

958

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(6) Metal Work							
Steel ladder	With safety cage	m	12				with paintings including anchoring
Roof drain		each	4				
Down spout		m	45				
Mono-rail	I-beam	m	65				
Hand rail		m	25				
Sub total (6)							
(7) Plaster Work							
Mortar plastering for wall		m <sup>2</sup>	1,660				
Mortar steel troweled	With metal lath	m <sup>2</sup>	40				Roof gutter

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Mortar steel troweled	For coping	m	95				
Mortar steel troweled	For floor	m <sup>2</sup>	980				
Sub total (7)							
(8) Doors, Windows, and Louvers							
Steel flush hollow core swing door	Including threshold	m <sup>2</sup>	4				with louver, glass, painting and hardware
Aluminum louvers		m <sup>2</sup>	10				With bird screen
Aluminum window	with glass	m <sup>2</sup>	75				
Nameplates for rooms		each	1				
Rolling door		m <sup>2</sup>	16				

858

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Sub total (8)								
(9) Painting Work								
Vinyl paint for mortar	2 coats interior	m <sup>2</sup>	2,700					
Durosem cement paint		m <sup>2</sup>	930					
Sub total (9)								
(10) Ventilation System								
Exhaust air fan	Propeller fan 600øx6350MHx5mmAg x0.75Kw	EA	4					
Miscellaneous		L.S	1					

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Secondary electrical wiring		L.S	1					
Control panel		EA	1					
Sub total (10)								
(11) Drainage System								
Drainage system		L.S	1					
Sub total (11)								



DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	RS		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(11) Ventilation and Air-conditioning Work		L.S	1					
(12) Water Supply, Drainage Sewage System		L.S	1					
Total								

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(1) Earth Work								
Excavation		m <sup>3</sup>	140					Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	85					
Grave layer	150mm thick	m <sup>3</sup>	25					
Leveling concrete	50mm thick Class-F	m <sup>3</sup>	10					
Dewatering		L.S	1					
Sub total (1)								
(2) Reinforced Concrete Work								
Reinforcing bar	ASTM A615 Gr.40 deformed	ton	15					Including bending, cutting and placing

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	RS		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Reinforced concrete	Underground Class-D	m <sup>3</sup> 35					Including form work
Reinforced concrete	Column wall, beam, slab class-D	m <sup>3</sup> 45					Including form work
Reinforced concrete	Slab on grade class-E	m <sup>3</sup> 15					Including form work
Sub total (2)							
(3) Concrete Block Work							
Concrete hollow block	390 x 190 x 150	m <sup>2</sup> 190					
Precast concrete block							
Light weight concrete block for roof		m <sup>2</sup> 115					With sand cushion, elastic joint
Terrazzo panel		m <sup>2</sup> 10					With fixture
Sub total (3)							





DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(6) Metal Work								
Steel ladder	with safety cage	m	5					With paintings including anchoring
Roof drain		each	2					
Down spout		m	10					
Door sill		m	6					
Sub total (6)								
(7) Plaster Work								
Mortar plastering for wall		m <sup>2</sup>	590					
Mortar steel trowelled	With metal lath	m <sup>2</sup>	8					Roof gutter



DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(9) Painting Work								
Vinyl paint for mortar	2 coats exterior	m <sup>2</sup>	410					
Durosem cement paint		m <sup>2</sup>	160					
Sub total (9)								
(10) Interior Finish Work								
Nameplates of room		each	6					
Mop rack		each	1					Including painting
Sub total (10)								



DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(12) Water Supply, Drain- age Sewage System		L.S	1					
1. Water supply system								
Water supply pipe	32ø (G.S.P)	Lot	1					
Water supply pipe	25ø (G.S.P)	Lot	1					
Water supply pipe	20ø (G.S.P)	Lot	1					
Valve		Lot	1					
Insulation work		L.S	1					
Sub total 1.								
2. Sanitary fixture								
Water closet	Vitreous china Wash down coupled w/low tank, paper holder	EA	1					

07E

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Urinal	V.C. wall hung Flush valve	EA	2					
Lavatory	V.C. wall hung W/liquid soap holder, mirror	EA	2					
Swing fauset		EA	1					
Sub total 2.								
3. Drainage & vent system								
Septic tank	FRP 1.0m <sup>3</sup>	EA	1					
Sewage pipe	Ø75 - Ø100 cast iron	Lot	1					
Drain pipe & vent pipe	Ø40 - Ø100	Lot	1					
Lead pipe	Ø50 - Ø75	Lot	1					
Floor drain		Lot	1					

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Clean out		Lot	1					
Soil water basin	Concrete	Lot	1					
Rain water basin	Concrete	Lot	1					
Insulation work		L.S	1					
Sub total 3.								
Sub total (12)								





DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(a) Intake Open Channel								
Excavation		m <sup>3</sup>	2,500					Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	540					
Sheet pile	Driving & Removing	ton	274					Including waling, strut jack, angle brace etc.
Sheet pile	Driving	ton	216					Including waling, strut jack, angle brace etc.
Dewatering		L.S	1					
Gravel layer	200mm thick	m <sup>3</sup>	53					
Leveling concrete	100mm thick Class-F	m <sup>3</sup>	26					
Reinforced concrete	Class-D	m <sup>3</sup>	1,510					Including form work and form staging

7/1/8

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Reinforcing bar	ASTM A615 Gr.40 deformed	ton	136					Including bending, cutting and placing
Expansion Joints	Water Stop : Polyvinyl chloride W=250mm	m	139					Including asphalt filling
Construction Joints		m	339					Including water stop
Hand rail	SGP 50A and SGP 40A height 1200mm	m	36					Including painting
Repair work for existing intake pipe		L.S	1					
Connective work with existing intake pipe		L.S	1					
Dismantle of existing pump house		L.S	1					Including Miscellaneous foundations
Cleaning of inside of existing intake pipe		L.S	1					
Removal and restoration of existing boundary wall		L.S	1					
Removal of stop log		L.S	1					

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Stop Log for existing inlet		L.S	1					
Sub total (a)								

978

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(b) Screen & Pump Pit							
Excavation		m <sup>3</sup> 6,500					Including disposal
Backfilling	Excavated sand	m <sup>3</sup> 3,000					
Sheet pile	Driving & Removing	ton 657					Including waling, strut, jack, angle brace etc.
Sheet pile	Driving	ton 53					Including waling, strut, jack, angle brace etc.
Dewatering		L.S 1					
Gravel layer	200mm thick	m <sup>3</sup> 139					
Leveling concrete	100mm thick Class-F	m <sup>3</sup> 70					
Reinforced concrete	Class-D	m <sup>3</sup> 1,820					Including form work and form staging
Reinforcing bar	ASTM A615 Gr.40 deformed	ton 182					Including bending, cutting and placing

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	RS		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Expansion joints	Water Stop : Polyvinyl chloride W=250mm	m	66					Including asphalt filling
Construction joints		m	405					Including water stop
Hand rail	SGP 50A and SGP 40A height 1200mm	m	13					Including painting
Checkered plate cover	Including handle, steel angle and painting	m <sup>2</sup>	43					Including angle for concrete corner
Grating cover	F-32 Galvanized Including painting for steel angle	m <sup>2</sup>	55					Including steel angle for concrete corner
Ladder	Stainless steel SUS304 ø40 with ø22-400	m	79					Including handle
Guide channel	Cast-iron [-520x260	m	40					Including painting
Anchor box		each	20					
Wooden stopper	1000W x 1500H x 30t	set	1					
Angle steel for wash water pit		m	12					
Angle steel for wooden stopper		m	3					



DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(c) Discharge Tunnel							
Excavation		m <sup>3</sup> 780					Including disposal
Backfilling	Excavated sand	m <sup>3</sup> 430					
Sheet pile	Driving & Removing	ton 157					Including waling, strut, jack, angle brace etc.
Dewatering		L.S 1					
Gravel layer	200mm thick	m <sup>3</sup> 26					
Leveling concrete	100mm thick Class-F	m <sup>3</sup> 14					
Reinforced concrete	Class-D	m <sup>3</sup> 157					Including form work and form staging
Reinforcing bar	ASTM A615 Gr.40 deformed	ton 14					Including bending, cutting and placing





PROJECT: WEST WHARF THERMAL POWER PLANT

DATE

SCHEDULE OF PRICES

SUBJECT: Unit-2 Other Civil Works

SHEET OF

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		REMARKS
				UNIT-PRICE	AMOUNT	
E. Other Civil Works						
(a) Outdoor Pipe Support Foundations		L.S	1			
(b) Make-up Water Tank Foundation		L.S	1			
(c) Cable Duct Foundation		L.S	1			
(d) Other Foundations		L.S	1			
Total E						

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(a) Outdoor Pipe Support Foundations							
Excavation		m <sup>3</sup> 150					Including disposal
Backfilling	Excavated sand	m <sup>3</sup> 110					
Gravel layer	150 mm thick	m <sup>3</sup> 86					
Leveling concrete	50 mm thick Class-F	m <sup>3</sup> 92					
Reinforced concrete	Class-D	m <sup>3</sup> 268					Including form work and form staging
Reinforcing bar	ASTM A615 Gr. 40 deformed	ton 22					Including bending, cutting and placing
Reinforced concrete pile	ø 400	m 2,300					Including materials and top reinforcements

258

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		REMARKS
				UNIT-PRICE	AMOUNT	
				FC		
				UNIT-PRICE	AMOUNT	
(b) Make-up Water Tank Foundation						
Excavation		m <sup>3</sup>	30			Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	6			
Reinforced concrete pile	ø400	m	524			Including materials and top reinforcement
Gravel layer	200mm thick	m <sup>3</sup>	8			
Leveling concrete	100mm thick Class-F	m <sup>3</sup>	5			
Reinforced concrete	Class-D	m <sup>3</sup>	20			Including form work and form staging
Reinforcing bar	ASTM A615 Gr. 40 deformed	ton	2			Including bending, cutting and placing
Crushed stone	Max. size 30 mm	m <sup>3</sup>	9			
Oil sand	50 mm thick Oil 60 l/m <sup>3</sup>		3			



DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		REMARKS
				UNIT-PRICE	AMOUNT	
					FC	
(c) Cable Duct and Manhole						
Excavation		m <sup>3</sup>	390			Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	290			
Sheet pile	Driving & Removing	ton	86			Including waling, strut, jack, angle brace etc.
Dewatering		L.S	1			
Gravel layer	200mm thick	m <sup>3</sup>	15			
Leveling concrete	50mm thick Class-F	m <sup>3</sup>	4			
Reinforced concrete	Class-D	m <sup>3</sup>	43			Including form work and form staging
Reinforcing bar	ASTM A615 Gr. 40 deformed	ton	4			Including bending, cutting and placing
Piping for cable duct	Asbestos cement pipe ø 200mm	m	13			For C.V cable Including wooden support



DESCRIPTION	SPECIFICATION	UNIT QUANTITY	RS		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(d) Other Foundations							
(1) Oil Separator for Service Tank Area	L.S	1					
(2) Dust Box	L.S	1					
(3) Unit Neutralizing Pit	L.S	1					
(4) Foundation of Fire Protection System	L.S	1					
Sub total (d)							



DESCRIPTION	SPECIFICATION	UNIT QUANTITY	RS		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(1) Oil Separator for Service Tank Area							
Excavation		m <sup>3</sup>	80				Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	48				
Sheet pile	Driving & Removing	ton	16				Including waling, strut, jack, angle brace etc.
Dewatering		L.S	1				
Gravel layer	200mm thick	m <sup>3</sup>	4				
Leveling concrete	100mm thick Class-F	m <sup>3</sup>	2				
Reinforced concrete	Class-D	m <sup>3</sup>	14				Including form work and form staging
Reinforcing bar	ASTM A615 Gr. 40 deformed	ton	1				Including bending, cutting and placing
Construction joints	Water stop: Copper plate t=1mm w=200mm	m	29				

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
Hand rail	SGP 50A & SGP 40A 1200mm height	m 15					Including painting and chain
Grating cover	F-19 Galvanized Including painting	m <sup>2</sup> 3					Including steel angle for concrete corner
Ladder (steps)	400 mm width	m 5					Including painting
Filter wire net	2.0m x 0.97m steel clamp net #14 12mm	set 1					Including guide channel
Drainage pipe	SGP 150 A Asphalt jute cloth	m 15					
Leak test		L.S 1					
Sub total (1)							

