REPLIES TO PRE BID QUERIES -LOT- 2 DATE 18.06.2021

NIT No. PNMM/PC-183/E/4008/NCB Dated 24.05.2021

INSTRUMENT AIR & PLANT AIR SYSTEM AT TALCHER, ODISHA (INDIA) FOR TALCHER FERTILIZERS LTD. (TFL)

Sr. No.	Document number	Document Title	Clause No./ Line No.	Page No.	Technical Requirement Specified	Deviation / Clarification	PDIL/TFL Reply
1	PC183/E/4008/ SEC-VI/PART-1.0	SCOPE OF WORKS	1.1	2 of 13	Knock Out Drum Aftercooler Heater type Air Dryer 1 No. Dried Air After Cooler 2 No. Dry Air Receiver vessel 2 No. Low Pressure Wet Air Receiver 1 No. High pressure compressor @ 40 kg/cm2g discharge pressure for back up receiver.	This will be integral part of cooler. Aftercooler is not required as per suggested scheme. Please advise whether we can use HOC dryer or heater type (No-purge split flow type Dryer) After Cooler is intergral Part of Compressor Please advise the capacity of Dry Air Receiver Vessel Please advise capacity of High Pressure Compressor	Knockout drum after cooler -As per NIT Vendor to consider Hot air from upstream air compressor discharge (Before after cooler) for use in regeneration of dryer beds. Further heating of air to meet the regeneration requirement is to be supplemented by reactivation heater. However electric heater shall be designed by considering only cold air case. under review for type of dryer along with regeneration unit & for capacity of high pressure compressor Amendment if required, shall be issued shortly.
			2.0	4 of 13	Temporary Construction Facilities Civil Work	Please advise what to be considered for Construction Power Supply & Water Supply All Civil work shall be owner's scope	Temporary construction for storage of Instrument compressor system and accesosiries are under the scope of bidder Construction power and construction water shall be provided to the bidder at one point. Bidder has to arrange both from the given point to point of consumption. Civil, structural and architechtural works are not in bidder' s scope. However, installation of various equipments with equipments bolts shall be in bidder's scope. Also, const. of earth pits for laying of burried electrical cables is also in bidder's scope.Concrete trench and pits shall be in Owner's scope. It should be noted that Bidder has to timely provide the following information to the Owner/PMC -equipment installation schedule, foundation plan with pocket details, load data etc for design and construction of foundations etc.

			2.3	6 of 13	Bidder scope of supply for Static equipment shall include but shall not be limited to following:- Supply of material & equipment required for blast cleaning, chemical cleaning, pickling Passivation, surface preparation & polishing & coating of internal surface, epoxy coating, rubber lining, and FRP lining e.t.c. for equipment as applicable Supply of all equipments , tool & tackles including torque wrench, bolt tensioned etc. as per specification and all material required for inspection and testing (i.e. NDT, Hydro testing, performance testing e.t.c) Supply of all tools and tackles, template for foundation for heavy lift equipment and for the erection for all equipment. Eye bolts, jack screws, dowel pins and lifting lugs etc. as required	Scope of supply will be limited as mentioned below	NIT condition to be followed.
			3.1	10 of 13	Two months supervision are in vendor scope of work	Please help with clarification regarding scope of work	All three shifts (One technical operating person per shift plus one supervisior in general shift for two months periods) including sundays/holidays Operating and maintenance shall be in bidder's scope during two months period
2	**PC183/E/4008/ SEC-VI/PART-2.0**	**Technical Specs**	2.5.3	4 of 10	Wet Air Receiver K.O. Drum	Capacity is mentioned as 30M3 so please clarify it is to be considered 30M3 only to avoid any ambiguity during detailed engineering	As per NIT
			2.5.4	5 of 10	Bidder shall provide 1 No. Low Pressure Wet Air Receiver upstream of Instrument Air Generation package to avoid any fluctuations in operation of Instrument Air Generation package.	Please advise on capacity as we have understood to consider wet Air Receiver of capacity 30M3	As per NIT
			2.5.12	6 of 10	Instrument Air Receiver	Please clarify as we have considered size of 30M3 only and no further increase will be accepted during detailed engineering	As per NIT
			2.5.13	6 of 10	HP Compressor	Please advise the capacity of HP compressor to be considered	Under Review, amendment shall be issued
			2.6	7 of 10	SITE METEOROLOGICAL DATA:	Please advise design Temp & RH for Compressor	RH-100%, at 31.9 Deg C Max Temp, 46.3 DegC Min Temp, 1 Deg C Avg Temp 31.9 Deg C Atm Pressure- 1008 Mbar
			3.2	8 of 10	Performance guarantee and trial run	PGTR for equipment will be done at vendor's work as it requires proper testing facility and set up which is not possible to demonstrated at Site due to design criterias and parameters. However we shall demonstrate only mechincal run test(MRT) at site . Unitisation of compressor + Motor + cooler & instrumentation has to be done at works to avoid any mismatch at the time of commissioning.	PGTR Shall be as per NIT

