1.3 - Any tools hand and power shall not be used for pry bars.

10.1.4 - Tools shall be used only for the purpose for which they are designed.

10.1.5 - Proper guards or shields must be installed on all power tools.

10.1.6 - All portable power operated tools are of a certified or approved design and are safe to use.

### **10.2 - Pneumatic Tools**

10.2.1 - Compressed air should not be used to clean the working space.

10.2.2 - Tools must not be modified or the labels and inscriptions defaced or removed.

10.2.3 - Competent persons must carry out maintenance of pneumatically operated equipment at regular intervals.

### **10.3 - Guarding**

10.3.1 - When power operated tools are designed to accommodate guard, they shall be equipped with such guard when in use.

10.3.2 - Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating or moving parts of equipment must be guarded if such are exposed to contact by employees.

10.3.3 - Each worker must satisfy himself that all tools and equipment to be used by him are in good condition and appropriate for the job that they are to be used on.

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**10.4** - If by using hand and power tools, employees are exposed to the hazard of flying, falling abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases,, they must be provided with and shall wear the appropriate personal protective equipment necessary to protect them from the hazard.

### **11 - Cranes & lifting Equipment**

#### **11.1 - General**

- 11.1.1 - The manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks shall be complied with.
- 11.1.2 - Rated load capacities, recommended operating speeds, special hazard warnings, or instruction must be visible to the operative while he is at his control station.
- 11.1.3 - Rigging equipment must be inspected by a competent person and/or operator prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment must be tagged out of service and removed from the work area.
- 11.1.4 - A competent person shall make a through, monthly inspection of the hoisting machinery. The operator shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.
- 11.1.5 - Standard operating signals should be agreed upon and should be used to direct all operations.
- 11.1.6 - No modifications or additions, which affect the capacity of safe operation of the equipment, shall be made without the manufacturer's written approval.
- 11.1.7 - Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, must be barricaded to prevent any worker from being struck or crushed by the crane.
- 11.1.8 - Overhead and gantry cranes shall be plainly marked on each side of the crane as to its rated load capacity.
- 11.1.9 - Ensure that personnel do not ride on the hook or on a load.
- 11.1.10 - Ensure that personnel do not stand, walk or crawl beneath a slung load.
- 11.1.11 - Ensure that the hoist rope is vertical to prevent swinging.
- 11.1.12 - Avoid twisting or kinking wore rope.
- 11.1.13 - Never use nuts and bolts to join a broken chain.
- 11.1.14 - Never drop any item of lifting gear from a height.
- 11.1.15 - Do not put any strain on ropes which are kinked.



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### **11.2 - Operator**

- 11.2.1 - The operator must be in possession of a current Government Crane Operator's License. In addition, he must be fully familiar with and competent to operate the particular type of crane to which he is assigned.
- 11.2.2 - An operator may be certified to operate more than one type of crane, but under no circumstances is an operator permitted to operate a crane for which he has not been certified.
- 11.2.3 - A supervisor must ensure that his operator is physically fit and mentally alert. If the operator shows any signs of illness, he must be removed from the crane.

### **11.3 - Slinger/Rigger**

- 11.3.1 - The slinger/rigger is responsible for properly attaching the load to the crane and giving the correct hand signals to the crane operator.
- 11.3.2 - He must be properly trained in slinging/rigging, the standard lifting hand signals, and the general capabilities of the crane with which he is working.

## **12 - Excavation & Trenching**

- 12.1** - Excavations such as ditches, trenches or holes shall be sloped sufficiently to prevent cave-in or slide. Of sloping is impractical, shoring shall be used whenever the vertical dimension exceed 1.5 meters.
- 12.2** - Worker removing shoring after completion of work shall not be in the bottom of the excavation. Shoring shall be removed in a manner to prevent cave-in on worker.
- 12.3** - Barricades, handrails, signals or other appropriate warning devices to protect worker from any hazardous operation or excavation shall be provided. Open trenches, excavations, etc., shall be covered when handrails or barricades do not provide adequate protection.
- 12.4** - Grade lines, ropes, chains, and other tripping hazards shall be sufficiently marked to be clearly visible in the day or night.
- 12.5** - Excavation by powered equipment is prohibited closer than 1.2 meters to any underground cable. Tiles covering electric cables shall not be removed without prior approval.
- 12.6** - Located underground obstacles, cables and piping shall be marked, i.e. physically identified, in the field and will be updated on drawings of underground.
- 12.7** - Ground water shall be removed from and kept out of, the bottoms of all trenches and excavations.

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### **13 - Concrete Forms & Shoring**

- 13.1 - Form work and shoring shall be designed, erected, supported, braced and maintained so that it will safely support all vertical and lateral loads that may be imposed upon it during placement of concrete.
- 13.2 - Stripped forms and shoring shall be removed and stockpiled promptly after stripping, in all areas which persons are required to work or pass. Protruding nails, wire ties, and other form accessories not necessary to subsequent work shall be pulled, cut or other means taken to eliminate the hazard.
- 13.3 - Imposition of any construction loads in the partially completed structure shall not be permitted unless such loading has been considered in the design and approved by the engineer.

### **14 - Floor & Wall Opening, & Stairways**

#### **14.1 - Floor and Wall Openings**

- 14.1.1 - All floor, grating or roof openings within a building, or other structure during the course of construction, alterations, or repairing, shall be covered with planks so as to carry safely any load which may be required to be supported thereon, or shall be fenced in on all sides by a standard railing and toe board.
- 14.1.2 - Wall openings, from which there is a drop of more than 1.2 meters, and the bottom of the opening is less than 90 cm above the working surface, must be guarded by standard guardrails. If the bottom of the wall opening is less than 10 cm above the working surface toe boards must be installed.