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(2) Dust Box							
Excavation		m <sup>3</sup>	4				Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	2				
Gravel layer	150mm thick	m <sup>3</sup>	2				
Leveling concrete	50mm thick Class-F	m <sup>3</sup>	1				
Reinforced concrete	Class-D	m <sup>3</sup>	5				Including form work and form staging
Reinforcing bar	ASTM A615 Gr.40 deformed	ton	1				Including bending, cutting and placing
Wooden wall	2060L x 300 W x 30 t	set	4				
Drainage pipe	SGP 50A Asphalt jute cloth	m	5				
Sub total (2)							

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(3) Unit Neutralizing Pit								
Excavation		m <sup>3</sup>	440					Including disposal
Backfilling	Excavated sand	m <sup>3</sup>	170					
Sheet pile		ton	93					Including waling, strut, jack, angle brace etc.
Dewatering		L.S	1					
Gravel layer	200mm thick	m <sup>3</sup>	14					
Leveling concrete	100mm thick Class-F	m <sup>3</sup>	8					
Reinforced concrete	Class-D	m <sup>3</sup>	117					Including form work and form staging
Reinforcing bar	ASTM A615 Gr.40 deformed	ton	9					Including bending, cutting and placing
Construction joints		m	86					Including water stop



DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(4) Foundation of Fire Protection System								
Gravel layer	150mm thick	m <sup>3</sup>	8					
Leveling concrete	50 mm thick Class-F	m <sup>3</sup>	3					
Reinforced concrete	Class-D	m <sup>3</sup>	24					Including form work and form staging
Reinforcing bar	ASTM A615 Gr.40 deformed	ton	2					Including bending, cutting and placing
Sub total (4)								



DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(a) Transformer Yard Foundation							
Excavation		m <sup>3</sup> 650					Including disposal
Backfilling		m <sup>3</sup> 180					
Sheet pile	Horizontal projection length	m 42					Driving & removing
Dewatering		L.S 1					
Gravel layer	150mm thick	m <sup>3</sup> 25					
Leveling concrete	50 mm thick Class-F	m <sup>3</sup> 8					
Steel pipe pile	Ø609.6 x 9.0 mm Driving length	m 368					Including materials sand pile, concrete in pile, top reinforcement and field weld joint
Reinforced concrete	Under ground Class-D	m <sup>3</sup> 440					
Reinforced concrete	Wall Class-D	m <sup>3</sup> 30					





DESCRIPTION	SPECIFICATION	UNIT QUANTITY	RS		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(b) Flue Gas Duct Foundation							
Excavation		m <sup>3</sup> 120					Including disposal
Backfilling		m <sup>3</sup> 70					
Dewatering		L.S 1					
Gravel layer	150mm thick	m <sup>3</sup> 5					
Leveling Concrete	50mm thick Class-F	m <sup>3</sup> 2					
Cast-in situ RC pile	Ø550	m 320					Including materials top chipping & top reinforcement
Reinforced concrete	Underground Class-D	m <sup>3</sup> 50					
Reinforcing bar		ton 4					
Sub total (b)							

878

<u>PROJECT: WEST WHARF THERMAL POWER PLANT</u>			<u>SCHEDULE OF PRICES</u>				DATE
<u>SUBJECT: Unit-2 Road and drainage system</u>			Rs	FC	SHEET	OF	REMARKS
DESCRIPTION	SPECIFICATION	UNIT QUANTITY	UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
G. Road and Drainage System							
(a) Road and Drainage System		L.S	1				
Total G							

DESCRIPTION	SPECIFICATION	UNIT	QUANTITY	Rs		FC		REMARKS
				UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(a) Road and Drainage System								
Road pavement	Asphalt t=5cm, subbase t=30cm	m <sup>2</sup>	3,600					
Manhole	Checkered plate cover Including painting	set	12					Including ladder, hook, concrete corner angle
Catch basin	Including concrete cover	set	17					
Side ditch		m	1,300					
Drainage pipe	Concrete pipe ø500 sand, gravel layer	m	310					Including reinforced concrete for crossing road
Drainage pipe	Concrete pipe ø200 sand, gravel layer	m	45					Including reinforced concrete for crossing road
Dewatering		L.S	1					
Road marking		m	600					
Sub total (a)								

<u>PROJECT: WEST WHARF THERMAL POWER PLANT</u>	<u>SCHEDULE OF PRICES</u>		<u>DATE</u>				
<u>SUBJECT: Unit-2 Site Finishing Work</u>	<u>RS</u>	<u>FC</u>	<u>SHEET</u>	<u>OF</u>			
<u>DESCRIPTION</u>	<u>SPECIFICATION</u>	<u>UNIT QUANTITY</u>	<u>UNIT-PRICE</u>	<u>AMOUNT</u>	<u>UNIT-PRICE</u>	<u>AMOUNT</u>	<u>REMARKS</u>
H. Site Finishing Work							
(a) Site Finishing Work		L.S 1					
Total H							

DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs		FC		REMARKS
			UNIT-PRICE	AMOUNT	UNIT-PRICE	AMOUNT	
(a) Site Finishing Work							
(1) Guardrails		L.S 1					
(2) Gates and Fence		L.S 1					
(3) Trees		L.S 1					
(4) Monument		L.S 1					
(5) Gravel Layer		L.S 1					
(6) Patrol Way		L.S 1					
(7) Miscellaneous Work		L.S 1					
(8) Land Filling	from GL-1.0m to GL	m <sup>3</sup> 5,100					
Sub total (a)							

PROJECT: WEST WHARF THERMAL POWER PLANT		DATE	
SCHEDULE OF PRICES			
SUBJECT: Unit-2 Dismantling Works		SHEET	OF
DESCRIPTION	SPECIFICATION	UNIT QUANTITY	Rs
			UNIT-PRICE   AMOUNT   UNIT-PRICE   AMOUNT
FC			
REMARKS			
I. Dismantling Works			
B station substructure	Below ground floor level	L.S 1	Including pile pull-out
Stack for B station substructure	ditto	L.S 1	ditto
Misc. foundations & wall for B station	ditto	L.S 1	ditto
Stack for BX station substructure	ditto	L.S 1	ditto
BX station substructure	ditto	L.S 1	ditto
Transformer fnds. for BX station	ditto	L.S 1	ditto
Total I			









(Tenderer's Name)

APPENDIX B

FORM OF TENDER BOND

BOND Executed on \_\_\_\_\_

Name of Surety and Address \_\_\_\_\_  
\_\_\_\_\_

Name of Principal (Tenderer) and Address \_\_\_\_\_  
\_\_\_\_\_

Panel Sum of Bond (Express in words and figures) \_\_\_\_\_  
\_\_\_\_\_

Date of Bid \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal (Tenderer) we, the Surety above-named are held and firmly bound unto the Karachi Electric Supply Corporation Limited (hereinafter called the Owner) in the sum stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Tenderer has submitted the accompanying Bid dated \_\_\_\_\_ for Contract No. \_\_\_\_\_ for the Supply and Erection, of \_\_\_\_\_ for the West Wharf Thermal Power Plant Project Units No.1 and No. 2, Lot-I for the said Owner.

373

(Tenderer's Name)

WHEREAS, the Owner has required as a condition for considering said Tender that the Tenderer deposit with the Owner either a certified cheque or Cashier's cheque or banker's draft in the amount of \_\_\_\_\_

(Rs. \_\_\_\_\_)

\_\_\_\_\_ or in lieu thereof furnish a Bid Bond or Guarantee in like amount from a Scheduled Bank of Pakistan (or in case of a foreign Bank under-written by a Scheduled Bank of Pakistan).

Conditioned as under:

- (1) that the Bid Bond or Guarantee shall remain valid for not less than \_\_\_\_\_ days following the date set for opening of Bids regardless of the validity period of the Bid itself; and
- (2) that the Bid Bond or Guarantees of unsuccessful Tenderers will be returned by the Owner upon award of the Contract; and
- (3) that in event of failure of the successful Tenderer to execute the proposed Contract Agreement for such Works and furnish the required Performance Bond, the entire said sum be paid immediately to the said Owner as liquidated damages and not as penalty for the successful Tenderer's failure to perform.

NOW, THEREFORE, if the successful Tenderer shall, within the period specified therefor, on the attached prescribed form presented to him for signatures, enter into a formal Contract with the said Owner in accordance with his Bid as accepted and furnish within (45) days of his being requested to do so, a Performance Bond with good and sufficient surety, as may be required, upon the form prescribed by the said

(Tenderer's Name)

Owner for the faithful Performance and the proper fulfillment of said Contract, or in the event of withdrawal of said Bid within the time specified then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

PROVIDED THAT the Surety shall forthwith pay the Owner the sum of \_\_\_\_\_ (Rs. \_\_\_\_\_) upon first written demand of the Owner, notice of which shall be sent by the Owner by the registered post duly addressed to the Surety at its address given above.

PROVIDED ALSO THAT the Owner shall be the sole and final judge for deciding whether the Principal (Tenderer) has duly performed his obligations to sign the Contract and to furnish the requisite Performance Bond within the time stated above, or has defaulted in fulfilling said requirements and the Surety shall pay without objection the sum of \_\_\_\_\_ (Rs. \_\_\_\_\_) upon demand from the Owner forthwith and without any reference to the Principal (Tenderer) or any person.

(Tenderer's Name)

IN WITNESS WHEREOF, the above bounden Surety has executed this instrument under its seal on the date indicated above, the name and seal of the Surety being, hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

SURETY

WITNESS

1. \_\_\_\_\_

Corporate Secretary (seal)

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1. Signature \_\_\_\_\_

2. Name \_\_\_\_\_

3. Title \_\_\_\_\_

Corporate Surety (Seal)

\_\_\_\_\_

914

(Tenderer's Name)

APPENDIX C

SPECIAL STIPULATIONS

For ease of reference, certain information and Special Stipulations applicable to the Contract are set forth herein.

	<u>Clause or Condi-</u> <u>tions of contract</u>	
1. Amount of Tender Bond	IT-5 of Instructions to Tenderers (Section I) Volume 1	
2. Time for completion	Appendix F	Within 36 months from date of commencement for Unit 1 and 51 Months for Unit 2
3. Amount of Performance Bond	CC. 17 General of conditions of Contract (Section III), Volume 1	20 percent of the Contract Price, reducing the percentages as the Works progress.
4. Guarantee Period	CC. 19 of Section III, Volume 1	12 months after provisional Taking Over.
5. Insurance:		
i) Works and Contractor's equipment	CC. 36 of Section III, Volume 1	Full replacement value of works.
ii) Third party	CC. 36 of Section III	for each incident.
6. Time of Commencement	Form of Agreement	Immediately upon the Contractor's receipt from the Owner of a written order to proceed

(Tenderer's Name)

7. Liquidated damages:

- |                          |                                 |   |
|--------------------------|---------------------------------|---|
| i) Guaranteed Heat Rate  | CC. 53 of Section III, Volume 1 | 1.0% of contract Price for each 0.1% increase in Heat Rate subject to combined limit of 10% of Contract Price for liquidated damage under Guaranteed Heat Rate and Guaranteed Capacity. |
| ii) Guaranteed Capacity  | CC. 53 of Section III, Volume 1 | 1.0% of Contract Price for each 0.1% decrease in output subject to combined limit of 10% of Contract Price for liquidate damages under Guaranteed Heat Rate and Guaranteed Capacity.    |
| iii) Delay in completion | CC. 54 of Section III, Volume 1 | 0.1% of the Contract Price for each and every day including holidays, of delay subject to maximum of 10% of the Contract Price.   |
| iv) Early completion     | IT. 11 of Section I, Volume 1   | Credit shall be given for the purpose of evaluation at rate of 0.05% for each calendar day of earlier completion up to a maximum limit of 2.5% of Tender Price.                         |



(Tenderer's Name)

8. Exchange Rate: IT. 10.2 of Section I, Volume I Itemize stipulated exchange rates as follows:

Unit of Currency      Equivalent Pakistan Rupee

378

(Tenderer's Name)

APPENDIX D  
RECEIPT OF ADDENDA

Tenderers shall acknowledge receipt of each addendum by listing hereunder each addendum received.