3	PC183/E/4008/ SEC-VI/PART-3.2.1 (SOW)	MECHANICAL STATIC EQUIPMENT	1.1	3 of 3	SURFACE PREPARATION	Painting as per manufacturer's standard practice suitable for the Fertiliser plant.	NIT to be followed. Under review Painting chapter shall be provided, Amendment if required, shall be issued shortly.
3	**PC183/E/4008/ SEC-VI/PART-3.2.2**	**DESIGN SPECIFICATION – ROTATING EQUIPMENTS**	3.2.6	6 of 10	performance characteristics	Please note that IR will submit performance characteristics as per prove track record of supplied compressor	NIT requirement shall be followed.
			3.2.7	6 of 10	Torsional and lateral critical speed analysis	Please note that it will be as per prove track record of supplied compressor	NIT requirement shall be followed.
			3.2.10	6 of 10	Tip speed	Please note that it will be as per prove track record of supplied compressor	NIT requirement shall be followed.
			3.2.11	6 of 10	Seal	Please note that it will be as per prove track record of supplied compressor	NIT requirement shall be followed.
			3.2.13	7 of 10	vibration monitoring instruments	Please note that IR will provide Axial and Radial Vibration Measurement and its control will be done from IR Control Panel. Dedicated VMS will not be provided	NIT requirement shall be folowed
			3.2.14	7 of 10	trip interlock shall be two out of three voting logic	2003 logic is not possible for the Vibration trips due to the space limitation which is as per the proven design of Manufacturer.	Noted, To be discussed during detailed engineering
			3.4	8 of 10	EOT Crains to be provided.	Please exclude EOT Crane from Scope of Supply as it has to be taken care by the CIVIL Contracts	As per NIT, EOT crane shall be part of bidder scope.
			3.5	9 of 10	HVAC System	Please exclude HVAC from Scope of Supply as it has to be taken care by the CIVIL Contracts	Under review, Amendment if required, shall be issued shortly.
			7.0	10 of 10	Vendors List	Please accpet IR Vendor List as per prove track record of supplied compressor	PDIL vendor list shall be followed.
4	**PC183/E/4008/ SECVI/ PART-3.3**	**DESIGN SPECIFICATION-ELECTRICAL**	1.6	4 of 34	Heater control panel shall be installed in Offsite & utilities substation of respective plants.	Please share the distance between compressor room to utility substation for considering cables length	Location of Offsite & Utilities Substation (OUSS) marked in Plot Plan.
			1.7	4 of 34	Bidder shall provide the UPS distribution board with all necessary control & monitoring component	Please advise for the placemnent of UPS distribution board with distance	Shall be installed in OUSS.
			3.0	8 of 34	AREA CLASSIFICATION	Since there is nothing mention on Hazardous Area, we are considering the Safe Area.	Area classification shall be in accordance with IS 5572 along with latest update
			5.0	13 of 34	Heater Control Panel (Thyristor Controlled)	Applicable for dryer heaters	Noted.
			5.6	16 of 34	The Soft Starter shall be installed either on the Line side or neutral side of HV Induction Motor.	Please clarfy what to be considered neutral side or line side	The Soft Starter shall be installed on the Line side of HV Induction Motor.
			7.0	22 of 34	EARTHING AND LIGHTNING PROTECTION	It will be in customer's scope	As per NIT.
			10.0	24 of 34	Vendors List	For critical components which will affect the performance and guarantee of the compressor, we cannot compromise on our tried, tested and proven suppliers. For example, Inlet guide vane type valve, by-pass valve, Aux oil pump, Surge Controller. Please accpet IR Vendor List for these critical components as per prove track record of supplied compressor	Approval of any additional vendor shall be as per GCC clause No 12.3.2 & same shall be considered during detailed engineering
5	**PC150/E/4004/ P-VI-3.3**	**LOCAL CONTROL STATION**			Local Control Station	Please note that IR Compressor/Dryer will have Local Control Station cum Panel which will have necessary functional requirement mentioned like Start/Stop, Indication Lamps etc. But this also will have Controller and necessary control circuit inside it. Moreover, this control panel will be provided of 2 mm CRCA Rittal or equivalent reputed make IP-55 Enclosure suitable to Area Classification.	Noted.

6	**PC183/E/4008/ SECVI-PART-3.4**	**DESIGN PHILOSOPHY – INSTRUMENTATION**		9 of 87	Instrument Air Plant shall be provide as per below mentioned Control System	Please advise for selection of Option-1 or 2. In case of PLC, please advise on TMR or DMR as we can accept DMR	Minimum requirement of PLC control system is DMR . Option shall be selected by Bidder.
			3.1	11 of 87	SIL certification rating	We can provide SIL2 and SIL3 will not be provided	SIL certification rating for all the instruments shall be minimum as per clause 3.10 of the Tender requirement
			3.5	15 of 87	System / Marshalling/ Packages cabinet	Please advise on selection, should it be separate panel or combination of all	Depending on IO counts Bidder to seggregate or combine marshaling /system/package cabinets.
			8.1	45, 46, 47 of 87	PLC Control System and all sub-clauses Redundant Power supplies (at least three in parallel) shall be supplied.	We can accept DMR type of PLC , please accept for DMR type of PLC. Please specify exact requirements - TMR/DMR	Minimum requirement of control system is DMR
7	**PC183E/4008/SEC-VI/ PART-8.0**	**VENDOR LIST**	1.0	2 of 53	Static Equipment	Please accept Heatmax/ Premier Equipments & Ecotech for receivers	Vendor list as per NIT to be followed.
				19 of 53	Soft Starter	Please include Jayshree/LECON Make Soft Starter	Under review, Amendment if required, shall be issued shortly.
					Dryer	Approved Vendor for Dryre is not mentioned in approved Vendor List, Please accpet IR Approved Dryers	Approval of any additional vendor shall be as per GCC clause No 12.3.2 & same shall be considered during detailed engineering
				48 of 53	Control Panel	Please include Electronic Corporation Of India, Ahmedabad (supplied in previous projects) and IRIS Automation, Ahmedabad	Approved vendor list shall be followed
				44 of 53	Temperature Transmitters	Please include Honeywell Automation India Limited also in vendor list (it is included for pressure transmitters)	Approved vendor attached with the tender list shall be folllowed
				42 of 53	Orifice Meter	There is only one vendor - Chemtrols. Please include	Approved vendor attached with the tender list shall be folllowed
				18 of 53	Industrial Heater	For dryer if heater is required, it will be as per dryer vendor approved vendors	As per NIT
				17 of 53	Electric Motor	Please include Toshiba Mitsubishi Electric Industrial Systems Corporation, India	As per NIT
				16 of 53	Couplings	Please include Rexnord (Eoroflex), India	PDIL vendor list for coupling shall be followed, Approval of any additional vendor shall be as per GCC clause No 12.3.2 & same shall be considered during detailed engineering
				8 of 53	Vessels	Dryer vessels will be fabricated by dryer vendor only	LSTK bidder may furnish list of proven sub-suppliers with PTR (proven track record) & requisite documents subject to owner's/ consultant approval during detail engg. Documents & PTR shall be in English language only.
8			1.0	17 of 39	4.1.4.2 Outdoor Installations b) Unless otherwise specified, all PLC sub-systems or system components installed outdoor shall have corrosive environmental protection coating meeting the environmental classification class G3 as per ISA-S71.04	This is not apploicable since the installation is indoors	Under review, Amendment if required, shall be issued shortly.
9			2.0	18 of 39	4.1.8 Design Requirements of Equipments in Hazardous Area 4.1.8.2 General requirements a) Unless otherwise specified, all instruments in hazardous area shall be intrinsically safe type. Other concepts shall be used when specified. b) For conventional instrumentation, entity concept shall be used for selecting proper barriers / isolators.	Not applicable since installation is in safe area	kindly refer Inst design philiosophy clause no 8.1.1 for PLC requirements..

