

ADVERTISEMENT

MIDLAND REFINERIES CO. ANNOUNCES FOR PURCHASING THE MATERIALS AS STATED BELLOW:-

REQ.NO.	DESCRIPTION	QTY.	PRICE/ ID DINAR	عدد مرات الاعلان مرة اولى
3628/2011	5X80TON/HR STEAM PACKAGE DEMI. PLANT 2X150 M3 /HR FUEL OIL SYSTEM (60 M3/HR)	5 NOS	1500 000	

NOTE:

1. THE REQ. TO BE SOLD IN IRAQI DINAR, UN RETURNABLE.
2. WE PREFER PRICES IN US DOLLAR AND CIP BAGHDAD (DAURA REFINERY) AND NOT ACCEPTABLE BY LOCAL CURRENCY FOR FOREIGN REQ.
3. CLOSED (TECHNICAL & COMMERCIAL) OFFERS TO BE SUBMITTED SEPARATELY BY (DHL) & ALL THE OFFERS THAT SEND BY E-MAIL WILL BE REFUSED.
 - ALL PAGES OF TECHNICAL & COMMERCIAL OFFER SHOULD NUMBERED WITH ATTACHMENT
4. ALL DOCUMENTS (PROFILE) AND SIMILAR CONTRACTS WHICH THEY ACHIEVED ISSUED BY GOVERNMENTAL CONTRACTS MUST BE SUBMITTED BEFORE PURCHASING THE REQ. OR THE OFFERS OTHERWISE THE OFFER WILL BE REFUSED
5. TERMS OF PAYMENT IS BY IRREVOCABLE & UN CONFIRMED LETTER OF CREDIT TO BE PAID 100% AFTER THE RECEIPT OF GOODS IN BAGHDAD COMPLETE AND AS ORDER.
6. AN UNCONDITIONAL PERFORMANCE BOND OF 5% OF TOTAL AMOUNT OF THE L/C TO BE SUBMITTED WITHIN TWO WEEKS FROM THE DATE OF THIS ORDER IN FAVOUR OF (MIDLAND REFINERIES CO.) TO BE RELEASED AFTER THE RECEIPT OF GOODS COMPLETE AND AS ORDERED.
7. THE TOTAL VALUE DELAY PENALTY SHOULD BE APPLIED AND NOT EXCEED 10%
8. THE BID BOND SHOULD BE SUBMITTED 1% FROM THE TOTAL VALUE OF YOUR OFFER (COMMERCIAL OFFER) AS (LETTER OF GUARANTEE OR CERTIFIED CHEQUE OR BANK GUARANTEE) **ORIGINAL COPY** ISSUED FROM (TRADE BANK OF IRAQ, DAR ESSALAAM INVESTMENT , ALA ATIMAN , BYBLOS, ISLAMIC BILAD , MIDDLE EAST ASHUR INTERNATIONAL BANK FOR INVESTMENT, ECONOMY BANK FOR INVESTMENT & FINANCE) AND RELEASED IMMEDIATELY IN CASE THE REQUEST IS NOT AWARDED TO THE COMPANY.
 - THE CHEQUE & THE BANK GUARANTEE THAT ISSUED FROM AL WARKA BANK ARE NOT ACCEPTABLE
9. THE COMPANY MUST SUBMIT ACOVENANT ENCLOSED WITH THE TECHNICAL OFFER THAT THEY HAVE SUBMITTED ABID BOND (**ORIGINAL COPY**) WITH COMMERCIAL OFFER AND (WITHOUT STATING THE AMOUNT OF THE BID BOND) OTHERWISE THE OFFER SHOULD BE NEGLECTED
10. 3% OF TOTAL VALUE OF THE PURCHASE ORDER FOR IRAQI COMPANIES ALSO IN CASE THE PAYMENT OF PAYABLE IN IRAQI DINAR TO BE DEDUCTED AS TAXES AND RETURN THROUGH TAXES OFFICE
11. 0.002 STAMP DUTY SHOULD BE DEDUCTED .
12. ORIGIN CERTIFICATE & COMMERCIAL INVOICES SHOULD BE APPROVED BY IRAQI EMBASSY/ COMMERCIAL ATTACHED IN COUNTRY OF ORIGIN
13. ALL OFFERS AND CORRESPONDENCES SHOULD BE CLEARLY SIGNED BY GENERAL MANAGER OR WHOM ARE OFFICIALLY EMPOWERED VIA A POWER OF ATTORNEY OTHERWISE THE OFFERS SHOULD BE NEGLECTED
14. CLOSING DATE IS- 25/10 /2011 TILL (1) O, CLOCK (AFTER NOON)

NOTE:- YOU CANFIND THE CONDITIONS OF SUBMITTING OFFER ON

WEBSITE : www.oil.gov.iq OR www.dauramrc.com

**SAAD NOORI MOHAMMED
G. MANAGER**

CONDITIONS FOR PRESENT IMPORT REQUISITIONS TENDERS

<p>1. PAYMENT : BY IRREVOCABLE UNCONFIRMED AND UNTRANSFERABLE LETTER OF CREDIT (L/C) TO BE PAID 100% AFTER RECEIPT OF MATERIAL COMPLETE AND AS ORDERED , THE ABOVE PERCENTAGE CAN BE CHANGED AGAINST BANK GUARANTEE , CONFIRMATION CHARGES TO BE BORNE BY SUPPLIER (SECOND PARTY) IF REQUESTED OR BY WIRE TRANSFER</p> <p>- WE CAN PAY IN IRAQI DINAR AND EQUAL THE VALUE OF THE PURCHASE ORDER FOR IRAQI COMPANIES ALSO IN CASE OF THE COMPANY (SECOND PARTY) REQUEST THAT INSTEAD OF L/C AND HAS (ACCOUNT NUMBER) INSIDE IRAQ.</p>	<p>١- شروط الدفع المعتمدة لدينا / اعتماد مستندي غير قابل للنقض او التحويل وغير مثبت وتطلق المستحقات ١٠٠% بعد استلام المواد كاملة ومطابقة ويمكن الاتفاق على نسب اخرى مقابل ضمانات ويتحمل المجهز مصاريف تثبيت الاعتماد في حالة طلبه ان يكون الاعتماد مثبت او حوالة مصرفية</p> <p>- يمكن دفع المبالغ بما يعادل مبلغ امر الشراء بالدينار العراقي للشركات العراقية او الشركات التي ترغب بذلك وبدون فتح اعتماد في حالة توفر حساب مصرفي داخل العراق .</p>
<p>2. SUPPLIER (SECOND PARTY) MUST SUBMIT A BID BOND 1% OF TOTAL VALUE OF HIS OFFER (BANK GUARANTEE , LETTER OF GUARANTEE OR APPROVED CHECK) (ORIGINAL COPY) WITH THE COMMERCIAL OFFER THE BID BOND SHOULD BE RELEASED IN CASE OF NOT AWARDING THE REQUISITION AND TO BE CONFISCATED IF SUPPLIER (SECOND PARTY) NOT BE BOND REGARDING HIS OFFER AFTER INFORMING THE AWARDING AND TO BE NEGLECT THE OFFER IF SUPPLIER NOT BE SUBMITTED THE BID BAND</p>	<p>٢- يقدم المجهز تامينات اولية مقدارها (١%) من قيمة العطاء (خطاب ضمان او صك مصدق او كفالة مصرفية) (نسخة اصلية) ويوضع في العرض التجاري ويتم اطلاق هذه التامينات في حالة عدم الاحالة عليه وتصدر في حالة عدم التزامه بالعرض بعد تبليغه بالاحالة ويهمل العرض في حالة عدم تقديم التامينات الاولية</p>
<p>3. DELIVERY PERIOD SHOULD BE EXACTLY SHOWN.</p>	<p>٣- يتم تحديد فترة التجهيز ولا تقبل عبارة (من - الى)</p>
<p>4. WE PREFER PRICES IN US DOLLAR AND CIP BAGHDAD (MIDLAND REFINERY COMPANY)</p>	<p>٤- يفضل تقديم العروض بعملية الدولار واصل بغداد (شركة مصافي الوسط)</p>
<p>5. IN CASE OF PARTIAL SHIPMENT , NUMBER OF SHIPMENTS AND QTY TO BE MENTIONED IN THE OFFER AND TO BE SUPPLIED WITHIN DELIVERY PERIOD , PAYMENT WILL BE EFFECTED AFTER RECEIPT OF EACH SHIPMENT COMPLETE AND AS ORDERED .</p>	<p>٥- في حالة تجزئة الشحن يثبت ذلك في العرض مع تحديد عدد الشحنات وكمياتها ضمن فترة التجهيز وتدفع قيمة كل شحنة بعد استلامها كاملة ومطابقة</p>
<p>6. SUPPLIER (SECOND PARTY) BEAR THE RESPONSIBILITY OF THE INSURANCE OF THE MATERIAL TILL RECEIPT AT BUYER S SITE (FIRST PARTY) . UNLESS THERE IS ANOTHER AGREEMENT MENTIONED IN THE CONTRACT</p>	<p>٦- يتحمل البائع مسؤولية التأمين على البضاعة لحين وصولها الى المشتري الا اذا كان هناك اتفاق اخر يثبت في العقد</p>
<p>7. TWO OFFERS TECHNICAL & COMMERCIAL IN</p>	<p>٧- يقدم عرضان منفصلان / تجاري وفني يثبت على غلاف كل منهما رقم</p>