#### **14.2 - Guarding of Open-Sided Floor and Platforms**

- 14.2.1 - Standard guardrails and toe boards must guard every open-sided floor or platform 1.8 meters or more above adjacent floor or ground level.
- 14.2.2 - Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units and similar hazards must be guarded with a standard railing and toe board.

#### **14.3 - Guardrails, Stair, Railings and Toeboards**

- 14.3.1 - A standard railing shall consist of top rail, intermediate rail, toe board, and posts, and shall have a vertical height of approximately 1 meter from upper surface of top rail shall be smooth-surfaced throughout the length of the railing. The intermediate rail shall be halfway between the top rail and the floor, platform, runway, or ramp. Minimum requirements for standard railing under various types of construction are as follows:

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- For pipe railings, posts and top and intermediate railings shall be a least 1/2inches nominal diameter with posts spaced not more than 2.4 meters on centers.
- For structural steel railings, posts and top and intermediate rails shall be 50 mm by 50mm by 10mm angles or other metal shapes of equivalent bending strength, with posts spaced not more than 2.4 meters on centers

### 14.3.2 - Stair railing

A stair railing shall be of construction similar to a standard railings, but the vertical height shall be not more than 85cm or less than 75cm from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.

### 14.3.3 - Stairs and Stairways

On all structures, two or more floors (6 meters or over) in height, stairways, ladders, or ramps, shall be provided for employees during construction period. Debris, slippery and other loose materials, shall not be allowed on or under stairways. Stairs shall be installed at angles to the horizontal of between 30 and 50. Rise height and tread width shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs. Stairways having one or both open sides, shall have a stair railing along the open side or sides.

## **15 - Ladders & Scaffolding**

### **15.1 - Ladders**

- 15.1.1 - All ladders shall be made of the proper material and be in good condition.
- 15.1.2 - The use of ladders with broken or missing rungs or steps, broken rails, or other defective construction is prohibited.
- 15.1.3 - Metal ladders shall not be used when they can become part of an electrical circuit.
- 15.1.4 - All straight ladders shall be tied off.
- 15.1.5 - Ladders shall be placed so that they from an angle no greater than 30 degrees from vertical.
- 15.1.6 - Ladders shall extend at least 1 meter above the level to be served.
- 15.1.7 - Spikes, for use in soft ground.
- 15.1.8 Ensure that footwear is not greasy, muddy or slippery and has a good grip on the rung.
- 15.1.9 - Face the ladder and hold on with both hand.

### **15.2 - Step ladders**

- 15.2.1 - Always open fully, set level on all four feet, and lock spreaders in place. Does not use like a straight ladder.
- 15.2.2 - Do not place tools or material on steps or platform.
- 15.2.3 - Get specific approval before using two-man stepladders.
- 15.2.4 - Must be tied off under certain conditions.

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### **15.3 - Scaffolding**

- 15.3.1 - Makeshift scaffold, such as boxes, crates, drums and poles are prohibited.
- 15.3.2 - Metal tube scaffolding is preferred. Any other scaffold materials require prior approvals.
- 15.3.3 - Scaffolding and related material shall be carefully inspected at regular intervals and particularly just before use.
- 15.3.4 - Sufficient sills and underpinning shall be provided for all scaffolds erected on filled or otherwise soft ground.
- 15.3.5 - Scaffolds shall be plumb and level at all times.
- 15.3.6 - Running scaffold shall be anchored to wall approx. every 9 meters of length and 6 meters of height. Additional anchors may be required when using pulley arms.
- 15.3.7 - All scaffolding must be equipped with handrails, midriffs and toeboards regardless of height.
- 15.3.8 - Scaffold shall not be used as material hoist towers, for mounting derricks or to support pipe or equipment.
- 15.3.9 - Timber boards used in the construction of work platform(s) shall be of good quality and reasonably straight grained, free from injurious ring shakes, cracks, splits, cross grains, unsound knots, knots in Contractor ease the strength of the timber. Planking shall not be painted, as this will conceal defects.
- 15.3.10 - Planks used for platforms shall be uniform thickness and lay close together. Planks shall be overlapped at the bearers by at least 0.6 meters, with the bearing in the center of the overlap. When overhang a bears more than one-tenth of the length of the span, the planks shall be securely fastened to the bearer at the opposite end to prevent tipping.
- 15.3.11 - Daily inspections shall be performed to ensure that no overstressing of structural members of scaffold will take place.
- 15.3.12 - Safety belts or harness and lifeline shall be used if other adequate protection against falls cannot be provided during erection or dismantling.
- 15.3.13 - Scaffolds and associated equipment shall not be modified in any manner that affects the designed performance. Only heavy tube scaffolding acceptable to heavy construction is allowed.
- 15.3.14 - Adjusting screws together with proper blocking shall be used to compensate for unevenness of ground.
- 15.3.15 - Braces shall not be forced to fit. The scaffold shall be adjusted until the proper fit can be made easily.
- 15.3.16 - Only ladders shall be used when climbing scaffold; the cross braces shall not be used.