10			3.0	19 of 39	4.1.10 The system shall be designed fault tolerant and shall utilize high quality components of proven quality. Any single system fault shall not degrade the system safety or functionality or affect operation. The system shall have certified Safety Integrity Level as per IEC61508/ 61511 as applicable and specified in job specification. Unless otherwise specified, it shall meet the availability requirement specified in Clause 4.1.3 ofthis specification.	Safety Integrity Level shall be dfined by the purchaser. Presently we have considered No Safety Inegrity Level	SIL certification rating for all the instruments shall be minimum as per clause 3.10 of the Tender requirement
11	**PC183E/4008/SEC-VI/ PART-8.0**	**GENERAL SPECIFICATION FOR PROGRAMMABLE LOGIC CONTOROLLER (PLC)**	4.0	19 of 39	1.1.16 Safety barriers shall be provided by the vendor for intrinsically safe input/output circuits wherever specified. In such cases, the system shall be designed intrinsically safe based on entity concept. The barriers shall be certified by a statutory authority like Baseefa, LCIE, CSA, UL, PTB, CIMFR etc., for the use in the area classification as specified elsewhere in the job specifications. The proper selection of the safety barriers shall be the vendor's total responsibility. In case of smart transmitter, the entity parameters of the hand held terminals shall also be considered while selecting proper barriers.	This is not apploicable since the installation is in safe area	kindly refer Inst design philiosophy clause no 8.1.1 (b) for Barrier requirements
12			5.0	32 of 38	4.3.4 Safety Earth / Zener Barrier Earth	Zener barriers not considered	kindly refer Inst design philiosophy clause no 8.1.1 (b) for Barrier requirements
13			6.0	35 of 38	5.2 Factory Acceptance Tests (FAT) All subsystem shall undergo a minimum of 30 days burn in period. The burn-in time shall start after the sub-system is fully assembled and is powered up. It may include any such time for which the system has been kept powered on even for system generation and Phase I testing.	Please confirm you need 30 days burn in period	NIT requirement shall be followed
14			7.0	38 of 39	6.0 GENERAL REQUIREMENTS Post Warranty Maintenance Contract Vendor shall quote separately for post warranty maintenance contract after warranty period for five years for the complete system as per commercial terms and condition of the requisition and the type (i.e. comprehensive or non-comprehensive) of post warranty maintenance shall be as specified in job specification. The personnel deployed during postwarranty maintenance shall have thorough knowledge of the system and at least two years of experience on the maintenance of similar system. Any other conditions of contract required by vendor shall be explained in the offer.	Is this required?	NIT Compliance is mandatory
15	**PC183E/4008/SEC-VI/ PART-8.0**	**STANDARD SPECIFICATION FOR DISTRIBUTED CONTROL SYSTEM & PLC SYSTEM**	1.0		STANDARD SPECIFICATION FOR DISTRIBUTED CONTROL SYSTEM & PLC SYSTEM PART - III GENERAL REQUIREMENTS OF DISTRIBUTED CONTROL SYSTEM	Not applicable since DCS is not in our scope	Noted as per Tender requirement.

16	PC183E/4008/SEC-VI/ PART-8.0	GENERAL SPECIFICATION FOR JUNCTION BOXES AND CABLE GLANDS	2.0		STANDARD SPECIFICATION FOR DISTRIBUTED CONTROL SYSTEM & PLC SYSTEM PART - II TESTING, INSTALLATION, COMMISSIONING AND ACCEPTANCE OF DISTRIBUTED CONTROL SYSTEM	Not applicable since DCS is not in our scope	Noted as per Tender requirement.
17			3.0		STANDARD SPECIFICATION FOR DISTRIBUTED CONTROL SYSTEM & PLC SYSTEM PART – I GENERAL SPECIFICATIONS OF DISTRIBUTED CONTROL SYSTEM	Not applicable since DCS is not in our scope	Noted as per Tender requirement.
18			1.0	4 of 8	GENERAL SPECIFICATION FOR JUNCTION BOXES AND CABLE GLANDS e) Copy of certificate for approval of increased safety junction boxes, adapter, plug and cable glands from local statutory authority as applicable such as Chief Controller of Explosive (CCE), Nagpur or Director General Mines Safety in India along with:	Not applicable since the installation is in safe area	kindly refer Inst design philiosophy clause no 11.4 for junction box & cause no 11.5 for cable glands
19			2.0	5 of 8	2.1.1 Junction boxes shall be either of the following type as specified in data sheets. a) Weather proof junction boxes. b) Weather proof and increased safety junction boxes. No other type of junction boxes shall be offered ,I supplied unless specifically indicated otherwise. 2.1.2 Unless otherwise specified, the enclosure shall conform to the following standards: Weatherproof housing : IP 65 to IEC-60529/IS-13947 Housing : EEx (e) as per IEC-60079/IS-2148.	We will offer weather proof JB since the installtion is in safe area with weather proof housing	kindly refer Inst design philiosophy clause no 11.4 for junction box
20			3.0	5 of 8	2.1.4 Multi-pair junction boxes shall be provided with telephone sockets and plugs for connection of hand-powered telephone set	Is this required?	This requirement shall be discussed during detail engineering
21			4.0	5 of 8	Power junction boxes (junction boxes for power supply cable / distribution) shall have either the warning cast or shall have warning plate with following marking;	Power JB's are not considered	Noted as per Tender requirement,The same shall be discussed during detail engineering.
22			5.0	6 of 8	2.1.6 Pneumatic Junction Boxes	Not considered in scope	Noted as per Tender requirement.
23			6.0	7 of 8	2.2 Cable glands, Plugs and Reducers/Adaptors 2.2.4 The cable glands shall be weatherproof. Whenever specified they shall also be increased safety and certificate for the specified electrical area classification specified in the data sheets.	Cable glands shall be weather proof	kindly refer Inst design philiosophy clause no 11.5 for cable glands
24	PC183E/4008/SEC-VI/ PART-8.0	GENERAL SPECIFICATION FOR INSTRUMENT TUBING	1.0	5 of 9	1.3 Drawings and Data 1.3.2 Final documentation consisting of design data by the vendor or after placement of purchase order shall include the following as a minimum; a) Specification sheet for each type of tube	This will not be applicable for tubes on the compressor and Dryer package	Noted as per Tender requirement.

25	PC183/E/4008/ SECVI-PART-3.4	CONTRACTOR SCOPE OF WORK - INSTRUMENTATION DESIGN PHILOSOPHY – INSTRUMENTATION	1.0	3 of 87	1) Instrument Air package plant shall be provided with DCS/PLC based control system. This control system will accommodate all control/trip and monitoring signal/functions for the unit 2) Common DCS/PLC has been considered for Instrument package and bidder to ensure segregation of individual plant level signals at AI/AO/DI/DO card level so as to ensure the reliability of the system. The same control system shall be applicable for Drying Unit also.	1) We have considered our pre-programmed Fenix control panel for the compressor. This will be on compressor skid and will be used for controls and monitoring of the compressor. Similarly for the dryer pacjage we have considered a microprocessor based control panel as per dryer manufacturers' standard. 2) Each compressor and dryer will have theri independent control panel.	Noted as per Tender requirement. The make for Package PLC shall be as per Vendor list subject to TFL/PDIL approval.
			2.0	3 of 87	One no. Aux. Console with Ann. window, push buttons, switches for critical trip and alarm shall also be provided	This is not required since we are providing control panel in each compressor skid	This is required in control room
			3.0	3 of 87	All the required protections & interlocks shall be carried out in DCS/PLC.	All the required protections & interlocks shall be carried out in the compressor control panel provided on each compressor skid	kindly comply NITrequirement
			4.0	4 of 87	Beside this, Bidder to arrange power distribution to additional 4 operator station. Supply of 4 OS not in bidder scope, power supply distribution from PDB to OS is in Bidder scope. Bidder to consider PDB panel to achieve the same.	We would suggest that power required for individual OS to be provided by purchaser. This will avoid a PDB in the control room.	kindly comply NITrequirement
26			5.0	5 of 87	All operating conditions including necessary data logging, alarms etc. process Cause and Effect graphics etc. shall be communicated to control system. Changes in 'Operating Modes' (for generating either liquid or gaseous Nitrogen) shall be carried out by control system	This is not considered in our scope	kindly comply NITrequirement
27			6.0	6 of 87	The system shall be capable of operating on a continuous or intermittent basis and shall be completely automatic, requiring no operator attention, with all cycle control valves actuated by a control system.	Please check if this is really required. If yes, it will need lot of automation like automatic on/off valves on water lines, air lines, etc.	kindly comply NITrequirement
28			7.0	6 of 87	Analyzers shall be designed for continuous monitoring	Please explain this requirement	Shall be discussed during detail engineering
29			8.0	9 of 87	One no. Aux. Console with Ann. window, push buttons, switches for critical trip and alarm shall also be provided.	Not required. If required, where do we provide this	This is required in control room
30			9.0	11 of 87	SIL certification rating for all the instruments shall be minimum as per following list :- 1) All Smart Positioners - SIL 2 2) All Transmitters - SIL2 3) All Solenoids - SIL 3	Generic certification will be provided. Certificate specific to the instrument supplied will not be provided	kindly comply NITrequirement
31			10.0	14 of 87	3.40 Hart Compatible gas-detectors to be provided. Electrochemical type gas detectors shall not be considered. Bidder to submit suitable gas detectors as per OEM recommendation/ as per ITB as specified elsewhere. Bidder to submit gas detectors quantity calculation	Gas detectors are not considered in scope	Noted as per Tender requirement.