SEPARATED ENVELOPES SHOULD BE SUBMITTED, - REQ	الطلبية / اسم المجهز/ تاريخ الغلق وتكون المواصفات الفنية مفصلة وموقعة من
NO. , NAME OF SUPPLIER, CLOSING DATE SHOULD BE STATED, - IF THE TWO OFFERS ABOVE PUT IN ONE ENVELOPE BOTH OF THEM WILL BE REJECTED. ALSO OPEN OFFERS ARE REJECTED, TECHNICAL - SPECIFICATIONS SHOULD BE STATED CLEARLY.	قبل المجهز ويهمل العرض في حالة وضع التجاري والفني في ظرف واحد ولا تقبل العروض المكشوفة
8. THE NOT AS ORDERED OFFERS SHOULD BE DISREGARDED	٨- تهمل العروض الغير مطابقة للمواصفات
9. TECHNICAL INQUIRIES SHOULD BE EXECUTED BEFORE THE CLOSING DATE	٩- يمكن للمجهزين ان يرسلو استفساراتهم الفنية قبل تاريخ الغلق
10. OFFERS CANNOT BE ACCEPTED AFTER THE CLOSING DATE, CLOSED OFFERS TO SENT BY POST OR BY D.H.L ARE ACCEPTED AND SHOULD BE PUT TOGETHER WITH THOSE WHICH WERE BROUGHT BY HAND IN THE FOREIGN OFFERS BOX IN RECEPTION SECTION WITHIN THE CLOSING DATE PERIOD.	١٠- تهمل العروض التي ترد بعد تاريخ الغلق وتقبل العروض التي ترسل مغلقة بالبريد او D.H.L وتوضع مع العروض التي ترد باليد في صندوق استعلامات الشركة
11. OFFERS FOR MORE THAN ONE REQ. IN ONE ENVELOPE WILL BE REJECTED	١١- لايجوز وضع عروض لاكثر من طلبية في ظرف واحد حيث سيتم اهلها
12. PRICES TO BE FINAL NOT NEGOTIABLE AND OUR COMPANY IS NOT OBLIGED TO ACCEPT THE LOWEST PRICES .	١٢- الاسعار نهائية وغير قابلة للتفاوض وشركتنا غير ملزمة بقبول اوطأ العروض
13. THE AWARD SHOULD BE IN FAVOR OF THE COMPANY WHICH SENT THE OFFER . BENEFICIARIES NAME CANNOT BE CHANGED	١٣- الاحالة تكون باسم الشركة التي قدمت العرض ولايجوز تغيير اسم المستفيد
14. SAMPLES IF REQUESTED SHOULD BE SENT AND RECEIVED WITHIN THE CLOSING DATE PERIOD	١٤- في حالة طلب النماذج فتقدم خلال فترة الغلق
15. OUR COMPANY HAS THE RIGHT OF ASSIGNING WHOLE OR PARTIAL TO MORE THAN ONE SUPPLIER	١٥- يمكن لشركتنا الاحالة على اكثر من مجهز
16. REQUISITION SHOULD BE BOUGHT WITHIN CLOSING DATE PERIOD . THE RECEIPT SHOULD BE PUT IN THE TECHNICAL OFFER . COMPANIES WHICH ARE REQUESTED DIRECTLY BY US ARE EXEMPTED BUYING THE REQUISITION	١٦- يتم شراء الطلبية خلال فترة الغلق ويوضع وصل الشراء مع العرض الفني / وتعفى الشركات التي تتم مفاتها من قبلنا من هذا الشرط
17. THE COMPANY MUST PRESENT AUTHORIZATION FROM THE MANUFACTURER AND TO BE APPROVED BY THE IRAQ EMBASSY IN THE MANUFACTURER COUNTRY TO SUPPLY THE REQUESTED MATERIAL	١٧- تقدم الشركة ما يؤيد بانها مخولة من قبل المصنع بتجهيز المواد ويكون التحويل مصدقا من السفارة العراقية في بلد المصنع
18. ALL OFFERS AND CORRESPONDENCES SHOULD BE CLEARLY SIGNED BY GENERAL MANAGER OR WHOM ARE OFFICIALLY EMPOWERED VIA A POWER OF ATTORNEY	١٨- يقوم المجهز بتثبيت اسم المدير العام للشركة او من يخولهم في العروض والمراسلات وبشكل واضح ورسمي

<p>19. OFFERS AND OTHERS CORRESPONDENCES TO BE IN OFFICIAL PAPERS OF THE MANUFACTURER COMPANYS</p>	<p>١٩- تقدم العروض والمراسلات على اوراق الشركات المصنعة</p>
<p>20 .OMPANIES WHICH ARE NOT REGISTERED IN OUR VENDERS LISTS MUST SEND ALL THE NECESSARY DOCUMENTS FOR REGISTRATION PURPOSES BEFORE PURCHASING THE REQUISITION WITH ANEW QUITTANCE ISSUED FROM GENERAL ASSEMBLY OF TAXES OR ENCLOSE WITH THE TECHNICAL OFFER OTHERWISE THE OFFER WILL BE REFUSED</p>	<p>٢٠- ترسل الشركات الغير مسجلة لدينا / كافة المستمسكات المطلوبة لغرض تدقيقها واعتمادها قبل شراء الطليبة مع براءة ذمة حديثة صادرة من الهيئة العامة للضرائب قسم الشركات او ترفق المستمسكات مع العرض الفني المقدم في حالة عدم تقديمها سابقا وبخلافه تهمل العروض .</p>
<p>21 SUPPLIER (SECOND PARTY) SUBMIT A PERFORMANCE BOND 5% OF TOTAL VALUE OF THE CONTRACT AS SOON AS THE ACCEPTED COPY OF THE CONTRACT IS SIGNED TO MAKE THE L/C OPERATIVE VALID ONE MONTH AFTER THE DELIVERY PERIOD AND NOT RETURN UNLESS ACCEPTANCE FROM BUYER S (FIRST PARTY) - THE PERFORMANCE BOND SHOULD BE CONFISCATED IN CASE OF NOT SUPPLING THE ORDER .</p>	<p>٢١- يقدم المجهز كفالة حسن اداء بنسبة ٥% من الكلفة الكلية للعقد حال توقيع امر الشراء كشرط لتفعيل الاعتماد وتبقى الكفالة نافذة لمدة شهر بعد فترة التجهيز ولايجوز سحبها الا بموافقة المشتري ويتم مصادرتها في حالة عدم الالتزام بتنفيذ العقد</p>
<p>22 . HE COMPANY'S ADDRESS (COUNTRY, CITY, STREET, NO. E-MAIL, TEL-NO.) SHOULD BE CLEARLY SHOWN. ALSO NAME AND ADDRESS OF THE BANK WHICH SUPPLIERS DEALING WITH (CORRESPONDENCE BANK) SWIFT CODE, ACCOUNT NO. AND E-MAIL. NO.</p>	<p>٢٢- على مقدم العرض بيان عنوانه الكامل (الدولة ، المدينة، الشارع، البناية ، العنوان البريدي ، الهاتف) وكذلك اسم وعنوان المصرف الذي يتعامل معه (المصرف المرسل) مع SWIFT CODE ورقم الحساب وعنوانه البريدي</p>
<p>23 COUNTRY OF ORIGIN SHOULD BE ACCURATELY MENTIONED . STATING COUNTRY OF ORIGIN SUCH AS (ASIAN OR EUROPEAN) IS NOT ACCEPTABLE, - AFTER CONTRACTING ANY CHANGE OF COUNTRY OF ORIGIN ARE NOT ALLOWED - THE ROUTE OF SHIPMENT, PORT OF SHIPMENT , ENTRY POINT SHOULD BE MENTIONED , IN ORDER TO GET CUSTOMS EXEMPTION LETTER</p>	<p>٢٣- تحديد بلد منشأ البضاعة بشكل محدد (لايجوز ذكر المنشأ اوري او اسوي فقط) وعند اصدار العقد لايجوز التغيير على منشأ البضاعة ويتم الالتزام بالمنشأ والمصنع عند التجهيز مع تحديد طريقة وميناء الشحن ونقطة الدخول لغرض الحصول على كتاب الاعفاء الكمركي</p>
<p>24 OFFERS SHOULD BE VALID 120 DAYS FROM THE CLOSING DATE AND CAN BE EXTENDED BY THE ACCEPTANCE OF BOTH PARTIES.</p>	<p>٢٤- يفضل ان تكون العروض نافذة لمدة ١٢٠ يوم من تاريخ غلق المناقصة / ويمكن تمديدها باتفاق المشتري والبايع</p>
<p>25 A FINE (DELAY PENALTY) SHOULD APPLIED AGAINST THE SUPPLIER (SECOND PARTY) NOT MORE THAN 10% OF TOTAL VALUE IN CASE OF NOT SUPPLYING THE REQUESTED MATERIAL WITHIN DELIVERY DATE STATED IN THE CONTRACT . ACCORDING TO THE FACTOR BELLOW PEMALTY PER DAY = <u>TOTAL VALUE OF THE PURCHASE ORDE</u> <u>DELIVERY PERIOD (DAYS)</u></p>	<p>٢٥- تفرض غرامة تاخيرية على المجهز لايتجاوز حدها الاعلى نسبة ١٠% من مبلغ عقد في حالة عدم تجهيز المواد بفترة التجهيز المثبتة في العقد ووفقا للمعادلة الاتية الغرامات لليوم الواحد = <u>مبلغ العقد</u> x ١٠% مدة العقد(يوم)</p>
<p>26 SUPPLIER (SECOND PARTY) BEAR ADMINISTRATIVE CHARGES OF 20% OF TOTAL VALUE OF THE CONTRACT OR FROM THE UN EXECUTED PART VALUE IF HE FAILS TO FULFILL HIS CONTRACTUAL OBLIGATION FULLY OR PARTIALLY</p>	<p>٢٦- يتحمل البائع (المجهز) التحويلات الادارية في حالة قيام المشتري بتنفيذ العقد بسبب عدم التزام البائع بتنفيذه (او جزء منه) وبنسبة ٢٠% من قيمة العقد او قيمة الجزء الغير منفذ</p>