Receipt of the following addenda are acknowledged.

Addendum numbered \_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_

Signed .....

Date .....

Company Stamp

288

(Tenderer's Name)

APPENDIX E

LIST FOR GOODS IMPORTED OUTSIDE OF ELIGIBLE SOURCE COUNTRIES

Refer to next page.

APPENDIX E

LIST FOR GOODS IMPORTED OUTSIDE OF ELEGIBLE SOURCE COUNTRIES

(Tenderer's Name)

Tenderers shall fill up and submit this List attaching to the FORM OF CERTIFICATES FOR SOURCES & ORIGIN, AND ELIGIBILITY OF OECF specified in Volum 1

Item No.	Name of Equipment for Item-by-Item (A)	Name of Equipment or Materials (B)	Cost	Percentage* of B/A (%)

(Tenderer's Name)

APPENDIX F

DELIVERY AND CONSTRUCTION SCHEDULE

<u>Major Schedule Items</u>	<u>Delivery/Completion from Date of Award of Contract</u>
o Contractor's Data and Drawings Specified in 3.1 of Part I, Volume 3	within 3 months
o Other Data and Drawings	
o Shipment of Plant Equipment and Materials at FOB Port of Export	
o Arrival of Plant Equipment and Materials at Karachi Port	
o Delivery of Plant Equipment and Materials at Job Site	
o Installation Complete Start Preoperational Test	
o 30 Days Continuous Operation Test	
o Performance and Acceptance Test	
o Final Project Completion	_____ month _____ day
	Specified 36 months for Unit 1 51 Months for Unit 2

383

(Tenderer's Name)

APPENDIX G

DEPARTURES FROM OR QUALIFICATIONS TO TENDER DOCUMENTS

The Tender shall specify below, in detail, all deviations from the Tender Document (additional sheets shall be included suffixed (a), (b), (c), etc. should the space provided be inadequate). Any entry shall be referenced to the Tender Documents Part No. and Clause No. to which they refer.

The Tender shall be deemed to be compliant in all respects with the content and intent of the Tender Documents except in respect of deviations and exceptions listed hereunder. The Tender shall sign under seal as indicated hereunder to confirm that in all matters, except as detailed in this Form, the Tender submitted is in accordance in all respects with the Tender Documents.

The Tender shall initial on all sheets and complete this Form by signing under seal as indicated.

(Tenderer's Name)

We, ..... the Tenderer do hereby  
certify that the Tender submitted is in full compliance with the Tender  
Document except for the deviations listed herein.

We further certify that any other deviations or exceptions identified  
or detected prior to or during the execution of the Contract for the  
Works will be corrected by the Tenderer/Contractor to comply with the  
requirements of the Tender Documents and Contract Documents without any  
increase in the price for the Works and without any delay in the  
execution of the Contract.

Signed .....

Date .....

Seal of Tenderer

288

(Tenderer's Name)

APPENDIX H

MANAGEMENT PROCEDURES

206



APPENDIX I

TENDERER'S DATA SHEETS







APPENEDIX J

MANDATORY AND RECOMMENDED

SPARE PARTS AND EXPENDABLES

UNIT 1

888



MANDATORY SPARE PARTS

1. Power Plant Equipment

\_\_\_\_\_  
(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
1. STEAM GENERATOR AND AUXILIARY EQUIPMENT				
1.1 STEAM GENERATOR				
(1) Boiler and Furnace				
(A) Gasket for boiler and inspection door	%	200		
(B) Glass for boiler and furnace inspection holes	%	200		
(C) Gasket and packing for boiler and furnace access (manhole)	%	300		
(D) Tubes and backing rings	%	2 each size and each material		
SUB-TOTAL				
(2) Drum				
(A) Disk and ring pins of drum safety valves	%	100		
(B) Packing and gasket for drum manhole	%	300		
(C) Bolt, nut and washers for drum internals	%	10		

100/100

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(D) Glass and gasket including mica for drum level gauge	%	500		
(E) Lamp for level gauge	%	300		
(F) Color screen for level gauge glass	%	200		
(G) Valve packing	%	200		
SUB-TOTAL				
(3) Economizer				
(A) Tubes	%	2 each size		
SUB-TOTAL				
(4) Superheater, Reheater and Attemperator				
(A) Disk of safety valves	%	100		
(B) Disk of power control valve (PCV)	%	200		
(C) Disk of pilot valve of PCV	%	200		
(D) Seal ring of PCV	%	200		
(E) Plug seal ring of PCV	%	200		
(F) Gasket for PCV	%	200		
(G) Tubes	%	2 each size and each material		
SUB-TOTAL				

370



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(5) Casing, Brickwork, Refractory, Insulation and Lagging				
(A) Casing (each material)	%	5 each		
(B) Brickwork, refractory, insulation and lagging	%	15 each		
SUB-TOTAL				
(6) Piping, Valves and Fitting				
(A) Blow down valve (complete)	set	1		
(B) Drain valves for steam generator (SH, RH, Econ, Downcomer, etc.)	%	50		
(C) Packing for drain and vent valves	%	30		
(D) Welding rods (each kind) to be used for the boiler	%	30 each		
SUB-TOTAL				
(7) Air Preheater				
(A) Cold end elements	%	100		
(B) Intermediate layer element	%	50		
(C) Hot end elements	%	25		
(D) Post seal assembly	%	100		
(E) Radial seal assembly	%	100		
(F) Circumferential seal assembly	%	100		
(G) Soot blowing nozzle for air preheater	%	100		

16

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(H) Washing nozzles for air preheater	%	100		
(I) Oil seal and packing for oil pump	%	100		
(J) Gasket for manhole and inspection door	%	100		
(K) Glass for inspection door	%	100		
(L) Manometer	set	1		
(M) Motor bearing	set	1		
(N) Lamp for observation light	piece	3		

SUB-TOTAL

(8) Steam Coil Air Preheater

(A) Fin tubes	%	30		
(B) Flange gasket	%	20		

SUB-TOTAL

(9) Oil Burner and Igniter

(A) Fuel oil guns without tips	%	50		
(B) Tips, burner plate, and tip nut for fuel oil guns (heavy fuel oil and diesel oil)	%	200 each		
(C) Igniter guns without tips	%	50		
(D) Tips, burner plate, and tip nut for igniter guns	%	200		
(E) Packing and "O" ring for fuel oil guns	pieces	200		

392

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(F) Packing and "O" ring for igniters guns	pieces	200		
(G) Flexible hose or ball joint for fuel oil burner (each size)	%	30		
(H) Flexible hose for igniter (each size)	%	30		
(I) Flame detector for fuel oil and igniter	%	50		
(J) Complete set of atomizer for main burners and igniters	%	100		
(K) Gasket for access doors	%	100		
(L) Glass for access doors	%	100		
(M) Defuser cones	%	300		
(N) Solenoid valves for igniter	%	50		
(O) Spark plug	%	200		
(P) Pilot box for igniter (complete set)	%	30		
SUB-TOTAL				

2/23

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(10) Soot Blowing System				
(A) For boiler soot blower				
(a) Complete soot blower set	set	2		
(b) Head valves (complete set)	set	2		
(c) Chain and chain pins or gear assembly	set	2		
(d) Gland packing	%	200		
(e) Limit switch	%	40		
(B) For air preheater soot blower				
(a) Valve disc	%	100		
(b) Valve spindle	%	100		
(c) Glans packing	%	200		
(C) For control panel				
(a) Fuse and lamp	%	200		
(b) Switch	%	20		
SUB-TOTAL				
(11) Blow Down Tank				
(A) Glass and gasket for level gauge	%	200		
(B) Manhole gasket	%	200		
SUB-TOTAL				

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(12) Air, Flue Duct and Soot Hopper				
(A) Gasket for the manhole	%	200		
(B) Bolts and nuts for manhole	%	200		
(C) Packing for damper shaft	%	200		
SUB-TOTAL				
(13) Forced Draft Fan				
(A) Bearing for fan	com- plete set	1		
SUB-TOTAL				
(14) Induced Draft Fan				
(A) Bearing for fan	com- plate set	1		
SUB-TOTAL				
(15) Gas Recirculation Fan				
(A) Bearing for fan	com- plete set	1 each		
SUB-TOTAL				
(16) Heavy Fuel Oil, Warm-up Oil and Ignition Oil System				
(A) Heavy fuel oil system				
(a) Heavy fuel oil heater gasket	%	100		

295

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Tube of heavy fuel oil heater	%	5		
(c) Bearing for pump	complete set	1		
(d) Gland packing for pump	%	200		
(e) Flexible hose for tank	set	1 each		
(B) Warm-up and Ignition Fuel (Natural gas)				
SUB-TOTAL				
(17) Flame Detector and Flame Television Camera Cooling Air System				
(A) Flexible hose (each size)	%	20 each size		
SUB-TOTAL				
(18) Piping System for Steam Generator				
(A) Gland packing and gasket for valve	%	50 each size		
(B) Control valve diaphragm (each size)	piece	1		
(C) Valve (each rating, size)	set	2		
(D) Pipe and fitting (each size and material)	piece	2		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Glass for sight flow	set	1 each size		
SUB-TOTAL				

(19) Instrumentation

(A) Boiler control

(a) Pressure transmitters	set	1 each		
(b) Flow transmitters	set	1 each		
(c) Temperature transmitters	set	1 each		
(d) Level transmitters	set	1 each		
(e) EP, PE converter	set	1 each		
(f) Standard spare parts for operating modules and power sources	set	1 each		
(g) Standard spare parts for selector stations	set	1 each		
(h) Standard spare parts for positioners	set	1 each		
(i) Standard spare parts for control valves	set	1 each		
(j) Standard spare parts for control drives	set	1 each		
(k) Standard spare parts for indicators	set	1 each		
(l) Standard spare parts for recorders	set	1 each		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(m) Standard spare parts for flue gas analyzers	set	1		
(n) Lamps	%	200		
(B) Burner control				
(a) Standard spare parts for relay, operating modules, power sources	set	1 each		
(b) Pilot lamps	%	200		
(c) Indication lamps	%	200		
(d) Fuses	%	200		
(e) Control switches	set	1 each		
(f) Limit switches	set	1 each		
(C) Other instrument mounted on the BTG board and the auxiliary control panel				
(a) Standard spare parts of recorders (lamp, fuse, pen, etc.), and indicators	set	2 each		
(b) Chart and ink pad for recorder		each 2 years		
(D) Local control				
(a) Standard spare parts for transmitters (pressure, temperature, flow, level)	set	1 each		
(b) Standard spare parts for controllers (pressure, temperature, flow, level)	set	1 each		



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(c) Pressure switches	set	1 each		
(d) Control switches	set	1 each		
(e) Lamps for operation indication and annunciator	%	200		
SUB-TOTAL				
TOTAL OF STEAM GENERATOR				

Carried to Summary Sheets

6/8

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>1.2 STEAM GENERATOR AUXILIARY EQUIPMENT</b>				
<b>(1) Steam Converter System</b>				
(A) Gasket for steam convertor and steam converter drain cooler	%	100		
(B) Bearings for steam converter feedwater pump	com-plate set	1		
(C) Control valve diaphragm	piece	each		
(D) Spring for safety valve and relief valve	set	each 1		
SUB-TOTAL				
<b>(2) Instrument Air System</b>				
(A) Wrist-pin bushing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Complete valve assembly for cylinder	set	2		
(E) Piston ring	set	5		
(F) Packing ring	set	1		
(G) Gasket for "O" ring	set	1		
(H) V-belt	set	1		
(I) Filter cartridge	%	50		
(J) Gland packing and gasket for valve	%	each 50		
SUB-TOTAL				

400

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(3) Service Air System</b>				
(A) Wrist-pin bushing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Wrist-pin retaining rings	complete set	1		
(E) Scraper rings	complete set	1		
(F) Bearing for compressor	complete set	1		
(G) Complete valve assembly for LP and HP cylinder	set	1		
(H) Piston rings	complete set	each 1		
(I) Packing rings, gasket	set	each 1		
(J) Gland packing and gasket for valve	%	50		
SUB-TOTAL				
<b>(4) Chemical Feed System</b>				
(A) Plunger for pumps	set	each 1		
(B) Gland packings	set	each 1		
(C) Ball valves	set	each 1		