32			11.0	19 of 87	5.0 HAZARDOUUS AREA CLASSIFICATION & ELECTRICAL EXECUTION 5.1 Irrespective of area classification, the execution of instrumentation shall be as per area Zone 2, group IIC, T6, Exia and Protection. Electrical / Electronic instruments IP 67	Is this required for safe area installtion	kindly comply NITrequirement
33			12.0	50 of 87	8.2 DCS CONTROL SYSTEM and all sub-clauses	Not considered in scope hence not applicable	Noted as per Tender requirement.
34			13.0	53 of 87	8.2.7 Controller Loading Each Controller loading shall not exceed more than 50% (hardware and software load of each controller) in any case, after implementation of complete project and running at peak load. In case more controllers are required to meet 50% loading criteria, CONTRACTOR to include additional controllers without any cost implication.	Is this applicable for DCS controller only?	This is applicable for any control system used
35			14.0	59 of 87	8.7 Annunciator	Not required since faults will be visible on the HMI	kindly comply NITrequirement
36			15.0	60 of 87	9.4 Instrument air shall be provided for purging of local panels.	Not required for safe area	kindly comply NITrequirement
37			16.0	67 of 87	11.4 JUNCTION BOX b) JB MOC shall be FRP and 4 mm thick sheet. Junction boxes shall be for IEC Zone 2 & Gas group IIA/IIB EExe. with acid resistant gasket (will be freezed during detailed engineering).	Please confirm JB MOC - FRP or SS316 Please confirm area classification for JB and other accessories	JB MOC shall be FRP and 4 mm thick sheet. Junction boxes shall be for IEC Zone 2 & Gas group IIA/IIB EExe. with acid resistant gasket
38			17.0	77 of 87	All type of instrument tapping flange rating shall be minimum ANSI 300#, irrespective of minimum design pressure	This is not required for the discharge pressure specified. Definitely not required on suction side of the compressor. So please remove this requirement	Shall be discussed during detail engineering
39	**Document No. PC150/E/4004/ P-VI-3.3**	**TECHNICAL SPECIFICATION - LOCAL CONTROL STATION (PC183-TS-0817)**	1.0	3 of 9	5.0 GENERAL DESIGN AND CONSTRUCTIONAL FEATURES 5.2 The enclosure shall be of die cast Aluminium alloy LM-6. As an alternative to cast Aluminium, fibre glass enclosure is also acceptable.	Please confirm the MOC of JB - SS316, FRP or LM6	As per NIT.
40			2.0	4 of 9	6.0 SPECIAL FEATURES FOR FLAME PROOF LOCAL CONTROL STATION	Not applicable for safe area application	As per NIT.
41	**Document No. PC150/E/4004/ P-VI-3.3**	**TECHNICAL SPECIFICATION - INDUCTION MOTOR (PC183-TS-0810)**	1.0	4 of 12	4.2 Cooling For CACA motor - Aluminium tubes having minimum thickness of 1.6 mm	We will offer CACA motor with coolong as per IC611. Thickness of aluminum tubes needs to be checked with motor supplier	As per NIT.
42			2.0	10 of 12	7.5 Oil Supply System 7.5.2 However, the motor supplier shall quote separate price for the complete oil system of the motor.	Not required for the size of motor we are offering hence not considered	Noted.
43			3.0	6 of 12	4.9 Terminal Box 4.9.3 The power terminal boxes shall be as follows: a) For H.V. motors - Phase segregated type capable of with standing the system fault level for 0.2 Sec. or more.	Please define the system fault level. This will need to be checked with motor supplier. There might be a deviation	Fault level at 3.3kV Switchboard is 26.24 kA
44	**DOCUMENT NO PC183/E/4008/ SECVI/ PART-3.3**	**SPECIFICATION SHEET INDUCTION MOTOR**	1.0	27 of 34	Cooling Method : IC411	Please reconfirm the requirement of IC411 cooling method for motor	For TEFC motor IC411

45	**DOCUMENT NO PC183/E/4008/ SECVI/ PART-3.3**	**DESIGN SPECIFICATION-ELECTRICAL**	1.0	6 of 34	2.2 Statutory requirement Codes and Standards iv) As applicable, Bidder shall obtain approval from all statutory authorities as applicable such as Central Electricity Authority (CEA)/Electrical Inspectorate, CPCB etc. The CEA clearance for electrical equipment and components as applicable thereof shall be obtained by the bidder	Not considered in bidders scope	Noted.
			2.0	8 of 34	3.0 AREA CLASSIFICATION	We are considering safe area	As per NIT
			3.0	10 of 34	5.2 MOTOR AND DRIVE COORDINATION b. To arrange where necessary for testing with Soft starter unit to confirm compliance with requirements of load, noise, vibration, temperature rise, etc.	Testing with soft starter has not been considered	As per NIT.
			4.0	11 of 34	h) All LV motors shall be TEFC type as per relevant Indian Standards/IEC while HV motors shall be TEFC/CACA type.. All motors shall be Class-F insulated with temperature rise limited to that of Class-B.	We have considered CACA HV motors Please confirm	Noted.
			5.0	11 of 34	k) All HV motors shall have winding, hot air and bearing RTDs. All the temperature signals shall be terminated to DCS as well as LMS.	What is LMS?	Load Management system.
			6.0	11 of 34	n) The starting current of 11 KV & 3.3 KV motors shall not exceed 550% of FLC. No positive tolerance is acceptable over 550% FLC.	We have considered 550% FLC for 11kV main motor. Please confirm	No positive tolerance is acceptable over 550% FLC.
			7.0	11 of 34	q) In case of 11 KV & 3.3 KV motor, the terminal box shall be suitably designed for proper termination of XLPE insulated Aluminium cables through heat shrink termination kit	Termination kit is not considered in bidder scope	As per NIT.
			8.0	12 of 34	r) The mechanical parameters such as duty, mounting type, shaft extension, direction of rotation, starting torque requirements etc. shall be adequate for the application. Sleeve or anti friction type bearings shall be used.	We have considered anti-frictionbearings for motor. Please confirm	Noted.
			9.0	12 of 34	t) All HV motors shall have safety factor not less than 1.1.	Please explain this requirement	Safety factor not less than 1.1 for motor rating sizing calculation.
			10.0	13 of 34	5.6 HV MOTOR SOFT STARTER 5.6.1 The motor starter shall be Flux compensated magnetic amplifier (FCMA) type with bypass breaker/contactor. 5.6.2 The motor starter shall be designed to restrict starting current upto 2.0 times of motor full load current (inclusive of any tolerance) at Supply bus	Please confirm the requirement of FCMA soft starter. If requirement is for FCMA starter then FCMA starters manufacturers' need to be added in vendor list	As per NIT.
			11.0	19 of 34	5.9 Local Control Stations	Local Control Stations for motors are not considered.	As per NIT.