<p>27 IRAQI LAWS SHOULD BE APPLIED IF THERE WILL BE A DISPUTE BETWEEN THE BOTH PARTIES AND THE DISPUT TO BE UNDER THE IRAQI JUDGEEMENT</p>	<p>٢٧- تطبق القوانين والتعليمات المعمول بها في العراق في حالة وقوع منازعات او في كل مالم يرد به نص ويكون النزاع خاضعا " لولاية القضاء العراقي</p>
<p>28 3% FROM TOTAL VALUE OF L/C TO BE DEDUCTED AS TAXES AND RETURN THROUGH TAXES OFFICE FOR IRAQI COMPANIES OR IN CASE THE PAYMENT PAYABLE BY IRAQI DINAR ALSO FOR FOREIGN COMPANIES THAT YOU HAVE REGISTERED IN IRAQ OR HAVE BUREAU FOR FOLLOW UP</p>	<p>٢٨- تستقطع نسبة ٣% كإمانات ضريبية وتعاد من خلال الهيئة العامة للضرائب بعد تقديم ما يثبت سلامة موقفهم بالنسبة للشركات العراقية او في حالة الدفع بالدينار العراقي كذلك بالنسبة للشركات الاجنبية المسجلة في العراق او وجود مكتب لمتابعة الاعمال</p>
<p>29 0.002 FROM TOTAL VALUE TO BE DEDUCTED AS STAMPS CHARGES</p>	<p>٢٩- ٠٠٠٠٢ من الكلفة الكلية تستقطع كرسوم طابع</p>
<p>30 THE ACT 56 .1977 (DEBTS COLLECTION GOVERNMENTAL) SHOULD BE APPLIED REGARDING THE FINANCAIL DESERING SECOND PARTY .</p>	<p>٣٠- يطبق قانون تحصيل الديون الحكومية رقم ٥٦ لسنة ١٩٧٧ . بأن المستحقات المالية تترتب لشركتنا بذمة الطرف الاخر</p>
<p>31 THE ORIGIN CERTIFICATE TO BE SUBMITTED FROM THE MANUFACTURER AND APPROVED BY (IRAQI EMBASSY IN THE COUNTRY OF ORIGIN) IN CASE OF REQUESTED BY US</p>	<p>٣١ - تقدم شهادة منشأ من الشركة المصنعة للمواد وتكون مصدقة من قبل السفارة العراقية في بلد المنشأ في حالة طلب تقديمها من قبلنا</p>
<p>32 THE PAGES OF THE TECHNICAL AND COMMERCIAL OFFERS SHOULD BE NUMBERED WITH ATTACHMENT</p>	<p>٣٢- يتم ترقيم صفحات العطاء (الفني والتجاري) وكذلك المرفقات ان وجدت</p>

REQ. NO. :- 3628/2011

**Midland Refineries company
Tender Documents for**

1. 5X80 Ton/hr Steam Package

Demi. Plant 2X150 m³/hr 2.

**Fuel Oil System 3.
(60 m³/hr)**

BIDDING CONDITIONS

- * The closing date of this tender shall be the end of the working day / / proposals received later than CD shall be neglected .
- * The bidder is requested to submit :-
 - One copy of the commercial offer
 - Three copies of the technical offer
- * The book, which is Issued by Ministry of Planning entitled as general conditions of contract for PROCESS, ELECT., and MECHANICAL WORKS, should be a reference for all points concerning this contract.
- * Bidder shall present a bid bond amounting to 3% of total value of bid , the said bid bond shall accompany the commercial, failure to achieve that shall subject the offer to refusal in accordance with the ordinance mandated by MOO.
- * The book entitled general conditions of contract for PROCESS , ELECT. And mechanical works , issued by ministry of planning , shall be a reference for all points concerning this contract .
- * Quoted prices are anticipated to be final and require no further amendments once submitted .
- * Participating company prepublications and bank surety are mandatory and should be include at least the following information :-
 - a- company profile
 - b-reference list of works performed with the relevant dates and places .
 - c- annual report or financial statement of the company .
 - d- Bank surety
- * Taxes , insurance and levies outside Iraq are borne by contractor .
- * The bidder shall present all the company's registration papers from the relevant authorizing bodies besides the authentications and registrations mandated by Iraqi law from the Iraqi embassy in the country of origin foreign ministry , and ministry of commerce inside Iraq .
- * All correspondence shall be directed to :-

Midland refineries .(G.)
P.O BOX 2075
BAGHDAD-IRAQ
TEL 009641 7750300
FAX 009641 7751096
duroref@yahoo.comE-MAIL :
ATT: General Manager
Engineering Dept. Manager
- * Offers shall be handed over to the general manager secretary office against a written confirmation of submission by authorized couriers only .
- * Bidding prices shall be in US dollars only .

* All material and equipment delivery shall be CIP Baghdad

- **The tender or would base his price on design , supply transportation to Daura site , civil engineering (exclusive for civil works and soil analysis) , supervision for erection pre commissioning, and commissioning of project**
- country of origin of material shall be stated if not the same as supplier country .
- The favored offer is not necessary the lowest in price .
- Offer shall submitted by main supplier

INTRODUCTION

DAURA refinery intend to build five boilers each with capacity of (80 ton/hr) medium pressure (20 kg/cm²G, 260), with demi-plant of 300 m³/hr and fuel oil unit of 60 m³/hr ,Bidders are requested to offer a break down prices for the scope of supply:

1-Basic & detail Engineering

2-Procurement and supply of equipment and material CIP / Daura Refinery site.

3-Civil engineering should be in scope of supply

4- supervision Pre commissioning, commissioning and including test run activities.

5- Inspection activities cover both shop and site (third party inspection certificates)

6- Specific Training of DAURA refinery personal.

Equipment included in the scope of supply to be quoted on the basis of unit price for main equipment

It is expected that the bidder shall include new commercially proven technological advances in the engineering and design of the unit and related ancillaries aiming at an optimized design incorporating optimum energy integration , flexibility and trouble free operation ,coupled with high reliability, also, the design shall cover all the modern HSE issues currently embedded in superior engineering design .

Article -1-

BOILER

Process information

1.3 Instrument air

Plant air with (5kg/cm²g) pressure and ambient temperature will be dried by the existing instrument air dryer .

1.4 Plant air

Pressure 5 kg/cm²g.
ambient Temperature

1.5 °Cooling water (System with °Cooling tower.)

-Inlet °Cooling water
32 Temperature

Pressure KG/cm²g. 3.2
-Outlet °Cooling water

45 Temperature
2.1 Pressure kg/cm²g

1.6 Fuel

1.6.1 Fuel oil

wt%	component
84.96	C
11.23	H ₂
3.81	Sulfur
max 0.1%	Ash
56 PPM	Vanadium
24 PPM	Nickel
10,265 kcal/kg	H.h.v
9660 kcal/kg	L.h.v
0.9522	Sp.gr.@15.6
140(cst)	Vissity@50
Pour point	Zero
Flash point (pm)	65 MIN.
11.0 kg/cm ² g	Pressure
110 MAX.	Temperature
Water&Sediment% Vol	o.5

1.6.2 Fuel gas

natural gas.	Kind
mole %	component
79.75	CH ₄
19.45	C ₂
0.7	C ₃

0.06

Iso.C4

0.07

n.c4

0.68

Sp.Gravity.

0.223 grain/100ft³

Total sulfur

0.101 grain/100ft³

H₂S

0.031 grain/100ft³

R.SH

(15-20)

Pressure kg/cm²

40

Temperature

GCV BTU/CF

1200

A common step down station system for N.G with the existing project will be used in future

1.7 Site condition

1.7.1 Wind

160 max.

Wind velocity km/hr

north west

Prevailing wind direction

1.7.2 Rain fall

15 (max/hr)

Rain fall mm

62.5 (max/24 hr)

-8 (min), 55 (max) 1.7.3 Ambient temp.

An exposed metal temp.

82.

For piping flexibility design etc.

1.7.4 Relative humidity

(12-90)%

1.8 Basic of data

1.8.1 Five Boilers each of 80 ton/hr capacity as package of 20kg/cm² pressure and 260°C temperature .

1.8.2 Deaerator used for two package boilers and another one for three package boilers should be in scope of supply consist of the following specification.

Pressure kg/cm ²	Temperature °C	Retention time
2.5 @BFW pump	135	15 minutes

1.8.2 A common stack for two package boilers and another for three package boilers should be provided .

1.8.3 Steam turbine driven pump should be used for normal operation and electrical pump for standby such as for Deaerator feed water

pump and boiler feed water pump.

- 1.8.4 Fuel oil should be taken from new fuel oil system.
- 1.8.5 The burners is designed for firing 100% fuel oil or 100% natural gas and also combined fuel oil & natural gas.
- 1.8.6 All the rotary steam drivers should be provided by steam from a common header. Tie-ins consist of all line branches serving the auxiliaries.
- 1.8.7 Continuous and intermitted blow down liquid shall be flashed before disposal to sewer system either in a separate flash drum or in the blow down drum.
- 1.8.8 Each boiler is equipped with one (1) forced draft fan driven by a Steam turbine and an electric motor
- 1.8.9 Feed Water Analysis
UNI 7550 Code
8.5-9.3 pH
≤ 5 μg/CaCO₃/kg T. Hardness
≤ 100 μg/O₂/kg Oxygen
≤100/100 μg/Fe/kg Iron/copper
- 1.8.10 Online oxygen analyzer on boiler feed water should be Supplied.
- 1.8.11 Chemical injection system for boiler L.P oxygen scavenger, HP conditioner and neutralizer should be in scope of supply.
- 1.8.12 First fill of the chemical and lubricants needed should be in scope of supply.
- 1.8.13 Supervision pre-commissioning and commissioning and up to successful test run should be in scope of supply.
- 1.8.14 Two years spare parts should be quoted
- 1.8.15 Online analyzers for pH, conductivity and Oxygen measurement for control of chemical injection should be in scope of supply.
- 1.8.16 BFW, condensate pumps (two steam turbine driven and one electrical motor driven as stand by for two package boilers).
- 1.8.17 O₂+CO analyzers for flue gas shall be supplied.
- 1.8.18 Sample cooler for steam and water drums should be supplied.