107

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(D) Valve seat	set	each 1		
(E) Gasket	set	each 1		
(F) Valve packing and gasket	%	each 50		
(G) Standard spare parts for recorder (include, ink pad, ink, charts, fuses)		1 year		
(H) Level switch	set	1		
SUB-TOTAL				
(5) Sampling Rack System				
(A) KCl	kg	2		
(B) 15A SUS 304 pipe	m	5		
(C) Valve packing	%	50		
(D) Thermometer	set	5		
(E) Pressure reducer	set	2		
(F) Ion exchanger resin (cation)	%	100		
(G) Standard spare parts for recorder (include, ink pad, ink, charts, fuses)		1 year		
(H) Standard spare part for each analyzers and sensors	set	1		
(I) Glass for sight flow	%	100		
SUB-TOTAL				
TOTAL OF STEAM GENERATOR AUXILIARY EQUIPMENT				

Carried to Summary Sheets

402

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>2. STEAM TURBINE AND AUXILIARY EQUIPMENT</b>				
<b>2.1 Steam Turbine</b>				
<b>(1) Steam Turbine</b>				
(A) Turbine bearing assembly (HP, IP and LP)	set	1 each		
(B) Thrust bearing (complete)	set	1		
(C) Complete set of thrust pad	set	1		
(D) Gland steam packing (HP, IP and LP)	set	1 each		
(E) Atmospheric relief diaphragm	piece	5		
(F) Casing bolt, nut and washer	set	1 each size		
(G) Raw material of casing bolts and nuts (complete)	%	10		
(H) Control valve (sleeve, gasket, valve stem, pin of crosshead, spring, etc.)	piece	1 each		
(I) Main stop valve (bypass valve)	piece	1		
(J) Main stop valve (gasket of head cover)	piece	4		
(K) Combined reheat valve (gasket)	piece	1 each		
(L) Filter element for oil conditioner	unit	1		
(M) Oil cooler packing	piece	2 each		

127

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(N) Gauge glass for main oil tank, oil conditioner and oil storage tank	piece	4 each		
(O) Bearing for gland steam exhaust blower	set	2		
(P) Gasket for steam seal regulator	piece	each 4		
(Q) Gland steam condenser packing	piece	each 6		
(R) Expansion joint for cross over piping	piece	1		
(S) Turbine bypass valve inner parts gasket	set	1		

SUB-TOTAL

(2) Piping and Valves

(A) Gland packing and gasket for valve (each rating, size, kind)	%	50 each		
(B) Control valve diaphragm (each size)	piece	2 each		
(C) Valve over 25A (more than 35kg/cm <sup>2</sup> g rating, size kind)	set	1 each		
(D) Valve up to 25A	set	2		
(E) Pipe and fitting (each size and material)	piece	1 each		

SUB-TOTAL

(3) Instrumentation

(A) TSI				
(a) Vibration detector	set	2		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Standard spare parts for recorder (lamp, fuse, pen, etc.)	set	1		
(c) Chart, ink pad for recorder		2 years		
(d) Operating modules	set	1 each		
(B) Instrument mounted on BTG board				
(a) Standard spare parts for recorder (lamp, fuse, pen, etc.) and indicator	set	1		
(b) Chart, ink pad for recorder		2 years		
(C) EHC				
(a) Standard spare parts for transmitter	set	1 each		
(b) Standard spare parts for actuating device	set	1 each		
(c) Pressure switch	set	1 each		
(d) Limit switch	set	1 each		
(e) Operating module	set	1 each		
(f) Lamps	%	200 each, with 10 pcs minimum		
SUB-TOTAL				
TOTAL OF STEAM TURBINE				

Carried to Summary Sheets

505

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
2.2 Steam Turbine Auxiliary Equipment				
(1) Surface Condenser				
(A) Condenser tube	%	5		
(B) Tube plug	piece	150		
(C) Packing for condenser water box manhole	%	200 each		
(D) Packing for condenser water box cover	%	200 each		
(E) Electrode for cathodic protection	%	50		
(F) Gauge glass	%	400		
(G) Brush for condenser tube	piece	1,000		
(H) Gun for condenser tube cleaning	set	2		
(I) Pump for leak detector	set	1		
SUB-TOTAL				

400



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(2) Air Ejector</b>				
<b>(A) Steam jet air ejector condenser</b>				
Packing	piece	4		
Ejector nozzle (first and second)	set	1 each		
<b>(B) Starting air ejector nozzle</b>	set	1		
SUB-TOTAL				
<b>(3) Priming Vacuum Equipment</b>				
<b>(A) Bearing for pump and motor</b>	set	1		
<b>(B) Gland packing</b>	%	100		
SUB-TOTAL				
<b>(4) Circulating Water Pump</b>				
<b>(A) Cutless bearing or proved design material and motor bearing</b>	set	4 each		
<b>(B) Casing ring</b>	set	2		
<b>(C) Packing, sleeve, etc.</b>	set	2 each		
<b>(D) Cathodic protection plate (aluminium)</b>	%	100		
<b>(E) Impeller</b>	set	1		
SUB-TOTAL				

Lot

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(5) Condensate Pump</b>				
(A) Bearing for pump and motor	set	1		
(B) Gland packing	%	200		
(C) Wearing ring	%	100		
(D) Rotor complete (balanced)	set	1		
SUB-TOTAL				
<b>(6) Feedwater Heaters</b>				
(A) Gasket	%	100 each		
(B) Gauge glass	%	200 each		
(C) Relief valve spring assembly	set	1 each		
(D) Bearing for pump and motor of drain pump	set	1 each		
(E) Packing, gasket and sleeve of drain pump	%	200 each		
SUB-TOTAL				
<b>(7) Deaerator</b>				
(A) Packing for manhole	%	400		
(B) Gauge glass	%	100		
(C) Spray valve	set	2		
SUB-TOTAL				

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(8) Boiler Feed Pump</b>				
(A) Bearing and seal for pump	complete set	4		
(B) Gasket, packing, etc.	%	400 each		
(C) Rotor complete (balanced)	set	1		
SUB-TOTAL				
<b>(9) Bearing Cooling Water Heat Exchanger</b>				
(A) Tube	%	5		
(B) Packing for manhole	piece	2		
(C) Cathodic protection plate	%	200		
SUB-TOTAL				
<b>(10) Bearing Cooling Water Pump</b>				
(A) Bearing	set	1		
(B) Gland packing	%	100		
(C) Gasket	%	100		
(D) Bearing for primary cooling water booster pump	set	1		
(E) Gland packing, gasket, etc. for primary cooling water booster pump	%	100 each		
SUB-TOTAL				

107

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(11) Chemical Injection System for Bearing Cooling Water				
(A) Chemical injection pump				
(a) Bearing	set	1		
(b) Gland packing	%	200		
(c) Diaphragm	set	1		
(B) Valve				
(a) Diaphragm	set	2		
(b) Gland packing, gasket, O ring, etc.	%	200 each		
(C) Gauge glass for chemical tank	set	2		
(D) Indication lamp	%	400 each		
SUB-TOTAL				
(12) Make-up Water Transfer Pump				
(A) Bearing	set	1		
(B) Gland packing	%	100		
(C) Gasket	%	100		
SUB-TOTAL				

017

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(13) Make-up Water Tank</b>				
(A) Packing for manhole	%	100		
(B) Diaphragm for level control valve	set	2		
(C) Gland packing, gasket, etc. for valve	set	2		
(D) Standard spare parts for level transmitter	set	2		
(E) Inner floating seal material	set	1		
SUB-TOTAL				
<b>(14) Turbine Clean Drain Tank</b>				
(A) Condensate return pump				
Bearing for pump	com-plate set	1		
(B) Control valve diaphragm	piece	each		
SUB-TOTAL				
<b>(15) Piping and Valves</b>				
(A) Gland packing and gasket for valve (each rating, size, kind)	%	50 each		
(B) Control valve diaphragm (each size)	piece	2 each		
(C) Valve over 25A (more than 35kg/cm <sup>2</sup> g rating, size kind)	set	1 each		
(D) Valve up to 25A	set	2		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Pipe and fitting (each size and material)	piece	1 each		
(F) Topping valve (manual feedwater valve) (complete)	set	1		
(G) BFP minimum flow orifice	set	2		
(H) BFP minimum flow control valve inner valve	set	1		
(I) Glass for sight flow	set	3 each size		
(J) Cathodic protection plate for C.W.piping (Aluminium)	%	100		
SUB-TOTAL				

(16) Instrument

(A) Thermocouples for turbine bearings	set	1 each		
Thermometers for turbine bearings	set	2 each		
Standard spare parts for transmitter (pressure, temperature, flow, level)	set	1 each		
(B) Standard spare parts for controllers (pressure, temperature, flow, level)	set	1 each		
(C) Pressure switches	set	1		
(D) Control switches	set	1		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Lamps for operation indicator and annunciator	%	200, with 10 pcs minimum		
SUB-TOTAL				
TOTAL OF STEAM TURBINE AUXILIARY				

Carried to Summary Sheets

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
3. ANCILLARY SYSTEM AND COMMON AUXILIARY EQUIPMENT				
(1) House Boiler				
(A) Tube	%	3 each size		
(B) Packing for boiler inspection door	%	200		
(C) Glass for boiler inspec- tion door	%	200		
(D) Spring for safety valve	%	100		
(E) Packing for drum manhole	%	200		
(F) Gland packing, gasket, etc, for valve	set	1 each size		
(G) Valve	set	1 each		
(H) Diaphragm for control valve	set	1 each size		
(I) Bearing and mechanical seal for fuel oil pump	set	2 each		
(J) Bearing for feedwater pump	set	1		
(K) Gland packing for feedwater pump	set	1		
(L) Oil burner gun and igniter	set	3		
(M) Relays	set	1 each		
(N) Lamp for operation and annunciator	%	30		

417



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(O) Transmitter	set	1 each		
(P) Control switch	set	1 each		
SUB-TOTAL				

(2) Turbine Room Overhead Crane

(A) Brush and holder for motor	%	100 each		
(B) Brake lining for main and auxiliary hoist	%	100 each		
(C) Coil for magnetic brake	%	100		
(D) Main contactor tip for controller	%	100		
(E) Wire rope (for main hoist and auxiliary hoist)	%	100 each		
(F) Fuse	%	100		
(G) Indicator lamp	%	200		

(3) Water Pretreatment System

(A) Cutless bearing and motor bearing	set	3 each		
(B) Casing ring	set	3 each		
(C) Bearing for all pumps, blowers and rake	set	1 each		
(D) Gland packing for all pumps	set	1 each		
(E) Shaft sleeve for all pumps	set	1 each		
(F) Level switch	set	1 each		
(G) Level gauge	%	200		

115

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(H) Diaphragm for control valve	set	1 each size		
(I) Gland packing, gasket, etc. for valve	set	1 each size		
(J) Solenoid valve	piece	5		
(K) Relay	set	1		
(L) Gauge glass	set	1 each		
(M) Lamp for operation and annunciator	%	100		
(N) Control switch	set	1 each		
SUB-TOTAL				

(4) Filter Equipment

(A) Bearing for back wash water pump	set	1 each		
(B) Gland packing for back wash water pump	set	1 each		
(C) Gauge glass	set	1 each		
(D) Diaphragm for control valve	set	2 each size		
(E) Solenoid valve	piece	5		
(F) Gland packing, gasket, etc. for valve	set	2 each size		
(G) Relay	set	1		
(H) Lamp for operation and annunciator	%	50		
(I) Pressure switch for flow switch	set	1 each		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(J) Control switch	set	1 each		
(K) Transmitter	set	1 each		
(L) Control switch	set	1 each		
SUB-TOTAL				
(5) Service Water Tank				
(A) Packing for manhole	set	1 each		
(B) Diaphragm for level control valve	set	1 each		
(C) Gland packing, gasket, etc. for valve	set	1 each size		
(D) Standard spare parts for level transmitter	set	1		
(E) Service water pump and motor				
(a) Bearing for pump	set	1		
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
SUB-TOTAL				
(6) Water Treatment System				
(A) Ion exchanger resin (cation and anion)	%	50 each		
(B) Bearing for supply pump	set	1		
(C) Gland packing for supply pump	set	1		
(D) Diaphragm for diaphragm valve	piece	5 each size		
(E) Diaphragm valve	set	1 each size		