			12.0	25 of 34	11.5 At least following tests shall be specifically conducted before commissioning in presence of owner's representative. All the test results shall be recorded and submitted to the owner. a) Insulation Test b) Continuity Test c) High Voltage Test d) Simulation Test e) Earth Resistance Test	These tests cannot be performed before commissioning. These can be offered in vendor works prior to shipment	As per NIT.
46			1.0 SCOPE 1.1 General	3 of 10	1.1.1 This Philosophy states that scope of work shall include basic & detailed engineering, procurement, supply, manufacturing, fabrication, transportation, loading, insurance during transit of all Mechanical Rotating Equipment with allied electrical, instrumentation and civil scope, obtaining all necessary statutory approvals from concerned government authorities as applicable, testing , mechanical completion , supervision/assistance in erection, Mechanical Completion, Pre-Commissioning, Commissioning, performance guarantee test runs of INSTRUMENT AIR / PLANT AIR SYSTEM for M/s TFL ODISHA.	1.1.1 This Philosophy states that scope of work shall include basic & detailed engineering, procurement, supply, manufacturing, fabrication, transportation, loading, insurance during transit of all Mechanical Rotating Equipment with allied electrical, instrumentation ~~and civil scope, obtaining all necessary statutory approvals from concerned government authorities as applicable~~, testing , mechanical completion , supervision/assistance in erection, Mechanical Completion, Pre-Commissioning, Commissioning, performance guarantee test runs of INSTRUMENT AIR / PLANT AIR SYSTEM for M/s TFL ODISHA.	Same shall be as per the NIT.
47			3.0 DESIGN REQUIREMENTS 3.1 General	5 of 10	3.1.2 Copper (Cu) or Cu-alloy shall not be used for any components in Ammonia Plant & in other plant for ammonia services	Since this is not installed in Ammonia Plant or in other palnt for ammonia service, Copper or copper alloys can be used	cu and cu alloy shall not be used since ammonia copmplex , hoever, if it becomes unavoidable then vendor to take apporval from TFL/PDIL on case to case basis
48			3.0 DESIGN REQUIREMENTS 3.1 General	5 of 10	3.1.5 Noise level for all rotating equipment shall be limited to 85 dBA measured at 1meter distance from the equipment. Statutory guideline shall also be followed by contractor	We will include acoustic enclosure to rstrict the noise level to 85dBA. Power for the enclosure fan and lighting will be separately provided by purchaser	Noted.
49			3.2 Centrifugal Compressors (for Air services)	6 of 10	3.2.3 Driver rating shall be at least 110% of Compressor rated BKW at rated condition or BKW at unthrottled min. ambient temp. & maximum Atm. Pressure whichever is higher.	Margin over BKW at unthrottled min. ambient temp. & maximum Atm. Pressure is not required for motor sizing	Same shall be as per the NIT.
50	**PC183/E/4008/ SEC-VI/PART-3.2.2**	**DESIGN SPECIFICATION – ROTATING EQUIPMENTS**	3.2 Centrifugal Compressors (for Air services)	6 of 10	3.2.6 Following performance characteristics shall be furnished for compressor: a. Discharge pressure vs Inlet capacity (i.e.actual inlet volume) b. Polytropic head vs Inlet capacity (i.e.actual inlet volume) c. Compressor BKW vs Inlet capacity (i.e.actual inlet volume) d. Polytropic efficiency vs Inlet capacity (i.e.actual inlet volume) The performance shall be shown from surge limits to choke limits. Expected surge line and surge control line shall be shown on each performance map.	b & d cannot be provided	drg-doc schedule of NIT to prevail.

51			3.2 Centrifugal Compressors (for Air services)	7 of 10	3.2.12 Combined Force lubrication and seal oil system (as applicable) shall be provided for compressor and motor assembly. API-614 standards to be complied for lube oil system.	API 614 standards will be followed; the lube oil system will be part of compressor skid only.	Noted.
52			3.3 Reciprocating Compressors	7 of 10	3.3.1 Lateral and torsional critical speed analysis shall be carried out to ensure the elimination of any lateral and torsional vibration that may hinder the operating speed range.	Not required for belt driven machine	belt driven machine to be avoided. Direct coupled machine to be provided.and requiiste test as per NIT / API to be conducted.
53			3.3 Reciprocating Compressors	7 of 10	3.3.3 The piston speed for lubricated cylinder shall not exceed 4 m/s and for non-lubricated cylinders it shall be limited to 3 m/s.	This is too low for air compressors. Please increase to 3.5 m/s	Please furnish your limitation with due justiifcation during detail engineering.
54			3.3 Reciprocating Compressors	7 of 10	3.3.12 For API compressors the requirements for acoustic study shall be in accordance with the API recommendation.	Not required for this size of compressors	acoustic study shall be in accordance with the API recommendation.
55			4.0 INSPECTION & TESTING	9 of 10	4.2 In general, following tests shall be conducted for all rotating equipments: - Performance Test	Performance test for booster compressors are not possible	Please furnish your limitation with due justiifcation..
56			7.0 VENDORS LIST	10 of 10	All equipment shall be procured / fabricated as per approved vendor list	For the HP reciprocating compressors, we will buy components from our proven and approved vendors which may not be in approved vendor list. For examplae, coolers and bottles for the HP compressor will be from Aero Engineeres, Ahmedabad	PDIL approved vendor list shall be followed. Approval of any additional vendor shall be as per GCC clause No 12.3.2 & same shall be considered during detailed engineering
57			1. 0 Design Criteria	3 of 39	1.2 The equipment shall be designed & constructed as per the latest edition of the following codes and standards: TEMA 'R' / API 660 Standards of Tubular Exchangers Manufacturer's Association / For Shell & Tube Heat Exchanger	TEMA C will be considered for coolers	TEMA Class 'C' may be used for auxiliary heat exchangers for rotating and packaged equipment exchangers as per NIT.
58			1. 0 Design Criteria	5 of 39	1.15 All process equipments shall be supplied with Nitrogen filled. In case of equipment assembled and welded at site, it shall be filled with N2 after testing at site. Dry Nitrogen shall be filled at a pressure of 0.5 Kg/cm2g and equipment shall be fitted with a pressure gauge and valve.	Is this required. Please confirm	NIT condition to be followed.
59	**DOCUMENT NO PC183/E/4008/ SEC-VI/PART-3.2.1**	**DESIGN PHILOSOPHY-STATIC EQUIPMENT**	1. 0 Design Criteria	6 of 39	1.24 For equipment designed as per IBR, materials/design/inspection e.t.c shall strictly comply with the requirement of the IBR code. 1.25 IBR Approval for Design Calculations drawings, documents. Testing as per IBR requirements & Certification shall be in the scope of Contractor. All vendors, sub-vendors, fabricators & welders etc should be IBR approved. 1.26 PESO Approval for Design Calculations, drawings, documents, testing e.t.c as per PESO requirements & Certification shall be in the scope of Contractor.	IBR and PESO not applicable & not considered	IBR is not required. For high pressure vessels code/standards shall be applicable along with PESO approval if required.