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### **15.4 - Rolling and Tower Scaffolds**

- 15.4.1 - Tower of a height greater than three times the minimum base dimension shall be used.
- 15.4.2 - Caster brakes shall be locked when not in motion.
- 15.4.3 - Tower shall be free of men, material and equipment before being moved.
- 15.4.4 - Surface over which a tower scaffold is being moved shall be cleaned of rubber or any material that could cause the tower to tip over.
- 15.4.5 - Fixed towers shall be guyed or tied-off every 6 meters of elevation.

### **15.5 - Suspended Scaffolding**

- 15.5.1 - 10mm (minimum) steel wire rope shall be used to support or suspend scaffolds. All suspended scaffolds shall be anchored to prevent swinging.
- 15.5.2 - The suspended support shall be electrically insulated when are welding is to be performed to guard against arcing and subsequent failure.
- 15.5.3 - Worker on suspended scaffolds work platforms must use independent safely lines and safety harness with lifeline and lanyards.

## **16 - Steel Erection**

### **16.1 - Personal Protection**

- 16.1.1 - In all structures, all employees exposed to hazard more than 3m high shall wear safety belt or harnesses. Lifelines shall install as needed to due to facilities tying-off. When the use of safety belt is not appropriate due to the hazard of being pinched or struck by incoming steel, connectors will be only permitted to unhook their safety harness during the actual receiving and positioning of structural members. As soon as it is safe and appropriate to do so (generally as soon as the connection bolts have been installed), the connector will be required to rehook his safety belt.
- 16.1.2 - Safety nets are only an acceptable substitute for safety belt when the use of safety belts is impractical. When safety nets are used, they will generally be used on the interior of the structure only. Lifeline will be installed along the perimeter and within the structure whenever employees are exposed will be tie-off whenever they are so exposed.
- 16.1.3 - For the protection of other crafts, signs and barricades will be installed at the area where the erection of steel is in progress.
- 16.1.4 - It should be emphasized that this mandatory and must be followed at all times. Any person who is found violating this procedure will be subject to removal from the site.

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### **16.2 - Rigging**

- 16.2.1 - A competent worker prior to initial use on the project shall inspect rigging equipment and monthly thereafter to ensure that it is safe.
- 16.2.2 - Damaged rigging equipment shall be removed from service immediately.
- 16.2.3 - Riggers must be qualified to rig and signal.

### **17 - Welding & Burning**

- 17.1 - Welding or cutting torches and hoses shall not be connected to cylinders when stored in any enclosure or building. When work is shut down and hoses disconnected all valves at the gas and oxygen cylinders must be closed.
- 17.2 - Gas and oxygen cylinders shall be handled with care, properly supported in an upright position away from any source of heat or flames and securely tied-off. All cylinders not in use shall have the protective valve cap in place, shall be vertically secured, and be stored outside the work area.
- 17.3 - Oxygen cylinders in storage and not in use shall be separated from gas cylinders by a fire retardant partition or a minimum distance of 6 meters.
- 17.4 - When hoisting equipment, a basket lifts gas and oxygen cylinders, cradle or similar handling device shall be closed.
- 17.5 - When oxygen or gas cylinders are transported, protective valve caps shall be in place and valves shall be used.
- 17.6 - Special care (use of welding blankets) shall be taken during overhead cutting and welding operations to safeguard the work and prevent falling sparks from starting a fire or causing damage. Warning signs shall be posted around and at each level below the area of overhead welding or burning operation. Fire extinguishers will be ready and available, or the plant approved fire houses must be attached to firewater hydrants ready for use.
- 17.7 - Gas and oxygen cylinders shall be used when secured on a cylinder carrier. Loose cylinders shall never be used.
- 17.8 - Oxygen cylinders and equipment shall be kept free from oil or grease.
- 17.9 - Gas and oxygen cylinders shall not be taken into confined spaces.
- 17.10 - Welding cables and oxygen gas hoses shall be inspected regularly. The hoses shall be fitted by means of tight hose clamps.
- 17.11 - The ground cable shall be attached as close as possible to the work piece by means of a clamp. The ground cable shall not be attached to an existing installation or apparatus. Welding of the ground cable is forbidden.
- 17.12 - Welder and his helpers must use adequate eye and face protection while welding. Welding shields (curtains) must be used to protect the eyes of nearby workers from flash burn exposure.





## ***TARAVOSH JAM Presentation***

- 17.13** - Oxygen and gas cylinders must be transferred to a designated location away from operating units and tank farms after working hours.
- 17.14** - When not in use, diesel welding machines, generators, and transformers must be turned off. When in use they must be protected by suitable covers for general protection. Refueling shall be done with machines turned off.
- 17.15** - When employees are working with welding and cutting equipment, adequate ventilation has to be furnished.
- 17.16** - All combustible material in the vicinity the welding or cutting operation must be removed, or of this is not possible, covered by fire resistant materials.
- 17.17** - All welding cables and oxygen hoses shall hanged 1m high steel column wall not to disturb on passage or access.
- 17.18** - The work area must be kept clean and wooden, all combustible material must be removed.
- 17.19** - Welding machines shall be turned off at the end of your shift.
- 17.20** - Never do electric welding from a metal ladder
- 17.21** - Gas and oxygen cylinders shall be provided with turn-off wrench during use.
- 17.22** - Must be check regulator well fitted to cylinder.
- 17.23** - Do not use matches or cigarettes to light a torch.
- 17.24** - Do not use compressed gas to clean your clothing, blow out cinch anchor holes or otherwise clean your working area.
- 17.25** - Gas cylinders shall be handled with care and shall not be dropped.
- 17.26** - Gas cylinder shall not be misused as rollers, support or for any other similar purpose.