17

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(F) Gauge glass of chemical tank	set	1 each		
(G) Gland packing, gasket, etc. for valve	set	1 each size		
(H) Solenoid valve	piece	5		
(I) Relay	set	1 each		
(J) Lamp for operation and annunciator	%	50		
(K) Recording charts, pens, ink, etc.		1 year		
(L) Pressure switch and flow switch	set	1 each		
(M) Standard spare parts for transmitter and controller	set	1		
(N) Control switch	set	1		
(O) Rascing ring	%	50		
(P) Standard spare parts for silica meter	set	2		
(Q) Mini pump for silica meter	piece	5		
SUB-TOTAL				
<hr/>				
(7) Demineralized Water Tank				
(A) Packing for manhole	%	100		
(B) Diaphragm for level control valve	set	1 each size		
(C) Gland packing, gasket etc. for valve	set	1 each size		
(D) Standard spare parts for level transmitter	set	1		

4/17

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Demineralized water transfer pump				
(a) Bearing for pump	set	1		
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
SUB-TOTAL				

(8) Fire Protection System

(A) Diesel driven emergency fresh water fire pump

(a) Piston ring for engine	set	1 complete		
(b) O-ring for engine	set	1 complete		
(c) Fuel injection valve	piece	2		
(d) Inlet valve assembly	set	2 complete		
(e) Exhaust valve assembly	set	2 complete		
(f) Bearing for pump	set	1 complete		
(g) Gland packing for pump	set	1		
(h) Shaft sleeve for pump	set	1		
(i) Gauge glass for fuel oil tank	set	1		

(B) Motor driven emergency fresh water fire pump

(a) Bearing for pump	set	1 complete		
----------------------	-----	------------	--	--

177

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
(C) Fire water pump				
(a) Bearing for pump	set	1 complete		
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
(D) Air foam concentrate injection pump and diesel engine				
(a) Piston ring for engine	set	1 complete		
(b) O-ring for engine	set	1 complete		
(c) Fuel injection valve	set	2 complete		
(d) Inlet valve assembly	set	1 complete		
(e) Exhaust valve assembly	set	1 complete		
(f) Bearing for pump and diesel engine	set	1 complete		
(g) Gland packing for pump	set	1		
(h) Gauge glass for fuel oil tank	set	1		
(E) Piping and valve				
(a) Gland packing, gasket, etc. for valve	set	1 each size		

0-77

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Solenoid valve	set	1 complete		
(F) Control panel, fire protection panel and instrument				
(a) Lamp for operation and annunciator	%	50		
(b) Pressure switch	set	1		
(c) Relay	set	1 each		
(d) Transmitter	set	1 each		
(e) Control switch and push button	set	1 each		
SUB-TOTAL				
(9) Heavy Fuel Oil Suction Heater	(NOT APPLICABLE)			
(a) Tube of residual oil suction heater	%	5		
(b) Gasket	%	100		
SUB-TOTAL				
(10) Heavy Fuel Oil Transfer Pump	(NOT APPLICABLE)			
(a) Bearing for pump	set	1 complete		
(b) Gland packing for pump	set	1 complete		
(c) Percolate element of strainer	set	1		
(d) Diaphragm for pressure control valve	set	1		
(e) Gland packing, gasket, etc. for valve	set	1		

12/1

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(f) Lamp for operation and annunciator	%	50		
(g) Pressure switch	set	1		
(h) control switch	set	1		
SUB-TOTAL				
(11) Fuel Oil Piping				
(a) Gland packing for valve	set	1 each size		
(b) Valve	set	1 each size		
SUB-TOTAL				
(12) Drainage and Waste Water Treatment System				
(A) Bearing for all pumps and blowers	set	1 each size		
(B) Gland packing for all pumps	set	1 each size		
(C) Diaphragm for control valve	set	1 each size		
(D) Diaphragm for chemical feed pumps	set	1 each size		
(E) Gland packing, gasket, O-ring, etc. for valve	set	1 each size		
(F) Gauge glass for chemical tank	set	1 each		
(G) Lamp for operation and annunciator	%	50		
(H) Relays	set	1 each		
(I) Control switch	set	1		

422



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(J) Solenoid valve	set	1		
(K) Recording chart, pens, ink, etc.	year	1		
(L) KCl for pH meter	kg	1		
(M) Standard spare parts for analyzer	set	1		
(N) Fuse	%	200		
(O) pH Electrode	piece	5 each		
SUB-TOTAL				

(13) Chlorination System

(A) Bearing and gland packing for all pumps	set	each 1		
(B) Gland packing, gasket, etc. for valve	set	1 each size		
(C) Inner parts for strainer	set	1		
(D) Fuse	%	100		
(E) Lamp for operation and annunciator	%	100		
(F) Gauge glass for injection flow meter	set	2		
(G) Pressure switch and flow switch	set	1 each		
(H) Relay	set	1 each		
(I) Electrode	set	2		
(J) Rectifire element	set	1		
(K) Solenoid valve	piece	5 each size		
SUB-TOTAL				

123

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(14) Yard Instrument Air System				
(A) Wrist-pin busing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Complete valve assembly for cylinder	set	1		
(E) Piston ring	set	1		
(F) Packing ring	set	1		
(G) Gasket and O-ring	set	1		
(H) V-belt	set	1		
(I) Filter cartridge	%	50		
(J) Gland packing and gasket for valve	%	50		
SUB-TOTAL				
(15) Laboratory				
(A) Spectro photometer				
(a) W lamp	piece	5		
(b) D <sub>2</sub> lamp	piece	5		
(c) Filters	piece	2 each		
(d) Tungsten lamp	piece	5		
(e) Standard spare parts	set	1		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(B) pH meter				
(a) pH Electrodes	set	2		
(b) Standard spare parts	set	1		
(C) Conductivity meter				
(a) Standard cell (K=1.0)	set	2		
(K=0.1)	set	2		
(K= 10)	set	2		
(b) Standard spare parts	set	1		
(D) Drying Oven				
(a) Heating element	set	1		
(E) Muffle furnace				
(a) Heating element	set	1		
(b) Standard spare parts	set	1		
(c) Thermo couple	set	2		
(F) Magnetic stirrer				
(a) Standard spare parts	set	1		
(G) Water bath				
(a) Standard spare parts	set	1		
(H) Shaker				
(a) Bottle holder	set	2		
(b) Standard spare parts	set	1		

125

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(I) Demineralizer				
(a) Cation and anion resin	%	100 each		
(b) Standard spare parts	set	1		
(J) Jar test apparatus				
(a) Glass parts	set	1		
(b) Lamp	piece	5		
(K) Indigo carmine apparatus				
(a) Glass parts	set	1		
(b) Standard spare parts	set	1		
(L) Calorimeter				
(a) Combustion capsules	piece	10		
(b) Fuse wire	card	4		
(c) Sealing rings	%	200		
(d) Drive belts	%	200		
(e) Valve seats	set	2		
(M) Pour points bath				
(a) Standard test jar	piece	6		
(b) Cock ring gaskets for test jar	Pkt	6		
(c) Cock discs for test bath pockets	Pkt	6		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(N) Flash point testers				
(a) Thermometer	set	2		
(b) Probe plug and socket	set	1		
(c) Flexible drive	set	1		
(d) Gas tube	m	10		
(O) Hot plates				
(a) Heating element	set	1 each		
(b) Standard spare parts	set	1		
(P) Centrifuge				
(a) Centrifuge tubes	piece	10		
(b) Standard spare parts	set	1		
(Q) ORSAT Apparatus				
(a) Glass parts (Complete set)	set	2		
(b) Pipettes	set	2		
(c) Rubber expansion bag	set	2		
(d) Burettes	set	2		
(R) Sulfur content apparatus				
(a) Heating element	set	4		
(b) Quartz tube	set	2		
(S) Atomic absorption flame spectro photometer				
(a) Hollow cathodic lamp	set	1 each		
(b) Filter	set	1		

L27

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(c) Recorder Chart	year	1		
(T) NOx SOx, O <sub>2</sub> analyzer				
(a) Gas sampler	set	Complete 1		
(b) Scrubber	set	2		
(c) Converter	set	2		
(d) Standard gas	set	1 each		
SUB-TOTAL				
(16) Fork Lift				
(A) Bearing	set	1		
(B) Oil seal	set	1		
(C) Hose	set	1		
(D) O-ring	set	1		
(E) Packing	set	1		
(F) Tires	%	100		
SUB-TOTAL				

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(17) Truck Crane				
(A) Bearing	set	1		
(B) Oil seal	set	1		
(C) Hose	set	1		
(D) O-ring	set	1		
(E) Packing	set	1		
(F) Tires	%	100		
SUB-TOTAL				
TOTAL OF COMMON AUXILIARY EQUIPMENT				

Carried to Summary Sheets

let

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
4. GENERATOR AND ELECTRICAL EQUIPMENT				
(1) Common Parts				
(A) Panel and board				
(a) Indicating lamp (including annunciator lamp)	%	200 each type		
(b) Lamp lens and globe	%	100 each type		
(c) Lamp socket with resistance or trans- former	set	50 each type		
(d) Main protective relay (except over current relay)	set	1 each type		
(e) Over current relay	set	3 each type		
(f) Auxiliary relay (including time relay)	set	20 each type		
(g) Control switches and changeover switches	set	5 each type		
(h) Push button with indication lamp (Series II)	%	50 each type		
Push buttons	set	10 each type		
(i) Recording charts, pens and ink		each type for Five (5) year		
(j) Closing and tripping coil for VCB and ACB	set	5 each type		
Enclosed fuses	%	200 each type		

437



(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(k) Molded type ACB	set	10 each type		
(l) Magnetic contactor	set	10 each type		
(m) Thermal relay	set	10 each type		
(n) Control transformer in control center	set	3 each type		
(B) Motor				
(a) Bearing	%	200 all of motors		
(b) Brush of DC motor	%	200 each type		
(C) Current transformer	set	2 each class ratio		
(D) Potential transformer	set	1 each class ratio		
SUB-TOTAL				
(2) Special Parts				
(A) Generator				
(a) Generator bushing	piece	1		
(b) Vibration detector	piece	1		
(c) Packing, gasket, packing compound	%	400		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(d) Bearing and assemble	set	1		
(e) Oil seal rings and O-rings	set	2		
(f) Brush	%	1,000		
(g) Brush holder	set	10		
(h) Cooling air filter for collector ring	%	200		
(B) Exciter and AVR				
Control device	%	100		
(a) Module	piece	2 each type		
(C) H <sub>2</sub> gas control cubicle				
(a) Silica gel	%	200		
(b) H <sub>2</sub> gas reducing valve	set	1		
(D) Seal oil unit				
(a) Packing and gasket	%	400		
(b) Differential pressure control valve	set	1		
(E) Isolated phase bus duct				
(a) Insulator	piece	4		
(F) Potential transformer				
(a) Secondary fuse	%	200		
(b) Current limiting fuse for primary	%	200		

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(G) Main transformer				
(a) Hightension side bushing	piece	1		
(b) Lowtension side bushing	piece	1		
(c) Bursting plate	set	2		
(d) Packing and gasket	%	200		
(e) Removal type unit radiator (including fan and motor)	set	1		
(f) Thermo-element of temperature detector	piece	2		
(g) Silica gel	%	200		
(h) Insulation oil	lit.	600		
(H) Auxiliary transformer				
(a) Hightension side bushing	piece	1		
(b) Lowtension side bushing	piece	1		
(c) Bursting plate	set	2		
(d) Packings and gasket	%	200		
(e) Removal type unit radiator	set	1		
(f) Thermo-element of temperature detector	piece	2		
(g) Silica gel	%	200		

433

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(h) Insulation oil	lit.	600		
(i) Lightning arresterset with condenser	set	1		
(I) Starting transformer				
(a) Hightension side bushing	piece	1		
(b) Lowtension side bushing	piece	1		
(c) Bursting plate	set	2		
(d) Packings and gasket	%	200		
(e) Removal type unit radiator	set	1		
(f) Thermo-element of temperature detector	piece	2		
(g) Silica gel	%	200		
(h) Insulation oil	lit.	600		
(i) Lightning arrester with condenser	set	1		
(J) 6,600V M/C				
(a) PT primary and secondary fuse	%	200 each		
(b) VCB assembly				
3,000A	set	1		
600A	set	3		
(K) 400V power center				
(a) PT primary and secondary fuses	%	200 each		