1.9 Basic Data For Demi Plant

New demi plant of 300 m³/hr capacity.

Plant consists of two lines 150m³/hr each.

Chemical specifically of feed water:

Turbidity	Less than 1NTU
PH	7.8
Ca+2	150ppmas CaCO ₃

CL	96 ppm as CaCO ₃
SO ₄	110 ppm as NaCl
M-Alkalinity	145-200 ppm as CaCO ₃
SiO ₂	7 ppm as CaCO ₃
Total Cation	374.4 ppm as CaCO ₃
Total Anion	380.2 ppm as CaCO ₃

Deminerlized water (guaranteed value) .

conductivity : less than 0.5μ.s/cm

Total hardness : zero

Design capacity(guaranteed value)

150 m³/hr.Each line Net production capacity

2 No. of lines

Service (water producing) time will be 15 hours per train.

No. of demi water tank (2),volume 800m³/hr each.

All accessories should be in scope of supply.

1.10 Basic Data for Fuel Oil System

- Capacity should be 60m³/hr

-Two storage tanks 600m³ each

- Four Nos of pumps (two steam turbine driven and two electrical motor driven)

- Two heat exchangers

- Fuel oil additive injection system with all accessories.

- Fuel oil specification as in item 1.6.1

Article -2-

INSTRUCTIONS FOR TENDERING

- 2-1** Bidders may visit the site to obtain for themselves all the technical and non technical information which may be necessary for the purpose of entering the venture .
- 2-2** The proposal and all documents accompanying it shall be in English language with last edition of ASME de and ASTM standers .
- 2-3** Tenderers must have previously executed work of similar character and magnitude, A comprehensive reference list shall be displayed for that purpose in the submitted documents .
- 2-4** The bidders shall submit in separate memorandum attached to his proposal a clear time schedule showing the commencement and completion date of all stages and for each item activities .
- 2-5** Bidders are requested to offer a break down price for the followings ;
- 1- Basic And Detail Engineering .
 - 2- Procurement, And Supply Of Equipment And Material (CIP) BAGHDAD
 - 3- Supervision of Pre commissioning, commissioning And Start-Up
 - 4- Training of DAURA Personnel
- 2-6** Date of delivery of the bidders proposal for this tender shall be the end of the working day . proposals received after this date shall be neglected
- 2-7** Daura refinery shall conduct negotiation with the successful bidder these negotiation shall be documented and become part of contract .
- 2-8** The contract shall be effective from the date of its signature however, the countdown of the project duration shall begin from the date of down payment .
- 2-9** All banking charges except those associated with L/C issuance shall be paid by contractor .
- 2-10** All taxes , duties , levis outside Iraq shall be paid by the contractor.

Article –3-

scope of supply

3.1 Codes and standards:

The following codes and standards will be applicable for all project units .

3.1.1 Vessels:

ASME section VIII, latest revision.

ASME boiler code latest revision (for atmospheric vessel).

3.1.2 Heat exchangers

TEMA class R and ASME code section VIII

API 650, API-640, API-661

ASME section VIII Division-1.

3.1.3 Boiler

ASME section 1

3.1.4 Machinery

API-610 centrifugal pump latest edition.

API-675 positive displacement (controlled volume).

API -611 Turbine

3.1.5 Piping

ANSI B31-3, ASME sec.-1.

Fitting (ANSI B-16.5 for flanges).

3.1.6 Instrument

API RP 550

ANSI B 2,1, 16.5

API 520, API 521, ASME code section 1 & section VIII.

3.1.7 Safety

Safety and fire protection requirements shall be according to NFPA code.

Pollution shall be relevant to USA standard (EPA).

Noise shall be according to OSHA or relevant USA standards.

3.1.8 Electrical

ICE, IEC.

VDE

API RP500A.

3.2 Engineering

Detailed engineering and detailed drawing and specifications shall be prepared in accordance to standard with process requirement and M.R.

requirement. The engineering work and the documents to be prepared by the contractor will include but not limited to following:

3.2.1 Process flow diagram with material & heat balance.

3.2.2 Utility flow diagram with control philosophy and heat-material balance.

3.2.3 Piping and instrument flow diagram (P&I) for both process and utilities.

3.2.4 Project specifications

Which are the compile documents and drawings of all basically required condition from design to commissioning including design basis, design condition, engineering standards, recommended practice local data, des, standard and regulation.

3.2.5 Plot plan and layout

The plot plan shall show the location of equipment and machinery, tie in at B.L. supporting structure and pipe racks, access and paving requirement, main dimension.

3.2.6 Equipment design

The contractor shall design the equipment to be capable of meeting the specified process performance, as well as providing for safe, economical and continues operation and ease of maintenance.

The contractor will be responsible for reviewing and approving manufacture's details or fabrications drawing as required to assume conformance to process and mechanical design – shop test and inspection schedule, summary sheets and design and test features will also be prepared by contractor.

3.2.7 Piping design

The contractor shall draw up the complete piping system required for process and utilities. Piping assembly and isometric drawings to be made on a graphical basis with any attended details required to clarify assembly drawings.

The fabrication drawings to be made for the pipelines which are prefabricated at the site and/or shop.

In general, materials and design of piping to be based on standard for process specifications and M.R. 's requirements piping classes and pipeline list to be prepared by the contractor with appropriate break down.

3.2.8 Instrument design

- The contractors will prepare complete specifications requisition for all instruments and make drawings at least to the following extent.
 - Schedules of design data and installation details for all control
- Valves, indicating recording or controlling instruments and auxiliary Facilities.
 - Assembly and installation drawings for instrument panel boards, Including list of materials.
 - Location drawings for all instrument points (may be on piping Drawings).
 - Lists of all materiel required for installing of equipment.
 - Installation drawing for instrumentation full work.
 - Summary and calculation sheets for flow meters.

3.2.9 Electrical design

The contractor will design specify and prepare inquiry requisition and complete installations drawings show diagrammatic layout, cable and conduit size and locations, starter location and mounting, typical connection and mounting, typical connection and installation details, lighting system layout and details, earthing details.

3.2.10 insulation

The contractor will prepare schedule for insulation, typical details and lists of materials to be supplied to cover insulation of vessels, exchangers, pumps, and piping in accordance with design condition. Piping insulation requirements to be indicated on suitable line table. all pipe lines and equipment with surface temp. Higher than 50 C ° are protected with insulation sheets of mineral wall (or equiv.) covered with aluminum plate.

3.2.11 Painting

- Painting design includes the following:
- Specification of paint.
- Instruction of prepare work.
- color code.
- Bill of materials.

3.2.12 Civil building and structure design

The design includes the preparation of the followings:

- a- General arrangement drawing.
- b- Equipment foundation drawing.

c- Grading and piles drawing where necessary.

d- Structure drawing.

e- Pipe rack drawing.

f- Building drawing.

g- construction work drawing

h- Bill of materials.

i- Base plates, anchor bolts for equipment and structure

j- coating: all areas in contact with chemicals shall be epoxy ated

3.2.13 Fire fighting design

The contractor has to take account of the characteristic of the process fluids, location and circumstances at the design of the fire fighting facility, from the said of view, the following system shall be designed and the materials, equipment required to be supplied by the contractor.

-Fire distribution system.

-Fire alarm push buttons.

-Piping and fittings.

-Water hydrant.

-Steam lines if necessary.

-Bill of materials/Location.

-Fire protection pipe lines network will be an integrated part of the – existing refinery fire fighting network.

3.2.14 welding & welding examination on-site

a- All the welding processes shall be indicated according to AWS Demonstration.

b- Detailed engineering of the welding procedure shall be given by the contractor which shall include the following:

-Edge preparation.

- Number of passes gap limitation.

-Electrode number (AWS).

-Heat treatment.

-Examination and test regulations.

3.3 Supervision

The contractor shall specify the number of personal delegated for supervision of (construction work, pre-commissioning and commissioning of the unit. All related expenses shall be quoted on period basis.

3.4 Training

The contractor shall specify the period and number of M.R. personnel required for training on the operation and maintenance of the unit. All related expense shall be quoted under separate issue.

3.5 Mechanical guaranties

The contractor shall take the responsibility for the performance of the equipment and the material supplied for a period of one year from the date of issuance the provisional acceptance certificate.

3.6 Process, equipment performance and utilities guarantes

The contractor shall be responsible for meeting process and equipment performance guarantee under this control and utilities guarantes figure stated in the contract.

3.7 The equipment material shall be selected according to the standards listed below :

No.	PART	MATERIAL	REMARK
1.	Steam Drum	SA515 GR.70	With supplementary requirement S8
2.	Mud drum	SA515 GR.70	With supplementary requirement S8
3.	Tubes (furnace, boiler bank,)	SA 192	
4.	Super heater tubes	SA 213 T22	Seamless
5.	Headers(furnace side, boiler side,)	SA 106 GR.B	
6.	Super heater headers	SA 106 GR.B	
7.	Air duct and gas duct	SA 285 GR.B	
8.	Supplier and risers tubes	SA 192	
9.	Rotary soot blowers	S.S. TP 405	

	mandrel		
10.	Chemical dosed system	S.S. TP 304	
11.	Supports and hangers inside boiler	High alloy temp. resistance steel	
12.	Flash drum	SA 516 GR.70	

ARTICLE (4)

PROCUREMENT & EXPEDITING

4.1 PROCUREMENT

4.1.1 General

The contractor will perform all procurement activities necessary for the equipment and materials supplying.

The basic function of procurement services is to ensure that the required equipment and materials will meet the appropriate specifications and reach the specified field construction work schedule and in good conditions.