### **18 - Electrical Work**

- 18.1** - Qualified and experienced workers shall perform all electrical woks; equipment shall be locked or secured to prevent starting by unauthorized person.
- 18.2** - Warning signs or posters, such as DANGER, NO ENTRY, DON'T TOUCH, etc., shall be posted at dangerous places, such as substations, switch boxes, and overhead or underground cable.
- 18.3** - Electrical parts to be used shall be in good condition, including cords for connection. The extension and outlets to connect tools have to be polarized.
- 18.4** - Transformer Banks or high voltage equipment shall be barricaded with a fence. The entrance shall be locked.
- 18.5** - Circuit Breakers shall be provided for all electrical equipment, to prevent worker from being injured be electrical shock.
- 18.6** - Temporary switch boxes shall be installed in the space provided with a waterproof roof and door which can be locked. Switch boxes shall be grounded with vinyl-insulated copper wire.



## ***TARAVOSH JAM Presentation***

**18.7** - Before welding machines are used, insulation shall be tested and certified to be in safe operating conditions. Automatic ant electric discharge devices shall provided for all welding machines. All exposed terminals shall be covered safely with insulation tape.

**18.8** - To prevent a short circuit or electric discharge, special precautions, such as grounding, shall be taken for wiring work where metal scaffolds or steel structures are erected. Grounding shall be secured by connecting the wire to on earth and buried firmly in the ground.

### **19 - Vessel & Confined Space Environment (V/CS)**

**19.1** - A breathable atmosphere can be maintained by either natural draft or forced ventilation. Compressed air must be blown into a V/CS. Air supplied respiratory equipment is required when entering a V/CS when there is any oxygen deficiency (less than 19.5%)

**19.2** - The atmosphere in the V/CS shall be tested to entry and special care must be taken to ensure that all accessible areas of the V/CS are sampled. Periodic tests should also be done during the work.

#### **19.3 - Welding and Burning**

19.3.1 - The possibility of flammable, explosive, or toxic materials being absorbed in the shell material must be considered prior to burning or welding.

19.3.2 - All surfaces covered with toxic preservatives shall be stripped of all toxic coating for a distance of at least 2 feet from the area of heat application or employees shall be protected by air supplied respirators and, if applicable, protective clothing.

19.3.3 - Burning shall be done only with the cylinders located outside the V/CS and hose connections shall be checked for leakage prior to tank entry. Remove all hoses from the V/CS at the end of the work, during lunch periods, etc. welding shall be done only with welding machines left outside the V/CS.

### **20 - Abrasive Blasting**

**20.1** - Abrasive are shattered and pulverized during blasting operations and the dust formed will contain particles of reparable size. Therefore, the concentration of reparable dust in the breathing zone of the abrasive blasting operator or any other workers must be kept below toxic levels. Adequate personal safety equipment should be provided for works.

**20.2** - Aisles and walkways must be kept clear of steel shot or similar abrasive which may create a slipping hazard. Dust from abrasive operation shall not be permitted to accumulate on floors and shall be cleaned up promptly.

**20.3** - Sand or shot blasting areas, when possible, are to be prepared to minimize dust hazards to other Workers. If this is not possible, all trades working in the area to be blasted should be removed from the area before blasting operations are started.

## ***TARAVOSH JAM Presentation***

**20.4** - Operators shall be equipped with heavy canvas or leather gloves and aprons or equivalent protection to protect them from the impact of abrasives. Safeties shoes shall be worn to protect against foot injury heavy pieces of work are handled.

**20.5** - Equipment for protection of the eyes and face shall be supplied to the operator when the respirator design neither does nor provide such protection and to any other Workers working in the vicinity of the abrasive blasting operations.

### **21 - Pressure Testing**

#### **21.1 - General**

The purpose of pressure testing is to establish the strength, tightness, and suitability of a line or vessel. It is essential that safe practices are observed during testing since this can be a hazardous procedure. Stresses are high in the item being tested; there is the danger of air pockets with the subsequent risk or explosion; and where flammable fluids are used for testing, there is the ever present danger of fire should a rupture occur.

#### **21.2 - Preparation**

21.2.1 - The person in charge of testing should have read test procedure and instruction prepared in site office. All persons who will work on the test must be informed of the hazards and the necessary precautions.

#### **21.3 - General Requirements**

21.3.1 - No one should be allowed near equipment under test when the pressure is near the yield strength or when test pressures of over 35 Kg/cm<sup>2</sup> are being applied. The pressure should be lowered by 10% before inspecting for leaks.

21.3.2 - The rate of pressure increase must not exceed 7 Kg/cm<sup>2</sup> per minute.

21.3.3 - Smoking and other sources of ignition should not be permitted in the immediate area when testing with a flammable liquid.

21.3.4 - When draining test fluid, the vessel should be vented slowly to avoid excessive vacuum.

21.3.5 - Oxygen lines must be flushed of all traces hydrocarbons before introducing oxygen.

## ***TARAVOSH JAM Presentation***



### **22 - Chemical**

#### **22.1 - Handling of Chemicals**

- 22.1.1 - Before handling any chemical it is essential to know its properties and follow the proper precaution and procedure.
- 22.1.2 - All chemical shall be stored in appropriate containers with proper labels.
- 22.1.3 - Hazardous chemical must be effectively isolated to avoid contamination. Incompatible materials must not be stored in the same area.
- 22.1.4 - All employees must be aware that many of these chemicals are potential fire, explosion hazards and/or health hazards.
- 22.1.5 - If you need assistance in establishing the hazard potential of a chemical, always consult your supervisor.