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Movable and fixed contactors for ACB				
3,000A	set	3 each		
600A	set	6 each		
(c) Complete assembly of ACB				
3,000A	set	2		
600A	set	4		
(L) 400V control center				
(a) Unit assembly	set	6		
(M) Distribution panel				
(a) Molded type circuit breaker	set	6		
(N) Emergency diesel generator				
(a) Diesel engine				
Admission gear rods	set	1		
Exhaust gear rods	set	1		
Piston rings	set	1 each piston		
Connecting rod bush	set	1		
Cylinder head and accessories	set	2		
Admission valves	set	1 each type		
Exhausting valves	set	1 each type		

435

(Tenderer's Name)  
 Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
Valve spring	set	1 each type		
Injector	set	2		
Injector holder	set	2		
Oil cartridges	set	2		
Joints	%	100		
(b) Generator				
Brushes	%	200		
Brush holder	set	2		
Control device	%	100		
Module	piece	2 each type		
(O) Battery and charger				
(a) Battery cells	cell	11		
(b) Battery charger module	set	2		
(c) Electronic part	%	100		
(P) Paging				
(a) paging handset	set	2 each		
(b) Speaker				
horn type	set	4 each		
cone type	set	2 each		

927

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(Q) PABX				
(a) Fuses	%	200 each type		
(b) Lamps	%	200 each type		
(c) Condensor	%	200		
(d) Varistor	%	200		
(e) Discharge tube	%	200		
(f) Relay	set	20 each type		
(g) Resistor of relay	%	200 each type		
(h) Jumper wire	%	200		
(i) Oil	%	200		
(j) Expendables		each type for Five (5) years		
(k) Fuse for repair	%	200		
(l) Telephone set	set	25		
(R) Clock				
(a) Slave clock	set	5		

437

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(S) Lighting				
(a) Lighting fixture except mercury vapor lamp	set	5 each type		
(b) Lighting fixture for mercury vapor lamp	set	10 each type		
(c) Mercury vapor lamp	set	50 each type		
(d) Power receptacle	set	10 each type		
SUB-TOTAL				
TOTAL OF GENERATOR AND ELECTRICAL EQUIPMENT				

Carried to Summary Sheets

438



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>5. PLANT COMPUTER SYSTEM</b>				
<b>(1) Computer System</b>				
(A) Cards	set	1 each		
(B) Indicator lamps	%	200 each		
(C) Fuses	%	200 each		
(D) CPU power unit	set	1 each		
(E) I/O unit	set	1 each		
(f) Standard spare parts	set	1 each		
SUB-TOTAL				
<b>(2) Printer</b>				
(A) Cards	set	1 each		
(B) Paper for printer	box	20		
(C) Ribbon	roll	40		
(D) Standard spare parts	set	1 each		
SUB-TOTAL				
<b>(3) CRT Display</b>				
(A) Cards	set	1 each		
(B) Cathode ray tubes	set	1 each		
(C) Standard spare parts	set	1 each		
SUB-TOTAL				

43/8

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(4) Fixed Head Disk or IC bulk				
(A) Cards	set	1	each	
(B) Standard spare parts	set	1	each	
SUB-TOTAL				
(5) Floppy Disk Devices				
(A) Cards	set	1	each	
(B) Standard spare parts	set	1	each	
(C) Floppy disk	sheet	10		
SUB-TOTAL				
(6) Trend Recorder				
(A) Cards	set	1	each	
(B) Pens	set	1	each	
(C) Ink	set	2	each	
(D) Chart	roll	40		
SUB-TOTAL				
(7) Hard Copy				
(A) Cards	set	1		
(B) Standard spare parts	set	1		
(C) Ribbon	set	1		
SUB-TOTAL				
TOTAL OF PLANT COMPUTER SYSTEM				

Carried to Summary Sheets

077

(Tenderer's Name)  
Currency in Country Origin

EXPENDABLES

Power Plant Equipment

Item	Unit	Quantity	Unit Price FOB	Amount
(1) Nitrogen (N <sub>2</sub> ) gas (7 Nm <sup>3</sup> )	cylin- der	20		
(2) Carbon dioxide (CO <sub>2</sub> ) gas (7 Nm <sup>3</sup> )	cylin- der	10		
(3) Standard gas for gas analyzer				
(a) 4.5% O <sub>2</sub> in N <sub>2</sub> gas (2 Nm <sup>3</sup> )	cylin- der	20		
(b) 4.5% H <sub>2</sub> in N <sub>2</sub> gas (2 Nm <sup>3</sup> )	cylin- der	4		
(4) Hydrazine (N <sub>2</sub> H <sub>4</sub> ) as 100% N <sub>2</sub> H <sub>4</sub>	kg	100		
(5) Phosphate (Na <sub>3</sub> PO <sub>4</sub> ·12H <sub>2</sub> O) as 100% Na <sub>3</sub> PO <sub>4</sub> )	kg	100		
(6) Ammonia (NH <sub>3</sub> ) gas	cylin- der	10		
(7) Sodium nitrate bactericide (for cooling water system)	kg	100		
(8) Dry chemical	kg	1,800		
(9) Potassium hydroxide (KOH 25% weight)	kg	60		
(10) High molecular coagulant for waste water treatment system	kg	100		

177

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(11) Coagulant for waste water treatment system	lit.	800		
(12) PAC (Poly Aluminum Chloride) of main surface condenser	lit.	1,000		
(13) Ferric Chloride (FeCl <sub>3</sub> )	lit.	1,000		
(14) Propane gas (C <sub>3</sub> H <sub>8</sub> )	Cylinder	2		
(15) Acetylene gas (C <sub>2</sub> H <sub>2</sub> )	Cylinder	2		
(16) Oxygen gas (O <sub>2</sub> )	Cylinder	2		
(17) Laughing gas (N <sub>2</sub> O)	Cylinder	3		
(18) Sulfuric acid (for silica analyzer)	kg	10		
(19) Ammonium molybdate (for silica analyzer)	kg	10		
(20) Tartaric acid (for silica analyzer)	kg	20		
(21) 1-amino 2-naphthol 4-sulphonic acid (for silica analyzer)	kg	5		
(22) Sodium hydrogensulfate (for silica analyzer)	kg	10		
(23) Sodium sulfate anhydrous (for silica analyzer)	kg	5		
SUB-TOTAL				

(Tenderer's Name)  
Currency in Country Origin

MANDATORY SPARE PARTS

2. Building Service Facility

Item	Unit	Quantity	Unit Price FOB	Amount
6. AIR CONDITIONING AND VENTILATION SYSTEM				
(1) Air Cooled Chiller Unit				
(A) Fuse	%	200 each size		
(B) Pilot lamp	%	200 each size		
(C) Packing	%	200		
SUB-TOTAL				
(2) Air Handling Unit				
(A) Bearing for fan	%	100 each unit		
(B) V-belt for fan	%	200 each unit		
(C) Filter element for Pre- filter	%	200 each unit		
(D) Grease	drum	1		
SUB-TOTAL				

443

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(3) Fan				
(A) Bearing	%	200 each unit		
(B) V-belt	%	200 each unit		
SUB-TOTAL				
(4) Pump				
(A) Gland packing	%	400 each unit		
(B) Liner ring	%	200 each unit		
(C) Rubber packing	%	200		
(D) Water seal ring	%	200		
(E) Oil seal	%	100		
SUB-TOTAL				
(5) Air Cooled Packaged Air Conditioner				
(A) V-belt	%	200 each unit		
(B) Bearing	%	200 each unit		
(C) Fuse	%	200		
(D) Prefilter		200		
(E) Packing	%	200 each unit		
SUB-TOTAL				

444

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(6) Filter</b>				
(A) Filter element	%	200		
(B) Lamp	%	100		
(C) Fuse	%	200		
(D) Relay	%	100		
SUB-TOTAL				
<b>(7) Tank</b>				
(A) Packing for manhole	%	200		
SUB-TOTAL				
<b>(8) Piping</b>				
(A) Gland packing and gasket for valve (each rating, size, kind)	%	200		
SUB-TOTAL				

Total of  
Air conditioning and  
Ventilation system

577

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
7. WATER SUPPLY, SEWAGE AND SANITARY SYSTEM				
(1) Instantaneous Electric Water Heater				
(A) Thermostat	%	200		
(B) Operation fuse	%	200		
(C) Heater	%	200		
(D) Lamp	%	200 each		
SUB-TOTAL				
(2) Hot Water Storage Heater				
(A) Thermostat	%	200 each		
(B) Fuse	%	200		
(C) Float	%	100		
(D) Heater	%	100		
(E) Packing	%	200 each		
(F) Lamp	%	100 each		
SUB-TOTAL				
(3) Waste Water Pump				
(A) Mechanical Seal	%	200		
(B) Bearing	%	100		
SUB-TOTAL				

446



(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(4) Piping				
(A) Grand packing and gasket for valve (each rating, size, kind)	%	200		
SUB-TOTAL				
(5) Septic tank				
(A) Packing for each pump	%	200		
(B) Bearing for blower	%	200		
(C) Disinfectant	%	200		
SUB-TOTAL				

Total of  
Water supply, sewage and  
sanitary system

177

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
8. SECONDARY ELECTRICAL AND AUTOMATIC CONTROL SYSTEM				
(1) Panel (each panel)				
(A) Lamp for operation and annunciator	%	400		
(B) Relay	%	200 each		
(C) Control switch and push button	%	100		
(D) Fuse (each)	%	200 each		
SUB-TOTAL				
TOTAL OF BUILDING SERVICE FACILITY				

Carried Summary Sheets

\_\_\_\_\_  
(Tenderer's Name)

TENDERER'S RECOMMENDED SPARE PARTS  
(For three (3) years)

1. Power Plant Equipment

					Currency in Country Origin
Item	Unit	Quantity	Unit Price FOB	Amount	

8777

(Tenderer's Name)

TENDERER'S RECOMMENDED TOOL AND TESTING EQUIPMENT

1. Power Plant Equipment

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
------	------	----------	-------------------	--------

450

(Tenderer's Name)  
Currency in Country Origin

TENDERER'S RECOMMENDED SPARE PART  
(For three (3) years)

2. Building Service Facility

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
------	------	----------	-------------------	--------

451

(Tenderer's Name)

TENDERER'S RECOMMENDED TOOL AND TESTING EQUIPMENT

2. Building Service Facility

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
------	------	----------	-------------------	--------

452

SCHEDULE OF PRICE  
FOR  
RECOMMENDED SPARE PARTS

SCHEDULE OF PRICES  
FOR TENDERER'S RECOMMENDED SPARE PARTS  
(For Five (5) Years)

(Tenderer's Name)  
(UNIT: )

Item	Unit	Quantity	Unit Price	Amount
------	------	----------	------------	--------

454



APPENDIX K

\_\_\_\_\_  
(Tenderer's Name)

FORM OF CERTIFICATES

FOR

SOURCE & ORIGIN AND ELIGIBILITY

I, the undersigned, hereby certify that the goods to be supplied are produced in \_\_\_\_\_ (name of eligible source country).

I, the undersigned, further certify that to the best of my information and belief, the portion imported from the non-eligible source countries is less than thirty percent (30%) in accordance with the following formula:

$$\frac{\text{Imported CIF Price} + \text{Import Duty}}{\text{Supplier's FOB Price (where applicable Exfactory Price)}} \times 100, \text{ and}$$

I, the undersigned, hereby certify that \_\_\_\_\_ (name of company) has been incorporated and registered in \_\_\_\_\_ (name of eligible source country), and is controlled by nationals of the eligible source countries.