In general procurement services shall include the following: placing orders, checking vendor drawings, expediting shop inspection including packing inspection, transportation up to (CIP) Baghdad including necessary insurance custom clearance service.

4.1.2 Procurement main objected:

- a. Procurement shall be from the most capable sources of supply in due consideration of good quality of products and delivery.
- b. Preparation of delivery schedule of equipment and material to meet filed construction programs.
- c. co-operation inspection and expediting activities.
- d. Preparation of tabulated technical reports related to equipment and materials to be supplied for the works.

e. Prevision of information and statistics regarding purchase and transportation to M.R. representative.

4.2 EXPEDITING

The contractors supervisory regarding expediting shall involved the following activities:

On-site expediting at equipment material and services to ensure that the promised (appointed delivery dates) are maintained.

Expecting the movement of equipment and materials from concerned suppliers work-shop or store to the shipping points (CIP).

Preparation, maintenance and publication of periodic reports regarding equipment and materials status.

Taking care to ensure that equipment and materials are properly packed, loaded on board and securely stored in order to minimize the possibility of damage in transportation.

Carrying out periodic evaluations of supplier's workshops, facilities and quality control system to ensure that they maintain the capacity to supply products of good quality on schedule.

A sequence depiction-diagram of expediting work flow shall be give monthly to M.R. monthly.

4.3 Packing

4.3.1 General

The contractor is fully responsible to ensure suitable packing. The packing must be suitable for protecting materials against weathering land and marine agents in order to prevent corrosion or rust of those parts which are most subject to damages and needing special care. In addition, packing shall be suitable for various loading and unloading operations to which the material will subjected from the point of shipment to the place of installation, and must guaranteed protection of its content, not only during expected time of content, not only during expected time of transport but also for any outdoor storage over a period of at least (six) months.

All packed material inside cases must be suitably secured to avoid movement during transport. In case of materials treated with protective compound, the contractor and/or supplier must state the expiry date of protection and shall furnish all necessary instructions for correct presentation of the material for the materials which are particularly subject to deterioration due to the humidity, such as switching boards, various electrical instrument, welding electrode, ...etc, special care shall be taken to protect those materials.

4.3.2 Marking

Each case must be marked on three sides, that is to say on two side faces and on the ver. Depending on the material characteristics, packages, must be marked in indelible paint, any indications necessary for correct handling such as the center of gravity and lifting point.

Marking for transport overseas will be carried out in the English language (“top”, triangle, handle with care –etc).

For packing where marking is not possible, at least two metallic name - plate must be fitted. Marking on these plates will be by means of engraving on indelible paint.

For both marking on case or name plate it will include the following:

- Name and address of destination.
 - Project or plant (name).
 - Package number.
 - Gross weight (Kg).
 - Net weight (Kg).
- Dimension ..x..x ..m+

The contractor and/or the supplier will be responsible for all damage resulting from incorrect or insufficient marking.

4.3.3 Packing list

The contractor or supplier will insert in each package a list odd contents (packing list) which must always show:

Purchase order number.

Number of packages.

Type of material, quantities and order item number.

Gross and net weight.

Any other markings as specified on the order.

The packing list and any other documents will be put in closed polythene envelope and included in each package.

A send copy of the packing list will be placed in a polythene envelop by means of a metallic plate bearing the inscription “DOCUMENTS” for exchanger, drums and tanks, the envelop will be placed in a nozzle identified by any arrow in indelible paint followed by the word “DOCUMENTS”.

Shipping documentation must always be presented in the number of pies as shown on the order

ARTICLE (5)

Documents

5.1 Scope

The contractor shall provide the following manuals and catalogs in 5 copies.

5.1.1 Operating manual

Which will contain all the requested instructions and attachment in order to permit a safe and a correct start-up, shut-down, emergency shut-down, analysis, lubrication and maintenance schedules.

5.1.2 Mechanical-manual

Which will contain the information for all mechanical and electrical equipment included in the supply.

5.1.3 Equipment manual

Which will contain process and engineering drawings together with the technical information relevant to all equipment and materials included in the supply such as foundation, sewer system, structure drawing, ...etc.

5.1.4 Inspection book

Which to contain all documents related to inspection and tests for all equipment and materials included in supply.

5.1.5 Bidding details

- 1 pages shall be standard 210 x 297 mm size or multiples.
- Drawings larger than 297x420 mm shall be folded and inserted in.
 - Individual (210 x 297) manila pockets.
- The documents relevant to each of the following manuals.
 - Operating manual.
 - Equipment manual.
 - Inspection book.
- Shall be bound in several volumes number sequentially and arranged in clear sequence.

5.1.6 CD

All final drawings are to be presented in duplicate on CD

Article –6-

Electrical requirements

6.1 The contractor shall design and supply the electrical equipment to meet the following:

- A. Safety to persons
- B. Reliability efficient and smooth performance
- C. Easy maintenance and replacement
- D. Performance according to the specification, des and standards.

6.2 Documents to be prepared for approval shall include at least the following:

- A. Single line diagram(s) for power circuit.
- B. Single line diagram(s) with metering, relays, interlocks and indications.
- C. Earthing layout and earthing system calculation.
- D. Cable schedule and layouts.
- E. Short circuit calculations.
- F. Lighting layouts and illumine level calculations.
- G. Area classification details.
- H. Motor Lay-out

6.3 The contractor shall supply the following equipments and materials given below according to the stated specifications which cover all the installation requirements

6.3.1 H.T switch gear & transformers 3.3/0.4 KV not requested

6.3.2 The L.T MCC with the following description:

Metal clad free standing floor mounting IP43 for indoor installation , provided with 2 Nos. 3 Φ incoming of withdrawable type ACB with electrical and manual closing and tripping , Each feeder of enough capacity to feed the project and having all required metering , indications & protection 1 No. bus tie 3 Φ of withdrawable type ACB with electrical and manual closing and tripping and have all required metering , indications & protection

The switchboard with the following specifications:

- Rating 55 C ambient.
- Operating voltage 400 V
- Rated voltage 1000V
- Short circuit for 1 sec 50 K.V.A (minimum)
- Horizontal and vertical bus bar of the same rating

The motor starters of withdrawable type for both power and control and each starter provided with

High breaking capacity MCCB with adjustable short circuit current used for power isolation and short circuit protecting

Thermal over load relay with single phase prevention

Earth fault protection for motors with power 3KW and over

Start , stop and fault indications (LED type is preferable)

Magnetic air break contractor

Each starter provided with ammeter as well as L.T. for field ammeter control voltage will be 220V AC, 50 HZ

6.3.3 Push-button station

- a. Start-stop P.B station shall be provided for and located near each motor controlled by a remote starter.
- b. P.B station to be metallic with IP55 protection
- c. P.B station for motors of 3Kw and above shall be fitted with ammeter suitably scaled to show full load and starting current.

6.3.4 Motors

Electrical motors will be TEFC IP55 protection.

Class F insulation, Temperature class T4 with anti. Friction regreasable bearing squirrel cage induction type. The FAN used for cooling shall be of metallic type.

Motors shall be sized for 50C amb.

Motor shall be according to IEC standards

Motors with insulation class F

MV motors shall be provided with space heater 220V AC, RTD,s and temperature gauge for bearing

Motors up to 90KW,380V , 3ph,50Hz

Motors above 90KW,3300, 3ph,50Hz

6.3.5 Soot blower control panel (shall be provided) .

-control panel IP55 enclosed complete wired up to IN/OUT terminal Strip and including.

- Main power switch.
- Motor electric starters and relevant protection.
- push buttons and medicating lamps as required by the sequence

6.3.6 Power and lighting cables

- a. Cable conductors smaller than 2.5 sq. Mm. With less than three strands shall not be used.
- b. Cable shall never be loaded to more than 85% of their normal rating.
- c. All H.T and L.T. power cables shall be multi conductor XLPE insulated, P.V.C over sheathed, single wire armored, copper conductor. All cables inside (for Deming plant) battery limit to be lead sheathed.
- d. Low tension motor cable shall be sized such that the voltage drop does not exceed 2% between transformer terminals and motor terminal under normal running conditions.

- e. Cables for L.T motors shall be sized regard to carrying capacity and voltage drop.
- f. Cables in the unit shall be laid in concrete or brick walled trenches of adequate width and depth. Cable trenches shall be covered by concrete cover of adequate thickness cables from the main cables trench to the motor plinth shall be run in buried steel pipe.
- g. Cables outside operating area shall be laid directly in the ground and protected by concrete cover tiles with route markers
- h. All H.T +L.T. cables shall be multi conductors XLPE insulated, stranded copper conductor, PVC one sheath, single wire armored

6.3.7 End Kits, All termination kits for M.V cables shall be supplied with (4) kits as a spare for each size

6.3.8 Lighting fitting

The lighting fitting shall be of the fluorescent industrial type 2&40 and 2Φ 20V fixture, IP55, 220V, 50HZ, shall be provided with all accessories for connection and mounting.