60			2.0 Material of Construction	9 of 39	2.2.9 Unless otherwise specified girth flanges shall be of forged quality and ultrasonically tested	We have not considered any girth flanges in the receivers we have quoted	Refer clause number 3.3.16 of PC183/E/4008/SEC-VI/PART-3.2.1 for girth flange requirement. However requirement of flange or manhole will be decided during detail engineering as per NIT.
61			3.2 Shell and Tube Heat Exchangers	11 of 39	3.2 Shell and Tube Heat Exchangers 3.2.1 Process Shell and Tube Exchangers will comply with the requirements TEMA (Latest) Class 'R'. The tube sheet shall be analysis by Appendix "UHX" of ASME Section VIII, Div. 1 & TEMA whichever is more stringent. (TEMA Class 'C' may be used for auxiliary heat exchangers for rotating and packaged equipment exchangers.)	Based on this clause, we will be offering TEMA C coolers	TEMA Class 'C' may be used for auxiliary heat exchangers for rotating and packaged equipment exchangers asper NIT.
62	**DOCUMENT NO PC183/E/4008/ SEC-VI/PART-3.2.1 (SOW)**	**SCOPE OF WORK (STATIC EQUIPMENT)**	1.0 Scope	page 2 of 3	Bidder scope of Work (For Static Equipment) shall include but shall not be limited to following j) N2 filling of equipment k) Storage and preservation at site l) Statutory approvals (IBR,PESO, e.t.c)	Not considered in bidders scope	Equipment to be supplied to site in N2 filled condition as per NIT requirement .
63	**DOCUMENT NO PC183/E/4008/ SEC-VI/PART-3.1**	**DESIGN SPECIFICATION - Process**	1.0 GENERAL:	page 3 of 8	1.0 GENERAL: The plants shall be designed to operate safely and satisfactorily at a capacity of 50 to 110% of Design Capacity	Not applicable for the offered compressors and accessories	Under review, Amendment if required, shall be issued shortly.
64			7.0 COMPRESSORS:	page 7 of 8	7.0 COMPRESSORS: In general, compressors shall be designed to a minimum of 110 % of their maximum required flow.	Not applicable for the offered compressors and accessories	Under review, Amendment if required, shall be issued shortly.
65			Schematic Process Flow Diagram			We will discuss the schematic process flow diagram	Schematic diagram is for indicative purpose only, bidder has to provide during the design & detailed engineering
66			2.0 DESIGN BASIS: 2.1 DESIGN CAPACITY	Page 3 of 10	Online Dew point analyser with range of 0 – (-) 60 Degree Celsius at the inlet of IA receiver shall be provided.	Dew point meter will be adequate for the application and we have considered the same	As per NIT
67			2.0 DESIGN BASIS: 2.1 DESIGN CAPACITY	Page 3 of 10	2.4 Hazardous Area Classification: In general Area classification shall be in accordance with IS 5572 along with latest update.	We are considering safe area for all equipments including elctricals, instrumentation andcontrols	As per NIT
68			2.5 Equipment Specifications 2.5.1 Air Compressor	page 3 of 10	Capacity Control 0-100%	in cetrifugal compressor this range of capacity control is possible with IGV plus by-pass valve fully oipen	Under review, Amendment if required, shall be issued shortly.
69			2.5.2 Air Compressor after Cooler	Page 4 of 10	Allowed pressure drop (cooling water) 0.5 Kg/cm2 (between Battery Limit)	Pressure drop across the after coler will be approximately 1 kg/cm2	However to maintain an optimum pipe line velocity to avoid dirt deposition inside the cooler tube, pressure drop from B/L to B/L will be atleast 1.0 kg/cm2.

70			2.5.2 Air Compressor after Cooler	Page 4 of 10	NOTE: All heat exchangers MOC shall be as follows: 1) SHELL : KCS+3mm CA 2) TUBE: SS-304/SS-304L 3) Channel : Carbon Steel	Intercooler & aftercooler shell MOC will be Cast Iron	As per NIT
71			2.5.3 Wet Air Receiver K.O. Drum (IF APPLICABLE)	page 4 of 10	2.5.3 Wet Air Receiver K.O. Drum (IF APPLICABLE) Capacity By bidder but not less than (30 m3)	Please confirm the requirement of wet air receiver. It cannot be if applicable To size the receiver capacity, we will need the following data: ALternatively, we will supply 30M3 receiver. Please confirm. RECEIVER FILL FLOW RATE PROCESS DEMAND FLOW RATE INITIAL RECEIVER PRESSURE FINAL RECEIVER PRESSURE TIME ALLOWED FOR RECEIVER PRESSURE DROP FROM INITIAL TO FINAL PRESSURE	Receiver fill flow rate -16000 Nm3/hr Initial Reciever pressure- 10.5 kg/cm2g Final Receiver pressure-5 kg/cm2g Time- 15 minutes
72			2.5.4 Adsorber	Page 5 of 10	2.5.4 Adsorber Desiccant Molecular Sieve	If alternative dessiccants can deliver the required dew ppint, please confirm we can use the same	Under review, Amendment if required, shall be issued shortly.
73			2.5.4 Adsorber	page 5 of 10	Bidder shall provide 1 No. Low Pressure Wet Air Receiver upstream of Instrument Air Generation package to avoid any fluctuations in operation of Instrument Air Generation package.	Pleqase explain this requirement	This is same wet air receiver as explained in 2.5.3
74	**DOCUMENT NO PC183/E/4008/ SEC-VI/PART-2.0**	**SECTION –VI: TECHNICAL PART – 2.0 TECHNICAL SPECIFICATION**	2.5.12 Instrument Air Receiver	Page 6 of 10	2.5.12 Instrument Air Receiver	To size the receiver capacity, we will need the following data: RECEIVER FILL FLOW RATE PROCESS DEMAND FLOW RATE INITIAL RECEIVER PRESSURE: 36.5 Kg/cm2G FINAL RECEIVER PRESSURE: 8 Kg/cm2G TIME ALLOWED FOR RECEIVER PRESSURE DROP FROM INITIAL TO FINAL PRESSURE: 30 minutes	Receiver fill flow rate -8000 Nm3/h PROCESS DEMAND FLOW RATE- 8000 Nm3/hr
75			2.5.13 HP Compressor		2.5.13 HP Compressor No 1 Type Reciprocating Discharge Pressure 40 Kg/cm2g Capacity By Vendor	Please advise: Suction Pressure Suction Temperature Suction RH Capacity Any other requirement to sixe the compressor	Suction Pressure - 7 kg/cm2g Suction Temperature- 45 Deg C Suction RH- Not applicable, Dew Point-(-)40 Deg C at atm Capacity- Under review, Amendment if required, shall be issued shortly.
76			2.6 SITE METEOROLOGICAL DATA:	Page 7 of 10	2.6 SITE METEOROLOGICAL DATA: 1 Atmospheric Pressure: Average 1008 mbar 2 Ambient Temperature Maximum Dry Bulb Temperature 46.3°C Minimum Dry Bulb Temperature 1°C Wet Bulb Temperature 29°C Average temperature 31.90C	Please confirm the temperature to select/ Design the centrifugal compressor flow and motor power.	RH-100%, at 31.9 Deg C Max Temp, 46.3 DegC Min Temp, 1 Deg C Avg Temp 31.9 Deg C Atm Pressure- 1008 Mbar
77			3.0 Guarantees:	Page 7 of 10	3.0 Guarantees: 3.1 Workmanship guarantee: Bidder shall guarantee all components of package against faulty design, improper material of construction and poor workmanship in addition to performance guarantee. Repaired or replaced part shall also be covered by same guarantee as in case of main supply	Please repalce guarantees with warranties Repaired or replaced part shall also be covered by same warrantee as in case of main supply. The warranty period for the repaired or replaced component will not exceed the original warranty period agreed in the contract	As per NIT