Document Name:

***TARAVOSH JAM Presentation***



Chapter10  
*Certificate*

## TARAVOSH JAM Presentation



شرکت مشارکتی  
توف نورد ایران  
(عضو گروه TÜV NORD)

تهران، خیابان سه‌رودی شمالی،  
خیابان فیروزه، پلاک ۲۲، ساختمان  
فیروزه، طبقه پنجم، واحد ۴  
کدپستی: ۱۵۵۳۸

تلفن: ۱۹، ۱۶، ۸۸۷۶۰۱۴  
فاکس: ۸۸۷۵۸۲۱۲  
audit.office@tuvnordiran.com  
www.tuvnordiran.com

تاریخ: ۹۳/۱۲/۰۶

شماره: ۱۳۲-۱۵/۰۰۸۸۳

بسمه تعالی

### گواهی

بدین وسیله گواهی می‌نماید که سیستم مدیریت کیفیت

شرکت طراحی و مهندسی تراوش جم

Taravosh Jam Design & Engineering Co.

مبتنی بر استاندارد ISO 9001:2008

در دامنه کاربرد

"طراحی واحدهای نفت، گاز، پتروشیمی و تجهیزات مربوطه

از قبیل (مخازن تحت فشار، مبدل‌های حرارتی و تجهیزات پالایشگاهی)"

مورد ممیزی صدور گواهینامه (Certification Audit) قرار گرفته است.

از نظر تیم ممیزی، سیستم مدیریت کیفیت در شرکت طراحی و مهندسی تراوش جم، استقرار کامل یافته و نتیجه ممیزی مثبت می‌باشد.

شرکت طراحی و مهندسی تراوش جم، به مرکزیت TÜV NORD CERT در شهر Essen آلمان، جهت صدور گواهینامه ISO 9001:2008 توصیه خواهد گردید.

دکتر کامران رضائی

مدیر عامل و عضو هیأت مدیره



## **TARAVOSH JAM Presentation**



**TÜV NORD**

TÜV NORD Iran  
Joint Venture Co. (P.J.S)  
(Member of TÜV NORD Group)

Apt.4, 5<sup>th</sup> floor,  
Firoozeh Building, #22,  
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Tehran, 15538, Iran  
Tel: +98- 21- 88746014, 16, 19  
Fax: +98 - 21 - 88758212  
audit.office @tuvnordiran.com  
www. tuvnordiran.com

### **Certification of the Quality Management System**

Tehran, 25.02.2015  
Number: 132-15-00883

The **Taravosh Jam Design & Engineering Co.** instructed the Certification Body of **TÜV NORD CERT** to audit their quality management system to check the compliance with the requirements of **ISO 9001:2008** in the scope of:

**“Design of Oil, Gas & Petrochemical Units and Related Equipments such as Pressure Vessels, Heat Exchangers & Refinery Equipments”**

The objective is the award of the related TÜV NORD CERT certificate.

The Certification Audit was performed successfully in the company.

The audit team has decided unanimously to recommend issuance of the certificate by the head of certification body of TÜV NORD CERT GmbH.

Dr. Kamran REZAIE

A handwritten signature in blue ink, appearing to read 'K. Rezaie', is written over a light blue background.

Managing Director & Member of Board

## TARAVOSH JAM Presentation



تاریخ: ۹۲/۶/۳  
شماره: ۷۸۹۵/۱۰۰/۹۲/۷۴  
پیوست:



بسمه تعالی  
شرکت پشتیبانی ساخت و تهیه  
کالای نفت تهران

بررسی منابع

جناب آقای عابدین زادگان عبدی  
مدیر عامل محترم شرکت طراحی و مهندسی تراوش جم

موضوع: وندور لیست شرکت کالای نفت تهران

باسلام،

احتراما" عطف به نامه شماره f-2267 مورخ ۹۲/۶/۳ باطلاع می رساند شرکت طراحی و مهندسی تراوش جم بعنوان شرکت در طراحی و مهندسی در زمینه های زیر فعالیت داشته و در بررسی منابع شرکت پشتیبانی ساخت و تهیه کالای نفت تهران به ثبت رسیده است.

- 1- REFINERY PROCESS PLANT COMPONENTS & PARTS
- 2- BOILERS AND ACCESSORIES SUCH AS DEAERATOR , ...
- 3- PETROCHEMICAL PROCESS PLANT COMPONENTS & PARTS

با تشکر  
حسین عباسیان  
رئیس بررسی منابع

## TARAVOSH JAM Presentation



تاریخ : ۹۲/۱/۲۶  
شماره : ۷۲.۱۲۰  
پوست



شرکت مهندسی و توسعه نفت  
(سهامی خاص)

بسمه تعالی

جناب آقای مهندس عباسیان  
مدیریت محترم بررسی منابع شرکت پشتیبانی ساخت و تهیه کالای نفت تهران

باسلام واحترام

به استحضار می رساند شرکت طراحی ومهندسی تراوش جم به آدرس خیابان مطهری خیابان میرعماد کوی دهم پلاک ۱ ساختمان عقاب واحد ۵ جهت مشارکت در طرحهای این شرکت درخواست همکاری دارد لطفا دستور فرمایید در مورد شرکت مذکور بررسی و نسبت به اعلام نتیجه کتبی به این امبور درخصوص قرارداداشتن در ویندورلیست وزارت نفت اقدام لازم معمول فرمایند.