6.3.9 Outlets:

60A , 3ph,380V,50Hz heavy duty welding outlets 16A , 1ph, 220V,50Hz outlets for various purposes 24V AC outlets 50 nos plugs shall be provided for each type of outlets

6.3.10 Push buttons

Push bottom station to be metallic with IP55 P.B.s stations for motor 3KW and over shall be fitted with ammeter suitable scaled to show full load and starting current

6.3.11 Paging system shall be provided

6.3.12 Fire alarm system shall be provided

6.3.13 Telephone sets nos. 10 shall be provided

6.3.14 Earthing system

- a. Suitable earthing shall be installed for:
- Safety to personal.
 - Limit the voltage when an earth fault occur.
 - Protection against lightning.
 - Protection against static electricity.
 - Service earthing such as earthing of neutral of transformer.
- b. Earthing network shall be installed around substation, process unit tank farm by means of pper rods of sufficient length.
- c. At least one point of earthing system shall be connected to each of the following: motor frame, switch board, transformer, tank, steel structure columns, etc.

d. The resistance of the earthing when measured individually shall be less

than:

- Transformer neutral point system (4) ohm.
- Power earthing system (2.5) ohm.
- Static earthing system (7) ohm.
- Lighting protection system (5) ohm.

e. All earthing underground joints shall be of thermoweld type or equivalent and the earthing network shall be of standard copper wire hard drawn 70 sq.mm.

f. connection of earthing system to the earth electrodes shall be accessible for testing and inspection.

g. Lightning protection shall be provided for structure lumn, metal frame structure or equipment and shall be earthed on at least two side to the earthing network.

h. All tools and accessories for earthing system including the standard copper wire hard drawn 70 sqmm and 25 sqmm, earthing rods, earthing underground joints to be supplied

6.3.15 Accessories

All accessories for installation such as cable glands for all electrical equipment, lugs, junction boxes, cable trays, conduits, etc shall be supplied

6.3.16 Welding machine outlets

- Welding outlets shall be loaded within (50) meters from whenever is required at the 380 v supply.
- Welding sockets outlets shall be of 60 amp heavy duty type. In dangerous areas the sockets to be certified flame proof type controlled by an interlocked isolating switch protected by suitable fused switch.

6.3.17 Emergency supply

- a. Emergency supply shall be furnished to the control and instruments panel, so that the state of the plant during main power interruption vindicated on the control board. The emergency power shall allow making any change in the state of plant for safety shut down.
- b. No other power supply available in that area.
- c. Expected duration of power interruption can be considered in the range of 2 hours.

6.3.18 Indications

- a. All motor starters shall have an indication lamp for(on) position at the starter panel itself.
- b. Indicating lamps shall be installed in the control room for both ON-OFF position of all motors H.T and L.T.

6.3.19 Control room

Telephone outlet and telephone set shall be furnished in the control room

6.3.20 Equipment tests

- a. All electrical equipment shall be tested by the contractor in accordance with the requirements of various regulations, des, and job design specification before they are placed in operation. All test equipment shall be supplied by the contractor. Witnessing and certification shall be at the discretion of the customer who shall be notified one week before.
- b. Certified tests must be carried out in manufactures works for all equipment.
- c. Acceptance of the complete electrical installation shall be contingent upon inspection and test results.

6.3.21 General requirements

a. Equipment identification

The service of equipment such as transformer, motors, C.B 's, motor starters, lighting switches, and P.B station remote from their controlled motors shall be properly identified on the apparatus.

- b. In hazardous area, motors, P.B 's lighting fittings, other electrical installation to be explosion proofed suitable for use in this area according to its classification.
- c. Where ever it is needed Cathodic protection shall be supplied
- d. Fire alarm system shall be supplied

ARTICLE (7)

INSTRUMENT REQUIRMENT

7-1 The following standards and codes shall equivalent shall constitute a guide where applicable in the section, design and installation instrumentation:-

- a. The instrument society of America (ISA)
- b. American Petroleum Institute (API)
- c. Underwriter Laboratories (UL).
- d. American national standard institute (ANSI) B2.1 16.5
- e. National Electric de (NEC).

7.2 General design

DCS-Yokogawa CS 1000 used for existing project (first boiler), and shall be extended to new 2nd boiler.

7.2.1 Basic design

Instruments and associated equipment shall be designed and installed to meet the following requirements:

- Maximum accuracy of measurement and control
 - Full safety
- Efficient protection against abuse due to chemical or physical force and weather conditions
- All process variables effecting operation of the plant are under automatic control through instruments in the main control room
- All electrical instruments and apparatus have be installed in the weather proof area with chemical vapors to be of that type as per codes stated above.
- Alarm system high/low alarm shall be provided for all variable and shall be considered those audible and visible required for warning operating personal of the need to take corrected process action to be advised on condition.
 - Instruments shall be protected from adverse conditions by protected sunshade , sealing ,housing ,installing or purging if necessary
- At an emergency failure of the instrumentation air or power, the plant shall be automatically shifted in a safe condition.

7.2.2 Accessibility of instruments

All instruments shall be installed so as to be readily accessible for handing adjustments and maintenance

7.2.3 Engineering units shall be in accordance to the metric system

7.3 Transmission system:-

7.3.1 All transmitters are electronic two wire transmitters shall be used with a signal at (4-20) MA DC

7.3.2 Electronic two wire transmitters shall be equipped with sun shade for protection against direct sunlight and rain with local indicator (linear scale) and shall be intrinsic safety to be used according to basefa and PTB

7.3.3 Electronic transmitters shall be used for level, pressure, flow, temperature, conductivity and PH ..etc.

7.3.4 Weather proof shall be used for field instruments

7.3.5 copper tubing of ¼ inch OD for instrument air signal and supply with PVC covering to be used only.

7.3.6 Armored and shielded cables supported on trays for electronic transmitters and solenoid valves shall be used.

7.3.7 Instrument circuits will be grounded to reduce the effect of electrical interference.

7.3.8 Thermouple extension cables shall be armored and shielded.

7.4 control valves.

The control valves shall be supplied with flange rating 600# R.F. provided with positioner and I/P converters (24-20) ma.dc and shall be supplied with isolating and by pass valves .

7.5 control Panel

7.5.1 DCS shall be digital process control and data acquisitions system , it shall include a comprehensive and auxiliaries , to provide full control and monitoring capabilities and must be comprised the following control loops: Three element drum level control (drum level, steam flow, and feed water flow).

combustion control: Steam flow, fuel gas /fuel oil flow. air flow

Steam temperature control : steam temperature &control valve for attemperator spray water flow control

Atomizing steam control : the differential pressure between steam / air and oil must be constant by adjustment the flow of the steam into the burner by actuating the differentials pressure control valve

Blow down must be AUTOMATIC with conductivity analyzer

The soot blowers station must be equipped with a PLC for automatic blowing sequence (a part of DCS) for cleaning the convection surface of the boiler, superheated.

7.5.2 control system shall be microprocessor based, distributed, modular instrumentation system, factory tested prior to delivery ready to function as soon as it is connected to AC power and field wiring

communication system shall allow rapid and reliable transfer of information between operator stations and I/O devices :

communication shall be redounded , both in cables and electronic , in case of failure switch over is automatic

communication shall not be ambiguous

Each device can be connected or disconnected without affecting system

communication shall be via redundant separately routed communication

channels to a centralized control room with CRT displays Redundant

communication shall be standard feature of the system

DCS has a management and control system providing :-

- a. Fire heaters supervision
- b. Logging and reporting function
- c. Heat and material balance evaluations
- d. Yield and efficiency calculations
- e. Flow rate integration
- f. Real time trend display on CRT or printer
- g. Historical trend selection of data
- h. Live graphics display of real time data valve not less than 30ages

i. Totalizing of feed , products and utilities

Guarantees : the system shall be guaranteed for connect performance and meeting specification for two years after being commissioned , DCS must has two operator stations at least and each operating station consisting of the following :

- Display with 2 color CRT(s) identical and mutually replaceable (functionally) , each with operators keyboards
- Alarm printer for common use of all unit operating stations
- Report printer for common use of all unit operating stations and shall be identical and functionally interchangeable with alarm printer
- Each operating station must be provide the following indication of process measurements , Alarm indication

7.5.6 The control panel shall be in an air conditional control room as per DCS Vender requirement

7.5.7 The cabinets shall have back doors, ventilated and provided with Fluorescent lamps.

7.5.8 Uninterruptible power supply UPS 115V 50 HZ capacity shall be used for instruments for two hours during interruption of main power

7.5.9 continuous recording shaft be provided for all variables and have High/low alarm

7.5.10 On-line analyzer must be supplied for O₂,PH conductivity

(For feed water) , O₂ and for flue gas with proper automatic Sampling system with automatic water drain for water level switch

7.5.11 All equipment's like pumps, FD fan must be provided with suitable Protection device such as pressure switch, level switch with auto-Manual selection mode and pickup system.

7.5.12 printing

Start / stop of motor

Plant status and extensive trending facilities

Manipulation of control loops

Display and control system bases

Live graphic displays of process and utilities

Down loading of control system on diskettes

Display of historical data

Each operator station shall be to initiate the following print outs

Real time trending , Historical trending

Tabular print out , CRT screen print out automatic alarm print out

ARTICLE (8)

MECHANICAL REQUIREMENTS

8.1 - F.D.Fan - I.D.Fan

8.1.1 Fan shall be of centrifugal design.

8.1.2 Expansion and vibration fabric joint with internal metal guard at fan discharge.

8.1.3 Expansion joint for fan suction

8.1.4 Fan shall be furnished with self synchronizing automatic clutches

8.1.5 Noise emission shall not exceed 85 db (A)

8.1.6 Fan shall be of in between two bearing design.

(Cantilever design will not be acceptable)

8.1.7 Fan shall be of interchangeable Impeller not integrated with the shaft.

8.1.8 Fan shall be of Babitted sleeve bearing water cooled.

8.1.9 Ring oil Lubricated is preferable.

8.1.10 consolidated journal Bearing with thrust Bearing is preferable at the thrust side.

8.1.11 Fan shall be furnished with a suction control damper suitable for connection to the electro-pneumatic controller with emergency hand control and silencer with suction inlet box for support.

8.1.12 Automatic controlling for Fan (pitch vanes) Refer to the desired load.

8.1.13 Labyrinth seal for both sides is preferable.

8.1.14 coupling shall be flexible type (flexi box TSK Meta stream) with interchangeable hubs.

8.1.15 Prime mover shall be at a power 20% more than the break horse power of the fan at operating point

8.2 Centrifugal Pumps:

Centrifugal pump complete with Motor.