78			3.3 Process Guarantees: Performance Guarantee parameters for Instrument air system:	Page 9 of 10	3.3 Process Guarantees Performance Guaratee parameters Instrument air system 3.3.9 Pressure drop across each Air Instrument dryer & across the system shall not exceed 0.5 Kg/cm².	Pressure drop across the dryer will be 0.5 Kg/cm2. So pressure drop across the system will be more than this	As per NIT
79			4.0 Time Schedule	Page 10 of 10	4.2 Master network shall be prepared in Primavera software. 4.4 Within fifteen days after award of letter of intent bidder shall submit for review and approval of detailed network schedules based on master network	We will submit project schedule in MS Projects within 45 days from PO	MS projects may also be consider but time schedule shasll be as per NIT (15 days)
80			1.1 GENERAL DESCRIPTION OF PACKAGE:	page 2 of 13	1.1 GENERAL DESCRIPTION OF PACKAGE Instrument/plant air system shall comprise of following items for each location: - 2 Working +1 Stand by Centrifugal Air Compressors - 1 No Moisture Separator Knock Out Drum - 1 Working +1 Stand by Electric Heater with standby dryer/regeneration vessel with no purge loss) - 1 No. Dried Air After Cooler - 2 No. Dry Air Receiver vessel - 1 working +1stand by Set of Instrument Air dryers - 2 No. Low Pressure Wet Air Receiver - 1 No. High pressure compressor @ 40 kg/cm2g discharge pressure for back up receiver. - 1 No. Back up Instrument Air receiver for 30 min emergency storage @ 36.5Kg/cm2g pressure	1 No Moisture Separator Knock Out Drum - will be integral to the compressor coolers - 1 Working +1 Stand by Electric Heater with standby dryer/regeneration vessel with no purge loss) - we will be bidding with a No Loss Split Flow type of dryer - 1 No. Dried Air After Cooler - this will be part of dryer - 2 No. Dry Air Receiver vessel - please revise the PFD to show the dry air receivers - 2 No. Low Pressure Wet Air Receiver - please confirm the requirement of wet air receiver and the quantity and revise the PFD accordingly	as per NIT
81			1.1 GENERAL DESCRIPTION OF PACKAGE:	Page 2 of 13	Instrument Air provided by at battery limit considering design flow rate of 8000 Nm3/hr, ACTIVATED Alumina data sheet is to be provided with these Tender documents to ascertain the quality by vendors.	Instrument air cannot be 8000 Nm3/hr since some air will also be used as plant air Are you suggesting the use of activated alumina as dessiccant - please confirm	As per NIT, Activated Alumina is dessicant for dryer service
82			2.0 SCOPE OF WORK	Page 3 of 13	2.0 SCOPE OF WORK structural, architectural, piping and insulation works etc	Structural and architectural works are not in bidders scope Insulation will be limited to hot air piping on the dryer	Confirmed Civil, structural and architechtural works are not in bidder' s scope. However, installation of various equipments with equipments bolts shall be in bidder's scope. Also, const. of earth pits for laying of burried electrical cables is also in bidder's scope.Concrete trench and pits shall be in Owner's scope. It should be noted that Bidder has to timely provide the following information to the Owner/PMC -equipment installation schedule, foundation plan with pocket details, load data etc for design and construction of foundations etc.

83			Temporary Construction Facilities:	Page 4 of 13	i. Construction power supply facilities: 1 No. 11 kV Feeder (rated for 2 MVA) at Existing Substation near 132 KV Switchyard shall be made available	11kV for construction power is not required. Please provide 415 V and 220V as construction power	As per NIT
84			Civil scope of work has been already taken in bagging building Tender.	Page 5 of 13	Civil scope of work has been already taken in bagging building Tender.	Civil work is not in our scope and hence this section of the tender is not applicable to bidder	OK. Kindly refer our above reply on similar issue.Sl. 82.
85				Page 5 of 13	2.3 Bidder's scope of Work (For Static Equipment) shall include but shall not be limited to following: a) Process Design and Engineering comprising preparation of the following documents:- Interlock and logic diagram with full description	We cannot share compressor surge logic diagram	As per NIT
86				Page 6 of 13	b) Detailed Engineering comprising of:- Plot plan development,	Plot plan needs to be provided by purchaser	Plot plan already provided
87				Page 6 of 13	j) N2 filling of equipment	N2 filling of equipment not considered	Agreed
88				Page 6 of 13	k) Stage wise and final inspection by appointed TPIA/Owner	Payment toTPIA to be made by purchaser	As per NIT, Payment of TPIA shall be in bidder's scope
89				Page 6 of 13	Bidder scope of supply for Static equipment shall include but shall not be limited to following Insulating material, primer paints, fire proofing material etc.	Insulating material will be applicable for dryer and supplied pre-installed on dryer. Primer paints and fire proofing material is not considered in bidder scope	fire proofing material shall not be considered in bidder scope
90				Page 6 of 13	Supply of material & equipment required for blast cleaning, chemical cleaning, pickling Passivation, surface preparation & polishing & coating of internal surface, epoxy coating, rubber lining, and FRP lining e.t.c. for equipment as applicable.	This is not considered in bidders scope	Surface preparation & polishing Epoxy Coating and coating of internal surface like rubber linining and FRP lining of internal surface if any shall be provided.
91				Page 7 of 13	Supply of all equipments , tool & tackles including torque wrench, bolt tensioned etc. as per specification and all material required for inspection and testing (i.e. NDT, Hydro testing, performance testing e.t.c)	Supply of tools tackles not considered in bidder scope	As per NIT
92				Page 7 of 13	2.5.1 Process Design and Engineering comprising preparation of the following documents:- PFD with major controls, material & energy balance,	Controls need to be defined by purchaser Energy Balance is not included in our scope	As per NIT
93				Page 7 of 13	2.5.2 Detailed Engineering comprising of:- - Plot plan development	Plot plan development is not part of bidders scope	As per NIT
94				Page 7 of 13	All type of Insulation, cladding, and painting of the plant.	Insulation will be on dryer only Painting of plant is not in bidders scope	As per NIT
95	**DOCUMENT NO PC183/E/4008/ SEC-VI/PART-1.0**	**SCOPE OF WORK**		Page 7 of 13	Unloading, prolong storage/preservation and security at site.	Prolong storage/preservation and security at site s not included in scope	Upto commissioning of plant Unloading, prolong storage/preservation and security at site shall be in bidder's scope