۹۲/۲/۲۶

اصغر حسین زاده سرشکی  
مدیر تدارکات و خدمات کالا



## TARAVOSH JAM Presentation



تاریخ: ۹۲/۱/۲۶  
شماره: ۹۲/۱۰۰/۱۲۲۰  
پیوست:



بسمه تعالی  
شرکت پشتیبانی ساخت و تهیه  
کالای نفت تهران

بررسی منابع

جناب آقای حسین زاده سرشکی

مدیر محترم تدارکات و خدمات کالا - شرکت مهندسی و توسعه نفت

موضوع: شرکت طراحی و مهندسی تراوش جم

باسلام،

احترماً عطف به نامه شماره ۷۲۱۲۰ مورخ ۹۲/۱/۲۶، به استحضار میرساند شرکت طراحی و مهندسی تراوش جم در وندورلیست شرکت پشتیبانی ساخت و تهیه کالای نفت تهران به ثبت رسیده است، مراتب جهت هرگونه اقدام مقتضی ایفاد می گردد.

با تشکر  
حسین عباسیان  
۹۲/۱/۲۷  
رئیس بررسی منابع

# TARAVOSH JAM Presentation



## گزارش اقلام

نام شرکت طراحی و مهندسی تراوش جم

ردیف	اینسکس	شرح	کد	898336	فایل	fldSourceFileNo
۱	130000				General	
۲	418000				General	
۳	420101				INCINERATORS, INDUSTRIAL	
۴	422200				General	
۵	429999				AUXILIARY PLANT COMPONENTS AND PARTS	
۶	433800				General	
۷	434900				General	
۸	438025				SEPARATORS, PROCESS PLANT	
۹	439998				طراحی- اجرا- نظارت و بازرسی پروژه های مهندسی	

## TARAVOSH JAM Presentation

پیرو درخواست ذیل به شماره 2609-F مورخ ۹۳/۰۳/۲۶ شرکت طراحی و مهندسی تراوش جم در Vendor List شرکت نفت فلات قاره جهت طراحی و ساخت محصولات ذکر شده با کد رهگیری ۸۲۲۲ قرار گرفته است و از طریق واحد بررسی منابع آن شرکت قابل پیگیری می باشد.

شماره: 2609-F  
تاریخ: 93/03/26  
پیوست: دارد

بسمه تعالی



شرکت نفت فلات قاره ایران  
مدیریت محترم واحد بررسی منابع و پشتیبانی از ساخت داخل

### موضوع: شناسایی تأمین کنندگان

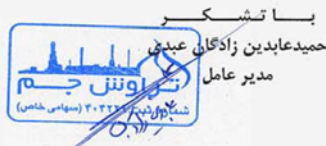
با سلام؛

احتراماً، پیرو آگهی واحد بررسی منابع شرکت نفت فلات قاره ایران در خصوص ارزیابی و بروزرسانی فهرست تولید کنندگان و تأمین کنندگان تجهیزات مورد نیاز، کلیه مدارک و سوابق درخواستی آن شرکت به پیوست ارسال می گردد.  
لازم به ذکر است شرکت طراحی و مهندسی تراوش جم سابقه تأمین و ساخت پکیج در پروژه های شرکت نفت فلات قاره ایران را دارا می باشد.  
پروژه های انجام شده مربوط به شرکت نفت فلات قاره، ساخت هوازدايي تحت خلاء (Vacuum Deaerator) پروژه تزریق آب سیری (شرکت کنترل قدرت) و ساخت فیلترهای آب نرم (Fine Filter) پروژه سکوی رشادت (صدر) می باشد. کلیه محصولات فوق به صورت EPC طراحی و اجرا شده است.  
در ضمن انجام مدیریت پروژه و مدیریت مهندسی در پروژه هوازدايي خلاء (Vacuum Deaerator) پروژه سکوی رشادت (صدر) توسط مدیران ارشد این شرکت تحقق یافته است.  
محصولات شرکت طراحی و مهندسی تراوش جم که به صورت EPC انجام می شود به شرح ذیل می باشد:

- |                                  |                                  |
|----------------------------------|----------------------------------|
| 1- Steam Deaerator               | 7- 3 Phase Separator & Internals |
| 2- Vacuum Deaerator              | 8- Furnace                       |
| 3- Trace Gas stripping Deaerator | 9- Fine Filter Package           |
| 4- Incinerator                   | 10- Flare Recovery Unit          |
| 5- Heat Recovery Boiler          | 11- Mini Refinery                |
| 6- Sampling Cooler               |                                  |

پیشاپیش از همکاری و لطف جنابعالی تقدیر می گردد.