8.2.1 Pump shall be manufactured according to API (610) eight edition .

8.2.2 Pump shall be furnished with (John Grane-BorGmann-Borg worner) mechanical seal.

8.2.3 Pump shall be furnished with flexi box Meta stream coupling.

8.2.4 Mechanical seal shall be furnished accordingly with API -682.

8.2.5 coupling shall be balanced to class ISO (6.3).

8.2.6 Shaft end for coupling fits shall conform to API standard (671).

8.2.7 Dynamic Balancing According to ISO (1).

8.2.8 Pump shall be manufactured by one of the vendors AS Below:
(Flow Serve -KSB-Union-Sulzer-Gould – Nouvo Pignone).

8.2.9 Material code shall be API (C6-or-A8).

8.2.10 Motor shall be of 380v- 3 phases - 50 Hz.

8.2.11 Mechanical Degree of protection: Eexd IIBT3 IP55 Motor shall of a power 20% more than the rated power of the pump.

8.2.12 For Centrifugal cantilever pump shall be Labyrinth sealing type for bearing housing.

8.2.13 For multistage pump:- pump shall be of diffuser Barrel type .

8.2.14 Boiler feed pump, shall be multi stage design and furnished with John crane mechanical seal, 3000 RPM speed

8.2.15 Flanged shall be of ANSI (B16.5)

8.3 Dosing pumps:

8.3.1 Pumps shall be manufactured according to API (675).

8.3.2 Milton Roy Manufactures is preferable.

8.3.3 Pump shall be of stainless steel pumping side.

8.3.4 Pump shall be diaphragm type capacity controlled (0-100%).

8.3.5 Pump motor shall be IP55. Mechanical protection degree.

8.3.6 Pump shall be furnished with all the fitting and accessories

(Specifically internal relief valve) it shall be of ANSI B 16.5 standard.

8.4 For Turbine of (F.D. fan)

8.4.1. Turbine shall be manufactured according to API (611) without any Deviation.

8.4.2. Turbine shall be of back pressure design 3000 RPM speed.

8.4.3. Turbine shall be manufactured by one of the vendors as listed below:
(Dresser Rand-Peter Brother hood-coppus-elliott-Terry)

8.4.4. Casing shall be fully horizontally split and with centerline support
(Upper half casing can be removed without disconnecting inlet or exhaust piping).

8.4.5. Rotor shall be of alloy steel shaft with removable thrust collar.

8.4.6. Turbine shall be of sleeve type radial babitted Bearing.

8.4.7. Tilt pad type thrust Bearing (kings bury or equal).

8.4.8. Labyrinth type interstage glands-easily removable.

8.4.9. Carbon Ring type and gland easily removable, with leak off ring.

8.4.10. Turbine shall be forced lubricated with auxiliary electrical oil-pump with reliable pickup system.

8.4.11. Bearing shall be water cooled (with water under 3.5 bar- 32).

8.4.12. Lubricating system shall be furnished with the following:

a. Oil cooler suitable material.

b. Duplex oil filter of (15) micron mesh with change over lever with differential gauges.

a. Suitable relief valve-check valves shall be furnished with the oil system.

b. Piping downstream the filter shall be of stainless steel & piping upstream

the filter shall be of carbon steel.

8.4.13. Turbine shall be of a power 20% more than the power of the F.D.FAN at rated condition.

8.4.14. Turbine Rotor must furnished with lifting cam for Rotor axial Displacement.

8.4.15. Turbine shall be furnished with hand turning device for Rotating check.

8.4.16. Turbine shall be furnished with (2 two) inlet and outlet Gate valve and one full flow relief valve at outlet line with centinal warning Valve at the casing of the turbine.

8.4.17. Turbine trip system shall be consist of:

a. Emergency shutdown.

b. Local manual trip.

c. Electrical and Mechanical over speed system.

8.4.18. Turbine shall be furnished with (electrical + electronic) tachometer.

8.4.19. Turbine shall be furnished with complete emergency (interlock):

- Oil pressure (Alarm-shutdown).

- Oil temp (Alarm-shutdown).

8.4.20. Turbine shall be furnished with Woodward governor (PGD) or (PGPL) with Governor Valve actuated indirectly by hydraulic Actuator.

8.4.21. Stop and throttle valve shall be furnished with positioner to get the Actual position during the operating position.

8.4.22. Material de for the main items (casing-nozzle-shaft....) Shall be super Imposed.

8.4.23. Casing and Rotor must be subjected to surface and sub:

Surface examination (by ultra sonic method-magnetic Particle for blades and shaft).

X ray and hydraulic test for casing.

X ray for 5% of welding joint for Rotor-Nozzles).

Hydrostatic test- Dynamic Rotor Balancing test.

8.4.24. Steam consumption-steam outlet condition shall be state with the Turbine specification.

8.4.25. Limit switch for shutdown alarm (explosion proof).

8.4.26. Turbine shall be furnished with removable strainer of stainless steel material separately from the trip valve.

8.4.27 If there is a need for gearbox between the F.D.FAN & the turbine the provisions shall be as follow :

Gearbox shall be manufactured in accordance with (AGMA 421.06)

Pinion and bull gar shall be of forged alloy steel

Precision and banded gear teeth

Sleeve babitted Journal and thrust bearing

Gear casing shall be fabricated carbon steel

All rotating element shall be dynamically Balanced
coupling fit and Balance shall be according API(761)

coupling hubs are separate from turbine shaft - Gearbox shaft
coupling shall be removable without disturbing the equipments

Gear type coupling in between (Turbine -Gear-F.D FAN) is preferable
(grease lubricated)

Spacer length of coupling shall not less than (14) cm.

8.5. De aerator feed Turbine:

8.5.1 Turbine shall be 3000 RPM speed

8.5.2 Turbine shall be furnished with (John crane mech. Seal flexi box TSK
coupling) direct couple to the driver

8.5.3 Mechanical seal shall be furnished according to API (682)

8.5.4. Turbine shall be of (in between two Bearing) design.

8.5.5. Turbine shall be back pressure design.

8.5.6. Turbine Radial Bearing shall be sleeve type babitted with
Antifriction Ball Bearing for thrust.

8.5.7. Bearing shall be ring lubricated type water cooled with water
Specification (3.5 bars- 32).

8.5.8. Turbine shall be furnished with (TG-13) Governor,

8.5.9. Turbine shall be manufactured completely according to API (611) by one
of the vendors:- (Sulzer,KSB , Flow server,NOUVO pigone union)

8.5.10 Carbon ring floating sealing ring for both side.

8.5.11 Turbine shall be furnished with tachometers (mech.+ elec).

8.5.12. Turbine shall be furnished with thermometer for both bearing.

8.5.13. Adequate cooler if necessary.

8.5.14. Turbine power shall be at least of 20% more than the pump
rated Power.

8.5.15 Turbine casing shall be of C6 material de

8.5.16 Testing & Balancing shall be according to API.

8.5.17. Noise level shall be of 85 (d.b.) at 1 meter from the turbine.

8.5.18. Turbine shall be cantilever design.

8.5.19 Throttle valve shall be separated from the stop valve.

8.5.20. Turbine inlet shall be furnished with strainer.

8.5.21 Turbine shall be furnished with mechanical over speed trip.

ARTICLE (9)

Inspection requirements

9.1 Because of difficulty in making rectification and Replacement in IRAQ, a high standard of inspection is required. Details of inspection authority shall be as set in the proposed offer.

9.2 DAURA's inspection department and/or the inspection organization nominated by DAURA (herein referred to as inspection authority) shall collectively fall under the heading of "INSPECTION AUTHORITY" which shall (for the purpose of contract) be deemed to act behalf of the M.R. (general manager of middle refinery). The procedure of notices and divisions of duties between the contractor and the nominated inspection authority shall be decided by DAURA.

9.3 All inspection and tests carried out by the inspection authority and/or the contractor's inspection against shall be performed in accordance with the standards mentioned in the contract, which is briefly mentioned below, to ensure complete adherence to the contract requirements.

For materials ASTM standard with the conformance of ASME

Section II requirements.

For boilers ASME de section I requirements

ASME de section VIII requirements. For pressure vessels

For exchangers TEMA class R requirements and ASME

code section VIII requirements.

For piping ANSI B-31.3 requirements.

For power piping ANSI B-3 1.1 requirements.

For relieving system API RP 520 P1/P2, API RP 521, ASME de section I & section VIII requirements.

For fittings ANSI B-16.5 requirements.

9.4 All equipment materials shall be specified according to ASTM designation exclusively in the contractor technical proposal.

9.5 All the fabrication industries and manufacturing shops shall be certified by ASME.

9.6 All the fabricators and welders shall be ASME qualified.

9.7 The constructor shall be responsible for supplying the inspection authority in good time with all drawing, specifications and design documents required for the performance of the inspection work.

9.8 The inspection authority shall issue certificates and relevant reports as detailed in the contract. The said certificates and relevant reports shall be issued in (7) pies, for which (4) pies shall be handed over to the M.R. and (3) pies shall be forwarded to the contractor.

9.9 In case of conflict between the contract specifications and/or de requirement (referred to in the contract), the most stringent requirement shall be applying.

9.10 The inspection authority shall constantly record of their inspection activities. The record shall be available for the M.R. at his request.

9.11 The constructor's inspectors shall be responsible for full dimensional checking of items and for seeing that all points mentioned in this inspection requirement are observed. The contractor and/or manufacturer shall have own routine inspection activities for quality control which can be preceded on their own free independent schedules regardless of the presence of the inspection authority. It is to be understood that inspection authority activities (in shops or at site) do not relieve the contractor from contractual obligations.

9.12 When ordering materials, equipment or machinery from suppliers and sub-suppliers which are subject to the inspection authority inspection the contractor and/or suppliers must clearly show on their order that the material and/or equipment is subject to inspection by the said authority's inspector. Certificates and data folders, etc, required must also be specified in the order.