For and on behalf of  
(Contractor's Name)

\_\_\_\_\_  
Name :

Position:

(SEAL)







APPENEDIX J  
MANDATORY AND RECOMMENDED  
SPARE PARTS AND EXPENDABLES

UNIT 2

456

(Tenderer's Name)

MANDATORY SPARE PARTS

1. Power Plant Equipment

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
1. STEAM GENERATOR AND AUXILIARY EQUIPMENT				
1.1 STEAM GENERATOR				
(1) Boiler and Furnace				
(A) Gasket for boiler and inspection door	%	200		
(B) Glass for boiler and furnace inspection holes	%	200		
(C) Gasket and packing for boiler and furnace access (manhole)	%	300		
(D) Tubes and backing rings	%	2 each size and each material		
SUB-TOTAL				
(2) Drum				
(A) Disk and ring pins of drum safety valves	%	100		
(B) Packing and gasket for drum manhole	%	300		
(C) Bolt, nut and washers for drum internals	%	10		

457

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(D) Glass and gasket including mica for drum level gauge	%	500		
(E) Lamp for level gauge	%	300		
(F) Color screen for level gauge glass	%	200		
(G) Valve packing	%	200		
SUB-TOTAL				
(3) Economizer				
(A) Tubes	%	2 each size		
SUB-TOTAL				
(4) Superheater, Reheater and Attemperator				
(A) Disk of safety valves	%	100		
(B) Disk of power control valve (PCV)	%	200		
(C) Disk of pilot valve of PCV	%	200		
(D) Seal ring of PCV	%	200		
(E) Plug seal ring of PCV	%	200		
(F) Gasket for PCV	%	200		
(G) Tubes	%	2 each size and each material		
SUB-TOTAL				

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(5) Casing, Brickwork, Refractory, Insulation and Lagging				
(A) Casing (each material)	%	5 each		
(B) Brickwork, refractory, insulation and lagging	%	15 each		
SUB-TOTAL				
(6) Piping, Valves and Fitting				
(A) Blow down valve (complete)	set	1		
(B) Drain valves for steam generator (SH, RH, Econ, Downcomer, etc.)	%	50		
(C) Packing for drain and vent valves	%	30		
(D) Welding rods (each kind) to be used for the boiler	%	30 each		
SUB-TOTAL				
(7) Air Preheater				
(A) Cold end elements	%	100		
(B) Intermediate layer element	%	50		
(C) Hot end elements	%	25		
(D) Post seal assembly	%	100		
(E) Radial seal assembly	%	100		
(F) Circumferential seal assembly	%	100		
(G) Soot blowing nozzle for air preheater	%	100		



(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(H) Washing nozzles for air preheater	%	100		
(I) Oil seal and packing for oil pump	%	100		
(J) Gasket for manhole and inspection door	%	100		
(K) Glass for inspection door	%	100		
(L) Manometer	set	1		
(M) Motor bearing	set	1		
(N) Lamp for observation light	piece	3		
SUB-TOTAL				
(8) Steam Coil Air Preheater				
(A) Fin tubes	%	30		
(B) Flange gasket	%	20		
SUB-TOTAL				
(9) Oil Burner and Igniter				
(A) Fuel oil guns without tips	%	50		
(B) Tips, burner plate, and tip nut for fuel oil guns (heavy fuel oil and diesel oil)	%	200 each		
(C) Igniter guns without tips	%	50		
(D) Tips, burner plate, and tip nut for igniter guns	%	200		
(E) Packing and "O" ring for fuel oil guns	pieces	200		

497

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(F) Packing and "O" ring for igniters guns	pieces	200		
(G) Flexible hose or ball joint for fuel oil burner (each size)	%	30		
(H) Flexible hose for igniter (each size)	%	30		
(I) Flame detector for fuel oil and igniter	%	50		
(J) Complete set of atomizer for main burners and igniters	%	100		
(K) Gasket for access doors	%	100		
(L) Glass for access doors	%	100		
(M) Defuser cones	%	300		
(N) Solenoid valves for igniter	%	50		
(O) Spark plug	%	200		
(P) Pilot box for igniter (complete set)	%	30		
SUB-TOTAL				

461

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(10) Soot Blowing System				
(A) For boiler soot blower				
(a) Complete soot blower set	set	2		
(b) Head valves (complete set)	set	2		
(c) Chain and chain pins or gear assembly	set	2		
(d) Gland packing	%	200		
(e) Limit switch	%	40		
(B) For air preheater soot blower				
(a) Valve disc	%	100		
(b) Valve spindle	%	100		
(c) Glans packing	%	200		
(C) For control panel				
(a) Fuse and lamp	%	200		
(b) Switch	%	20		
SUB-TOTAL				
(11) Blow Down Tank				
(A) Glass and gasket for level gauge	%	200		
(B) Manhole gasket	%	200		
SUB-TOTAL				

167

(Tenderer's Name)				
Currency in Country Origin				
Item	Unit	Quantity	Unit Price FOB	Amount
(12) Air, Flue Duct and Soot Hopper				
(A) Gasket for the manhole	%	200		
(B) Bolts and nuts for manhole	%	200		
(C) Packing for damper shaft	%	200		
SUB-TOTAL				
(13) Forced Draft Fan				
(A) Bearing for fan	com- plete set	1		
SUB-TOTAL				
(14) Induced Draft Fan				
(A) Bearing for fan	com- plate set	1		
SUB-TOTAL				
(15) Gas Recirculation Fan				
(A) Bearing for fan	com- plete set	1 each		
SUB-TOTAL				
(16) Heavy Fuel Oil, Warm-up Oil and Ignition Oil System				
(A) Heavy fuel oil system				
(a) Heavy fuel oil heater gasket	%	100		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Tube of heavy fuel oil heater	%	5		
(c) Bearing for pump	complete set	1		
(d) Gland packing for pump	%	200		
(e) Flexible hose for tank	set	1 each		
(B) Warm-up oil and Ignition Oil System				
(a) Bearing for pump	complete set	1		
(b) Gland packing for pump	%	200		
(c) Flexible hose for tank	set	1 each		
SUB-TOTAL				
(17) Flame Detector and Flame Television Camera Cooling Air System				
(A) Flexible hose (each size)	%	20 each size		
SUB-TOTAL				
(18) Piping System for Steam Generator				
(A) Gland packing and gasket for valve	%	50 each size		
(B) Control valve diaphragm (each size)	piece	1		
(C) Valve (each rating, size)	set	2		
(D) Pipe and fitting (each size and material)	piece	2		

797

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Glass for sight flow	set	1 each size		
SUB-TOTAL				

(19) Instrumentation

(A) Boiler control

(a) Pressure transmitters	set	1 each		
(b) Flow transmitters	set	1 each		
(c) Temperature transmitters	set	1 each		
(d) Level transmitters	set	1 each		
(e) EP, PE converter	set	1 each		
(f) Standard spare parts for operating modules and power sources	set	1 each		
(g) Standard spare parts for selector stations	set	1 each		
(h) Standard spare parts for positioners	set	1 each		
(i) Standard spare parts for control valves	set	1 each		
(j) Standard spare parts for control drives	set	1 each		
(k) Standard spare parts for indicators	set	1 each		
(l) Standard spare parts for recorders	set	1 each		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(m) Standard spare parts for flue gas analyzers	set	1		
(n) Lamps	%	200		
(B) Burner control				
(a) Standard spare parts for relay, operating modules, power sources	set	1 each		
(b) Pilot lamps	%	200		
(c) Indication lamps	%	200		
(d) Fuses	%	200		
(e) Control switches	set	1 each		
(f) Limit switches	set	1 each		
(C) Other instrument mounted on the BTG board and the auxiliary control panel				
(a) Standard spare parts of recorders (lamp, fuse, pen, etc.), and indicators	set	2 each		
(b) Chart and ink pad for recorder		each 2 years		
(D) Local control				
(a) Standard spare parts for transmitters (pressure, temperature, flow, level)	set	1 each		
(b) Standard spare parts for controllers (pressure, temperature, flow, level)	set	1 each		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(c) Pressure switches	set	1 each		
(d) Control switches	set	1 each		
(e) Lamps for operation indication and annunciator	%	200		
SUB-TOTAL				
TOTAL OF STEAM GENERATOR				

Carried to Summary Sheets

467



(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>1.2 STEAM GENERATOR AUXILIARY EQUIPMENT</b>				
<b>(1) Steam Converter System</b>				
(A) Gasket for steam convertor and steam converter drain cooler	%	100		
(B) Bearings for steam converter feedwater pump	com- plate set	1		
(C) Control valve diaphragm	piece	each		
(D) Spring for safety valve and relief valve	set	each 1		
SUB-TOTAL				
<b>(2) Instrument Air System</b>				
(A) Wrist-pin bushing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Complete valve assembly for cylinder	set	2		
(E) Piston ring	set	5		
(F) Packing ring	set	1		
(G) Gasket for "O" ring	set	1		
(H) V-belt	set	1		
(I) Filter cartridge	%	50		
(J) Gland packing and gasket for valve	%	each 50		
SUB-TOTAL				

897

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(3) Service Air System				
(A) Wrist-pin bushing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Wrist-pin retaining rings	complete set	1		
(E) Scraper rings	complete set	1		
(F) Bearing for compressor	complete set	1		
(G) Complete valve assembly for LP and HP cylinder	set	1		
(H) Piston rings	complete set	each 1		
(I) Packing rings, gasket	set	each 1		
(J) Gland packing and gasket for valve	%	50		
SUB-TOTAL				
(4) Chemical Feed System				
(A) Plunger for pumps	set	each 1		
(B) Gland packings	set	each 1		
(C) Ball valves	set	each 1		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(D) Valve seat	set	each 1		
(E) Gasket	set	each 1		
(F) Valve packing and gasket	%	each 50		
(G) Standard spare parts for recorder (include, ink pad, ink, charts, fuses)		1 year		
(H) Level switch	set	1		
SUB-TOTAL				
(5) Sampling Rack System				
(A) KCl	kg	2		
(B) 15A SUS 304 pipe	m	5		
(C) Valve packing	%	50		
(D) Thermometer	set	5		
(E) Pressure reducer	set	2		
(F) Ion exchanger resin (cation)	%	100		
(G) Standard spare parts for recorder (include, ink pad, ink, charts, fuses)		1 year		
(H) Standard spare part for each analyzers and sensors	set	1		
(I) Glass for sight flow	%	100		
SUB-TOTAL				
TOTAL OF STEAM GENERATOR AUXILIARY EQUIPMENT				

Carried to Summary Sheets

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
2. STEAM TURBINE AND AUXILIARY EQUIPMENT				
2.1 Steam Turbine				
(1) Steam Turbine				
(A) Turbine bearing assembly (HP, IP and LP)	set	1 each		
(B) Thrust bearing (complete)	set	1		
(C) Complete set of thrust pad	set	1		
(D) Gland steam packing (HP, IP and LP)	set	1 each		
(E) Atmospheric relief diaphragm	piece	5		
(F) Casing bolt, nut and washer	set	1 each size		
(G) Raw material of casing bolts and nuts (complete)	%	10		
(H) Control valve (sleeve, gasket, valve stem, pin of crosshead, spring, etc.)	piece	1 each		
(I) Main stop valve (bypass valve)	piece	1		
(J) Main stop valve (gasket of head cover)	piece	4		
(K) Combined reheat valve (gasket)	piece	1 each		
(L) Filter element for oil conditioner	unit	1		
(M) Oil cooler packing	piece	2 each		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(N) Gauge glass for main oil tank, oil conditioner and oil storage tank	piece	4 each		
(O) Bearing for gland steam exhaust blower	set	2		
(P) Gasket for steam seal regulator	piece	each 4		
(Q) Gland steam condenser packing	piece	each 6		
(R) Expansion joint for cross over piping	piece	1		
(S) Turbine bypass valve inner parts gasket	set	1		
SUB-TOTAL				
<b>(2) Piping and Valves</b>				
(A) Gland packing and gasket for valve (each rating, size, kind)	%	50 each		
(B) Control valve diaphragm (each size)	piece	2 each		
(C) Valve over 25A (more than 35kg/cm <sup>2</sup> g rating, size kind)	set	1 each		
(D) Valve up to 25A	set	2		
(E) Pipe and fitting (each size and material)	piece	1 each		
SUB-TOTAL				
<b>(3) Instrumentation</b>				
<b>(A) TSI</b>				
(a) Vibration detector	set	2		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(b) Standard spare parts for recorder (lamp, fuse, pen, etc.)	set	1		
(c) Chart, ink pad for recorder		2 years		
(d) Operating modules	set	1 each		
(B) Instrument mounted on BTG board				
(a) Standard spare parts for recorder (lamp, fuse, pen, etc.) and indicator	set	1		
(b) Chart, ink pad for recorder		2 years		
(C) EHC				
(a) Standard spare parts for transmitter	set	1 each		
(b) Standard spare parts for actuating device	set	1 each		
(c) Pressure switch	set	1 each		
(d) Limit switch	set	1 each		
(e) Operating module	set	1 each		
(f) Lamps	%	200 each, with 10 pcs minimum		
<hr/>				
SUB-TOTAL				
<hr/>				
TOTAL OF STEAM TURBINE				
<hr/>				