باتشکر  
حمیدعابدین زادگانی عبدی  
مدیر عامل



Page 1 of 1

آدرس شرکت تراوش جم: تهران، خیابان استاد مطهری، خیابان میرعما، کوی دهم، پلاک ۱/۱، ساختمان عقاب، واحد ۵  
کدپستی: ۱۵۸۷۸۳۵۴۱۶ تلفن: ۷-۸۸۵۴۴۷۰۶ فاکس: ۳-۸۸۵۴۴۷۰۳ پست الکترونیکی: [INFO@TARAVOSHJAM.COM](mailto:INFO@TARAVOSHJAM.COM)

# TARAVOSH JAM Presentation





# TARAVOSH JAM Presentation

شرکت بالایش گاز شهید هاشمی نژاد

تاریخ:

۹۲,۷,۱۳

باسلام،

بدینوسیله اعلام می دارد شرکت/آقای طاهر و محمد حسن محمدزاده پیمان شماره ..... با

موضوع فروش و اجرای سیم انبردها به مبلغ ..... ریال راز تاریخ ۹۰,۷,۱۰ تا تاریخ ۹۱,۲,۱۸ به

مدت ..... به عنوان پیمانکار برای این مجموعه به انجام رسانیده و موارد ذیل به عنوان ارزیابی حسن سابقه شرکت مذکور اعلام می گردد.

نام شرکت کارفرمایی: شرکت صنعتی مهادین (تکمیل این بخش الزامی است).

نام و نام خانوادگی تایید کننده فرم: (صاحب امضا مجاز): سید محمود باج نژاد (تکمیل این بخش الزامی است).

سمت تایید کننده فرم: (صاحب امضا مجاز): مدیر عامل (تکمیل این بخش الزامی است).

۱- کیفیت اجرای کار

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

۲- کفایت کادر فنی

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

۳- رعایت حقوق مادی و معنوی کارکنان تحت سرپرستی

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

۴- توان مدیریتی پروژه (رئیس کارگاه، نماینده پیمانکار)

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

۵- رفتار سازمانی و تعامل با کارفرما در جهت اجرای پیمان

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

۶- اجرای مدیریت زمان پیمان و منطبق با برنامه مصوب (زمانبندی پروژه)

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نامناسب (۰)

نام منافعه گو

شرکت صنعتی مهادین

نام دستگاه کارفرمایی (قبلی):

مهر و امضا

نام و نام خانوادگی صاحب امضا مجاز دستگاه کارفرمایی

مهر و امضا

سید محمود باج نژاد

شرکت مهادین  
صفتی

# TARAVOSH JAM Presentation

شرکت بلایش گاز شهید هاشمی نژاد

تاریخ:

باسلام،

بدینوسیله اعلام می دارد شرکت آقای حسن (پیمان) پیمان شماره SADR-IMI-P-040-1391  
 موضوع Fine Filter Paedkaye به مبلغ 2.169.000 ریال راز تاریخ ۱۳۹۱/۳/۱۷ تا تاریخ ۱۳۹۱/۳/۱۷

مدت..... به عنوان پیمانکار برای این مجموعه به انجام رسانیده و موارد ذیل به عنوان ارزیابی حسن سابقه شرکت مذکور اعلام می گردد.

نام شرکت کارفرمایی: شرکت صنعتی دریایی ایران (مسلا)..... (تکمیل این بخش الزامی است).

نام و نام خانوادگی تایید کننده فرم: (صاحب امضا مجاز)..... (تکمیل این بخش الزامی است).

سمت تایید کننده فرم: (صاحب امضا مجاز)..... (تکمیل این بخش الزامی است).

۱- کیفیت اجرای کار

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

۲- کفایت کادر فنی

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

۳- رعایت حقوق مادی و معنوی کارکنان تحت سرپرستی

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

۴- توان مدیریتی پروژه (رئیس کارگاه، نماینده پیمانکار)

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

۵- رفتار سازمانی و تعامل با کارفرما در جهت اجرای پیمان

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

۶- اجرای مدیریت زمان پیمان و منطبق با برنامه مصوب (زمانبندی پروژه)

عالی (۱۰۰) امتیاز  خوب (۷۵) امتیاز  متوسط (۵۰)  نا مناسب (۰)

نام مناقصه گر

نام دستگاه کارفرمایی (قبلی):

مهر و امضا

نام و نام خانوادگی صاحب امضا مجاز دستگاه کارفرمایی

مهر و امضا

مهر و امضا  
 شرکت صنعتی دریایی ایران (های ما)  
 صدرا

# TARAVOSH JAM Presentation

شرکت پالایش گاز شهید هاشمی نژاد تاریخ:

باسلام.


بدینوسیله اعلام می دارد شرکت/آقای ..... پیمان شماره ..... با  
 موضوع..... به مبلغ..... ریال را از تاریخ..... تا تاریخ..... به  
 مدت..... به عنوان پیمانکار برای این مجموعه به انجام رسانیده و موارد ذیل به عنوان ارزیابی حسن سابقه شرکت مذکور اعلام می گردد.  
 نام شرکت کارفرمایی: **شرکت مهندسی کنترل قدرت مازندران آب تزریق آب (IOOC)** (تکمیل این بخش الزامی است).  
 نام و نام خانوادگی تایید کننده فرم: (صاحب امضا مجاز): **ایرین سفیر سعادت** (تکمیل این بخش الزامی است).  
 سمت تایید کننده فرم: (صاحب امضا مجاز): **مدیر پروژه** (تکمیل این بخش الزامی است).