9.13 The compliance with the specifications contained in the contract documents will be the responsibility of the contractor in accordance with the terms of the contract.

9.14 The requisite number of pies of the vessel and exchanger data folders, pump test certificates and curves,...etc. As called for in the purchase order requisition sheet shall be sent to the inspection authority and the contractor as soon as possible after completion of manufacturing of the equipment.

9.15 Where material has been ordered and is not subject to inspection, it will be responsibility of the contractor to expedite the completion of data called for and to distribute that data.

9.16 The inspection authority shall delegate its specially trained inspection to the manufactures mills and works, where items related to the contract are being processed, manufactured, assembled and/or fabricated to examine, inspect, check and witness tests during all phases of processing, manufacture, fabrication and/or assembly and on the completed item to ensure its complete conformity with the requirements of the contract.

9.17 The inspection authorities' inspector shall be present to witness all hydrostatic and performance tests. The inspection authority shall delegate its specially trained inspectors to the site or places where items included in the contract are being fabricated and/or assembled and erected to examine, inspect, check and witness tests, during all phases of fabrication and/or assembly, erected and construction of the plant.

9.18 Inspection certificates, shop test certificates, fabrication certificates, performance test certificates and all other certificates issued by the inspection authority must be fully detailed containing all the relevant data required and confirming that the item certified conforms to the requirements of the contract.

9.19 All certificates, reports, etc., Issued by the inspection authority shall be in English language.

9.20 The inspection authority, in addition to its certificates, shall submit to M.R. monthly progress report on its activities at the main manufactures work shop and mills. The inspection authority shall immediately inform M.R. of any interruption, delay or difficulty. The contractor shall inform the inspection authority in writing at least one month before the dates of commencement of work on items processed or fabricated outside IRAQ. A copy of disk notification shall be sent to M.R. The inspection authority shall accordingly be present at the exact date the manufactures mills and work to perform their required inspection duties.

9.21 The contractor shall send the inspection authority all information necessary to carry out inspections of the equipment and materials such as a purchase order number, supplier's and/or manufacture's name, expected time of delivery and specification thereof. The contractor shall be responsible for all ordination work of the inspection authority's inspector and suppliers to ensure their presence at the places of the right time.

9.22 The working procedure with the inspection authority shall be established by the contractor within fourteen(14)days after the signing of the contact between M.R. and contractor, and be submitted for M.R. approval.

9.23 The inspection procedure describing the inspection criteria and methods at the manufacturer's show and at the site shall be established by the contractor and be submitted for M.R. approval prior to the commencement of the inspection.

9.24 The contractor shall be responsible for the supply, inspection and expediting of the materials and equipment required to complete the work and arrange for safe transportation of the same to the job site.

For the equipment which does not required to be inspected by the inspection authority, the contractor shall be provide certificate of quality issued by the manufacture's works.

9.26 The inspection authority may at its discretion or at the request of the contractor accept certificates of manufactures or other inspection authorities and has the right to waive certain inspection, or deviate from the contract inspection requirement subject to M.R approval thereof.

9.27 When inspection and tests of equipment are completed, the inspection authority shall issue the relevant inspection certificate certifying that the said equipment had been inspected by the inspection authority and its quality had met the requirements of the technical specifications mentioned in the contract.

9.28 All material, equipment and machinery inspected and certified by the inspection authority shall be clearly identified to have been so inspected and certified. Material or equipment and machinery subject to the inspection authority's survey which do not bear the inspection authority's identity shall be considered as not having been inspected and the M.R. has the right to reject the said material, machinery and/or equipment, in case they have no been so identified through no fault of the inspection authority.

9.29 As soon as practical after the signature of the contract and prior to commencement of individual inspection the contractor shall provide to the

inspection authority and the M.R. the inspection schedule of the items subject to inspection, giving the name and address of manufactures, suppliers, ...etc., And the estimated dates of commencement of inspection and times for fabrication, ...etc., And the extent of inspection for each individual item subject to inspection.

9.30 Date of fabrication indicated in the inspection schedule will be informative only, the contractor shall be responsible for notifying the inspection authority within (30) days before an approximate date of the beginning of the test of equipment or machinery and, to prices the time (5) working days before the actual starting of the testing.

9.31 If the contractor fails to carry out his duties under the clauses (27) & (28), the machinery and/or equipment subsequently not certified will at the M.R. option be rejected. The contractor shall insure that the requirements of the clauses (27) & (28) thereof are included in the respected contracts with his sub-suppliers.

9.32 The inspection authority shall delegate to the site such number of inspection technical and engineers as the work requires. The decisions of the inspection authority for accepting are rejected the workmanship during construction shall be considered as final and the contractor shall accept such decision. It is to be understood that the inspection authority certificates does not relieve. The contractor from his contractual obligations. contractor must provide the inspection authority with a minimum of two full sets of project documentation for construction at site.

9.33 The welded joints and bended parts of the super heater tubes shall be stress relives.

Article -10- Civil requirements

10.1 standards and codes

The following standards or the equivalent shall constitute as guide for Design.

A.C.I American concrete institute.

A.N.S.I American national standards institute.

A.I.S.C American institute of steel construction.

All materials imported must conform to ASTM(American society for testing material) local shall conform to the local IRAQI des.

10.2 Drawing and document required.

The following documents shall be submitted to M.R for approval.

10.2.1 Detailed civil engineering design

10.2.2 Building plane, elevation and section including all installation and Service.

10.2.3 Layout drawing and underground piping and drainage.

10.2.4 Drawings of cross-section of road and dikes.

10.2.5 Grading plan (if applicable).

10.2.6 Piling plan and specification. If required

10.2.7 Typical standard drawing for construction works.

10.2.8 Design drawings.

10.2.9 General plot plan.

10.2.10 static and dynamic calculation.

10.2.11 drawings shall completely show dimensionally the shape section, relative location floor level, column centers, connection of member etc. And drawing to a scale large enough to convey adequately the required information.

10.3 Soil condition

For general information about soil data at refinery areas soil investigation report at site area shall be given. The soil investigation shall be done by M.R according to the load application. Points given by the designer or any other test if required.

In general the load bearing at the soil in the refinery areas is 5-7 ton/m² at 1.5 meter depth.

The ground water level is variable according to the season it is:

(-4.00,-4.5) meter from ground level in November.

(-1.00,-1.5) meter from ground level in April.

The site elevation is approximately 30 meter above sea level.

10.4 control building

The same control room for the first boiler

10.5 concrete in contact with soil:

- a. All the foundation shall be at 1.5 meter depth.
- b. contractor in contact with soil sulfate resistant cement shall be used coated with 3-layer of bitumen at.

c. All roads and paving area other than walk ways shall be of sufficient to handle cranes operation and sulfate resistance cement shall be used.

10.6 site condition

The site area is within the same area for the first boiler which was 70mX151m

10.7 Insulation

The entire hot surface (pipes or equipment) shall be isolated by thermal Insulation material.

Calcium silicate is preferable

The insulation shall be covered by Aluminum sheet with all other Accessories and all materials shall be supplied by bidder

10.8 Painting:

All the equipments piping and steel structure shall be primary coated , all painting material required for three final coating at site , shall be supplied by bidder

Any concrete area in contact with chemical material shall be coated with proper type of Epoxy supplied by bidder

10.9 Anchor bolts, bolts and nuts : All anchor bolts and bolts and nuts required for the project shall be supplied by bidder every type shall be packed and numbered according to the places it is used

10.10 Cable trench: All cables shall be laid in a concrete trench with proper width and depth covered with concrete slops

10.11 Material for construction

The following material shall be supplied by M.R

Cement

Sand and gravel

reinforcement bars

terrazzo tiles-plastic tiles

asbestos cement sheets

bricks

concert blocks

Glass shall be supplied by bidder, reinforced type as sheet any other materials required for the construction of plant shall be supplied by bidder

10.12 Drainage pipes, sewer pipes, shall be supplied by bidder according to the design requirement with all accessories

ARTICLE (11)

VENDOR LIST

11.1 Instrument

11.1.1 All electronic transmitters to be supplied from
Yokogawa , Rosemount , Honeywell , Foxboro E&H

11.1.2 All analyzer to be supplied from
Rosemount , Beckman , Foxboro , Kent

11.1.3 control valve to be supplied from
Fisher , Masonelian , Honey Well , Blackborht

11.1.4 Solenoid valve to be supplied from As , burc Kent Aln

11.1.5 DCS to be supplied from
Foxboro, Rosemount, Kent, Yokogawa, Honeywell

11.1.6 Pressure & Temperature switches to be supplied from
Delta UE Barksdle Cella , SOR

11.1.7 Pressure gauges & dial thermometer , to be supplied from
Budenberg WIKA Nuova Fima , Rueger , Berger , Rototherm, Badtherm
,Ashcraft

11.1.8 Hand switches to be supplied from :
Magnitrol , Merid , Bestoball

11.1.9 Level Switches from
Magnitrol , Merid , Bestoball , VeGa

11.1.10 Glass Gauge from
Klinger , Technomatic

11.2 Electrical

Switch gear: Schneider Electric SA/france
GEC Alstom /France

M.V& L.V Motors:

GEC Alstom Motors / France

Hemke/France Germany, ACEC /Blegium

Brook / England

ABB , Schorch , Siemens /Germany

Cables: Alcatel cables /France

Picc /England

Pirelli /England , France , or Italy

Paging System: Alcatel / France

11.3 Rotating Equipment

Pumps - flow serve

KSB

UNION

SULZER

NOUVO PIGNONE

GOULD

Dosing pumps -Milton Roy-M.Roy-Liwa

Turbines -Dresser Rand

Peter Brotherhood

coppus

Elliot

Terry

11.4 Fire Fighting vender

Angus

Silvani

Rosen Bauer

Saval

11.5 Safety Vender

- Oidham
- Drager
- -Ban
- Zellweger