Carried to Summary Sheets

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>2.2 Steam Turbine Auxiliary Equipment</b>				
<b>(1) Surface Condenser</b>				
(A) Condenser tube	%	5		
(B) Tube plug	piece	150		
(C) Packing for condenser water box manhole	%	200 each		
(D) Packing for condenser water box cover	%	200 each		
(E) Electrode for cathodic protection	%	50		
(F) Gauge glass	%	400		
(G) Brush for condenser tube	piece	1,000		
(H) Gun for condenser tube cleaning	set	2		
(I) Pump for leak detector	set	1		
SUB-TOTAL				
<b>(2) Air Extraction Equipment</b>				
(A) Air extraction vacuum pump				
Bearing for pump	com- plate set	1		
Control valve diaphragm	piece	each		
SUB-TOTAL				

474

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(2A) Air Ejector</b>				
<b>(A) Steam jet air ejector condenser</b>				
Packing	piece	4		
Ejector nozzle (first and second)	set	1 each		
<b>(B) Starting air ejector nozzle</b>	set	1		
SUB-TOTAL				
<b>(3) Priming Vacuum Equipment</b>				
<b>(A) Bearing for pump and motor</b>	set	1		
<b>(B) Gland packing</b>	%	100		
SUB-TOTAL				
<b>(4) Circulating Water Pump</b>				
<b>(A) Cutless bearing or proved design material and motor bearing</b>	set	4 each		
<b>(B) Casing ring</b>	set	2		
<b>(C) Packing, sleeve, etc.</b>	set	2 each		
<b>(D) Cathodic protection plate (aluminium)</b>	%	100		
<b>(E) Impeller</b>	set	1		
SUB-TOTAL				

475



(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(5) Condensate Pump</b>				
(A) Bearing for pump and motor	set	1		
(B) Gland packing	%	200		
(C) Wearing ring	%	100		
(D) Rotor complete (balanced)	set	1		
SUB-TOTAL				
<b>(6) Feedwater Heaters</b>				
(A) Gasket	%	100 each		
(B) Gauge glass	%	200 each		
(C) Relief valve spring assembly	set	1 each		
(D) Bearing for pump and motor of drain pump	set	1 each		
(E) Packing, gasket and sleeve of drain pump	%	200 each		
SUB-TOTAL				
<b>(7) Deaerator</b>				
(A) Packing for manhole	%	400		
(B) Gauge glass	%	100		
(C) Spray valve	set	2		
SUB-TOTAL				

476

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(8) Boiler Feed Pump</b>				
(A) Bearing and seal for pump	complete set	4		
(B) Gasket, packing, etc.	%	400 each		
(C) Rotor complete (balanced)	set	1		
SUB-TOTAL				
<b>(9) Bearing Cooling Water Heat Exchanger</b>				
(A) Tube	%	5		
(B) Packing for manhole	piece	2		
(C) Cathodic protection plate	%	200		
SUB-TOTAL				
<b>(10) Bearing Cooling Water Pump</b>				
(A) Bearing	set	1		
(B) Gland packing	%	100		
(C) Gasket	%	100		
(D) Bearing for primary cooling water booster pump	set	1		
(E) Gland packing, gasket, etc. for primary cooling water booster pump	%	100 each		
SUB-TOTAL				

477

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(11) Chemical Injection System for Bearing Cooling Water</b>				
<b>(A) Chemical injection pump</b>				
(a) Bearing	set	1		
(b) Gland packing	%	200		
(c) Diaphragm	set	1		
<b>(B) Valve</b>				
(a) Diaphragm	set	2		
(b) Gland packing, gasket, O ring, etc.	%	200 each		
(C) Gauge glass for chemical tank	set	2		
(D) Indication lamp	%	400 each		
SUB-TOTAL				
<b>(12) Make-up Water Transfer Pump</b>				
(A) Bearing	set	1		
(B) Gland packing	%	100		
(C) Gasket	%	100		
SUB-TOTAL				

827

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(13) Make-up Water Tank</b>				
(A) Packing for manhole	%	100		
(B) Diaphragm for level control valve	set	2		
(C) Gland packing, gasket, etc. for valve	set	2		
(D) Standard spare parts for level transmitter	set	2		
(E) Inner floating seal material	set	1		
SUB-TOTAL				
<b>(14) Turbine Clean Drain Tank</b>				
(A) Condensate return pump				
Bearing for pump	com-plate set	1		
(B) Control valve diaphragm	piece	each		
SUB-TOTAL				
<b>(15) Piping and Valves</b>				
(A) Gland packing and gasket for valve (each rating, size, kind)	%	50 each		
(B) Control valve diaphragm (each size)	piece	2 each		
(C) Valve over 25A (more than 35kg/cm <sup>2</sup> g rating, size kind)	set	1 each		
(D) Valve up to 25A	set	2		

479

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Pipe and fitting (each size and material)	piece	1 each		
(F) Topping valve (manual feedwater valve) (complete)	set	1		
(G) BFP minimum flow orifice	set	2		
(H) BFP minimum flow control valve inner valve	set	1		
(I) Glass for sight flow	set	3 each size		
(J) Cathodic protection plate for C.W.piping (Aluminium)	%	100		

SUB-TOTAL

(16) Instrument

(A) Thermocouples for turbine bearings	set	1 each		
Thermometers for turbine bearings	set	2 each		
Standard spare parts for transmitter (pressure, temperature, flow, level)	set	1 each		
(B) Standard spare parts for controllers (pressure, temperature, flow, level)	set	1 each		
(C) Pressure switches	set	1		
(D) Control switches	set	1		

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(E) Lamps for operation indicator and annunciator	%	200, with 10 pcs minimum		
SUB-TOTAL				
TOTAL OF STEAM TURBINE AUXILIARY				

Carried to Summary Sheets

124

(Tenderer's Name)  
Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>3. ANCILLARY SYSTEM AND COMMON AUXILIARY EQUIPMENT</b>				
<b>(1) Turbine Room Overhead Crane</b>				
(A) Brush and holder for motor	%	100 each		
(B) Brake lining for main and auxiliary hoist	%	100 each		
(C) Coil for magnetic brake	%	100		
(D) Main contactor tip for controller	%	100		
(E) Wire rope (for main hoist and auxiliary hoist)	%	100 each		
(F) Fuse	%	100		
(G) Indicator lamp	%	200		
<hr/> <b>SUB-TOTAL</b> <hr/>				
<b>(2) Fire Protection System</b>				
(A) Diesel driven emergency fresh water fire pump				
(a) Piston ring for engine	set	1 comp- lete		
(b) O-ring for engine	set	1 comp- lete		
(c) Fuel injection valve	piece	2		
(d) Inlet valve assembly	set	2 comp- lete		
(e) Exhaust valve assembly	set	2 comp- lete		
(f) Bearing for pump	set	1 comp- lete		

482

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(g) Gland packing for pump	set	1		
(h) Shaft sleeve for pump	set	1		
(i) Gauge glass for fuel oil tank	set	1		
(B) Motor driven emergency fresh water fire pump				
(a) Bearing for pump	set	1 complete		
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
(C) Fire water pump				
(a) Bearing for pump	set	1 complete		
(b) Gland packing for pump	set	1		
(c) Shaft sleeve for pump	set	1		
(D) Air foam concentrate injection pump and diesel engine				
(a) Piston ring for engine	set	1 complete		
(b) O-ring for engine	set	1 complete		
(c) Fuel injection valve	set	2 complete		
(d) Inlet valve assembly	set	1 complete		
(e) Exhaust valve assembly	set	1 complete		
(f) Bearing for pump and diesel engine	set	1 complete		

887



(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(g) Gland packing for pump	set	1		
(h) Gauge glass for fuel oil tank	set	1		
(E) Piping and valve				
(a) Gland packing, gasket, etc. for valve	set	1 each size		
(b) Solenoid valve	set	1 comp- lete		
(F) Control panel, fire protection panel and instrument				
(a) Lamp for operation and annunciator	%	50		
(b) Pressure switch	set	1		
(c) Relay	set	1 each		
(d) Transmitter	set	1 each		
(e) Control switch and push button	set	1 each		
SUB-TOTAL				
(3) Fuel Oil Piping				
(a) Gland packing for valve	set	1 each size		
(b) Valve	set	1 each size		
SUB-TOTAL				

184

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(4) Drainage and Waste Water Treatment System				
(A) Bearing for all pumps and blowers	set	1 each size		
(B) Gland packing for all pumps	set	1 each size		
(C) Diaphragm for control valve	set	1 each size		
(D) Diaphragm for chemical feed pumps	set	1 each size		
(E) Gland packing, gasket, O-ring, etc. for valve	set	1 each size		
(F) Gauge glass for chemical tank	set	1 each		
(G) Lamp for operation and annunciator	%	50		
(H) Relays	set	1 each		
(I) Control switch	set	1		
(J) Solenoid valve	set	1		
(K) Recording chart, pens, ink, etc.	year	1		
(L) KCl for pH meter	kg	1		
(M) Standard spare parts for analyzer	set	1		
(N) Fuse	%	200		
(O) pH Electrode	piece	5 each		
SUB-TOTAL				

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
<b>(5) Chlorination System</b>				
(A) Bearing and gland packing for all pumps	set	each 1		
(B) Gland packing, gasket, etc. for valve	set	1 each size		
(C) Inner parts for strainer	set	1		
(D) Fuse	%	100		
(E) Lamp for operation and annunciator	%	100		
(F) Gauge glass for injection flow meter	set	2		
(G) Pressure switch and flow switch	set	1 each		
(H) Relay	set	1 each		
(I) Electrode	set	2		
(J) Rectifire element	set	1		
(K) Solenoid valve	piece	5 each size		
SUB-TOTAL				
<b>(6) Yard Instrument Air System</b>				
(A) Wrist-pin busing	set	1		
(B) Pair of crank pin bearing shells	set	1		
(C) Pair of connecting rod bolts and nuts	set	1		
(D) Complete valve assembly for cylinder	set	1		
(E) Piston ring	set	1		

9/8/5

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(F) Packing ring	set	1		
(G) Gasket and O-ring	set	1		
(H) V-belt	set	1		
(I) Filter cartridge	%	50		
(J) Gland packing and gasket for valve	%	50		
SUB-TOTAL				
TOTAL OF COMMON AUXILIARY EQUIPMENT				

Carried to Summary Sheets

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
4. GENERATOR AND ELECTRICAL EQUIPMENT				
(1) Common Parts				
(A) Panel and board				
(a) Indicating lamp (including annunciator lamp)	%	200 each type		
(b) Lamp lens and globe	%	100 each type		
(c) Lamp socket with resistance or trans- former	set	50 each type		
(d) Main protective relay (except over current relay)	set	1 each type		
(e) Over current relay	set	3 each type		
(f) Auxiliary relay (including time relay)	set	20 each type		
(g) Control switches and changeover switches	set	5 each type		
(h) Push button with indication lamp (Series II)	%	50 each type		
Push buttons	set	10 each type		
(i) Recording charts, pens and ink		each type for Five (5) year		
(j) Closing and tripping coil for VCB and ACB	set	5 each type		
Enclosed fuses	%	200 each type		

887

(Tenderer's Name)

Currency in Country Origin

Item	Unit	Quantity	Unit Price FOB	Amount
(k) Molded type ACB	set	10 each type		
(l) Magnetic contactor	set	10 each type		
(m) Thermal relay	set	10 each type		
(n) Control transformer in control center	set	3 each type		
(B) Motor				
(a) Bearing	%	200 all of motors		
(b) Brush of DC motor	%	200 each type		
(C) Current transformer	set	2 each class ratio		
(D) Potential transformer	set	1 each class ratio		
SUB-TOTAL				
(2) Special Parts				
(A) Generator				
(a) Generator bushing	piece	1		
(b) Vibration detector	piece	1		
(c) Packing, gasket, packing compound	%	400		

487