۱- کیفیت اجرای کار	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>
۲- کفایت کادر فنی	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>
۳- رعایت حقوق مادی و معنوی کارکنان تحت سرپرستی	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>
۴- توان مدیریت پروژه (رئیس کارگاه، نماینده پیمانکار)	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>
۵- رفتار سازمانی و تعامل با کارفرما در جهت اجرای پیمان	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>
۶- اجرای مدیریت زمان پیمان و منطبق با برنامه مصوب (زمانبندی پروژه)	عالی (۱۰۰) امتیاز <input checked="" type="checkbox"/>	خوب (۷۵) امتیاز <input type="checkbox"/>	متوسط (۵۰) <input type="checkbox"/>	نا مناسب (۰) <input type="checkbox"/>

نام دستگاه کارفرمایی (قبلی): **شرکت مهندسی کنترل قدرت**  
 نام و نام خانوادگی صاحب امضا مجاز دستگاه کارفرمایی

نام مناقصه گر  
 مهر و امضا

مهر و امضا



مهر و امضا

**ایرین سفیر سعادت**  
**مدیر پروژه**

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تاریخ: ۱۳۹۴/۰۶/۰۶



شماره: ۱۳۹۴/۰۶/۰۶  
معمولاً: ۱۳۹۴/۰۶/۰۶  
معمولاً: ۱۳۹۴/۰۶/۰۶

**جناب آقای حمید مابدین زادگان**  
**مدیر عامل محترم شرکت تراوش جم**

**موضوع: رضایت نامه**

یا سلام

احتراماً این امور از عملکرد شرکت تراوش جم به منظور ارائه Logic سیستم کنترل، پیاده سازی آن و راه اندازی سیستم بخار پروژه فاز ۲، رضایت داشته و بدینوسیله از زحمات آن شرکت تشکر به عمل می آید.

با سپاس

حسین رفیع زاده



آدرس: تهران، خیابان ولیعصر، بالاتر از میدان ونک، کوچه شهید خلیل زاده، شماره ۱۷، تلفن: ۵-۸۸۷۸۶۹۹۲ (۰۲۱) فکس: ۰۶-۸۸۷۷۷۵۰ (۰۲۱)  
Address: No.17, khilizadeh St., Vali-e-Asr Ave., Vanak Sq., Tehran-Iran Tel: +98 (21) 88786992-5 Fax: +98 (21)88777506  
آدرس: ماهشهر، منطقه ویژه اقتصادی پتروشیمی، سایت ۲، تلفن: ۰۶۱-۵۲۱-۲۲۷۵۰ (۰۶۱) فکس: ۰۶۱-۵۲۱-۲۲۲۰۰ (۰۶۱)  
Address: Site 2, Petrochemical Special Economic Zone (Pet zone), Maheshar - Tel: 061-521-22750 Fax: 061-521-22030

**TUV NORD**

# گواهینامه

سیستم مدیریت مبتنی بر  
**EN ISO 9001 : 2008**

مطابق با روش‌های اجرایی TÜV NORD Iran، گواهی می‌نماید که



شرکت طراحی و مهندسی تراوش جم

خیابان استاد مطهری، خیابان میرعماد، کوی دهم، پلاک ۱/۱، ساختمان عقاب، واحد ۵

سیستم مدیریت را در پیروی از استاندارد بالا برای دامنه کاربرد تشریح شده در زیر، بکار می‌گیرد

طراحی واحدهای نفت، گاز، پتروشیمی و تجهیزات مربوطه از قبیل مخازن تحت فشار،  
مبدل‌های حرارتی و تجهیزات پالایشگاهی

دارای اعتبار تا تاریخ: 2018-02-20

شماره ثبت گواهینامه: IR 100 15/0014

شماره گزارش ممیزی: 100 IR 3699

  
بهش صدور گواهینامه در  
TÜV NORD IRAN  
تهران، 2015-02-21



صدور این گواهینامه مطابق با روش‌های اجرایی ممیزی و صدور گواهینامه TÜV NORD Iran انجام شده است و ممیزی‌های مراقبتی

مقرر را به همراه خواهد داشت.

شرکت مشارکتی توف نورد ایران تهران، خیابان سهروردی شمالی، خیابان فیروزه، پلاک ۲۲، ساختمان فیروزه، طبقه ششم، واحد ۴



# TARAVOSH JAM Presentation



## CERTIFICATE

Management system as per  
**EN ISO 9001 : 2008**

In accordance with TÜV NORD Iran procedures, it is hereby certified that

**TARAVOSH JAM DESIGN & ENGINEERING Co.**

Unit 5, Oghab Bvl. No.101,  
10th Alley, Miremad St., Motahari St.,  
Tehran, Iran



applies a management system in line with the above standard for the following scope

**Design of Oil, Gas & Petrochemical Units and Related equipments such as  
Pressure Vessels, Heat Exchangers & Refinery Equipments**

Certificate Registration No. IR 100 15/0014

Valid until 2018-02-20

Audit Report No. 100 IR 3699



Certification Division  
at TÜV NORD Iran

Tehran, 2015-02-21

This certification was conducted in accordance with the TÜV NORD Iran auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD Iran

Apt.4, 6th Floor, Firoozeh Building, No. 22, Firoozeh St., North Sohravardi St., Tehran, Iran

Document Name:

***TARAVOSH JAM Presentation***



Chapter11  
*Financial Information*



## ***TARAVOSH JAM Presentation***



### **Taravosh Jam Financial Information**

Please follow below table for the last 3 years certified balance sheets and incoming statement.

<b>Year</b>	<b>Annual Sales</b>	<b>Annual Turn Over</b>	<b>Current Asset</b>	<b>Current Liabilities</b>	<b>Asset/Liability Ratio</b>
2013	550,000,000	73,469,184,187	46,367,421,195	45,369,245,656	1,03
2014	9,366,777,000	111,422,517,163	59,622,781,448	58,634,328,183	1,02
2015	11,146,331,250	196,328,956,363	77,096,429,508,	76,176,663,764	1,02