96			Page 7 of 13	Construction, erection, installation, assembly, hook ups and field testing.	Construction not included in bidders scope	Civil, structural and architechtural works are not in bidder' s scope. However, installation of various equipments with equipments bolts shall be in bidder's scope. Also, const. of earth pits for laying of burried electrical cables is also in bidder's scope.Concrete trench and pits shall be in Owner's scope. It should be noted that Bidder has to timely provide the following information to the Owner/PMC -equipment installation schedule, foundation plan with pocket details, load data etc for design and construction of foundations etc.
97			Page 8 of 13	- Filling of lubricants, Oils, consumables, chemicals etc. (for first filling and replacement as required before handing over to owner) '- Clear the work space of all construction aids debris etc. and provide a tidy work place from pre-commissioning stage.	These are not included in bidders scope of work	As per NIT
98			Page 8 of 13	All statutory clearances and permits from local, statutory and other bodies such a Indian Boiler Regulations, Static and mobile pressure vessel rules, Chief controller of explosives, Factory inspector, Labour Inspector, Electrical inspector, pollution controls board etc. - Contractor shall prepare a comprehensive equipment List showing all items classified on the basis of each Process and utility unit. Equipment list shall also identify Equipment requiring:- - Approval from Statutory authorities (PESO, IBR, etc.), - ASME Code Stamping, - Compliance to Petroleum rules, etc	These are not included in bidders scope of work	Support activities for all statutory clearances and permits from local, statutory and other bodies shall be in bidder's scope
99			Page 8 of 13	2.5.3 Equipment data sheets including accessories and auxiliaries etc. indicating operating Parameters, performance requirements, construction features, instrumentation & Controls, inspection and testing.	Please explain the requirement against construction features	As per NIT
100			Page 8 of 13	Desiccants and subsequent filling before handing over to owner. Vendors site support services for construction and commissioning	Desiccants and subsequent filling before handing over to owner is not part of bidders scope Site support for construction is not part of bidders scope	Desiccants and subsequent filling before handing over to owner- As per NIT, Subsequent filling after handover of plant to owner shall not be in bidder's scope Vendors site support services for construction and commissioning- Civil, structural and architechtural works are not in bidder' s scope. However, installation of various equipments with equipments bolts shall be in bidder's scope. Also, const. of earth pits for laying of burried electrical cables is also in bidder's scope.Concrete trench and pits shall be in Owner's scope. It should be noted that Bidder has to timely provide the following information to the Owner/PMC -equipment installation schedule, foundation plan with pocket details, load data etc for design and construction of foundations etc.

101				Page 8 of 13	Technical advisory control on all Mechanical matters, throughout all phases of project Execution i.e. from design through procurement, construction and commissioning/ Problems resolution.	This is not part of bidders scope	As per NIT
102				Page 9 of 13	Two (2) numbers of Heat of Compression with No Purge Loss type Instrument Air Dryers, each of 8000 Nm3 /hr capacity	Please specify the type of dryer required	HOC dryer or heater type (No-purge split flow type Dryer) both can be used, Subjected to guarantee parameters are met as per cl 3.3 (Process guarantee) After cooler is integral part of compressor
103				Page 9 of 13	3. Scope of Supply Contractor's scope of supply shall include but not be limited to the following on turnkey Basis:- All supports for equipment, piping, ducting etc.	Ducting is not part of scope	As per NIT, same shall be decided during detailed engineering
104					3.1 Scope of Services Detailed process design including preparation of P&ID, heat and mass balance diagram, control and logic diagram, interlock schemes, etc	Heat and mass balance - not in bidders scope Logic diagram for surge logic cannot be sahred with purchaser	As per NIT
105					d) Documentation & approvals including approvals from statutory authorities including those required to be taken by Owner	Approvals from statutory authorities is not in bidders scope	Support activities for all statutory clearances and permits from local, statutory and other bodies shall be in bidder's scope
106					q) Undertake a HAZOP and Disaster Management studies for the system. The HAZOP will be carried out at PDIL/TFL office. Bidders to incorporate all HAZOP changes into their design and supply without any price and time implication.	Bidders to incorporate all HAZOP changes into their design and supply withadditional price and time implication	AS per NIT,Desaster management excluded from bidder scope
107	Scope of Work(PC183/E/4008/SEC -VI/PART-1.0)	GENERAL DESCRIPTION OF PACKAGE	1.1	2 of 13	1 WORKING +1 STANDBY ELECTRIC HEATER WITH SRANDBY DRYER/REGENERATION VESSEL WITH NO PURGE LOSS)	We understand that there will be two numbers of Instrument Air dryers. Out of which one will be in working while the other one will be in standby mode. Each dryer will have one regeneration heater. Please confirm.	Bidder understanding is correct
108	Scope of Work(PC183/E/4008/SEC -VI/PART-1.0)			2 of 13	HP compressor discharge pressure @ 40 kg/cm2 g	As the storage pressute of backup IA receiver is 36.5 kg/cm2 g max. Accordingly the HP compressor discharge pressure should be 36.5 kg/cm2 g. Also please confirm the capacity of the HP air compressor.	HP compressor discharge pressure shall be 40 Kg/cm2g Storage pressure of backup IA receiver shall be as per NIT Under review for Capacity of HP air compressor, Amendment if required, shall be issued shortly
109	Scope of Work(PC183/E/4008/SEC -VI/PART-1.0)			2 of 13	1 No. Moisture separator Knock out drum	Separate knock out drumm is not required as automatic condensate traps ae present in intercoolers and aftercoolers of the compressor to reomove the condensed water.	As per NIT
110	Scope of Work (PC183/E/4008/SEC -VI/PART-1.0)			3 OF 13	Intergrally geared centrifugal compressor as per API 672	Compressor will be as per API 672 with manufacturer's deviations.	Air Compressor shall be complied with API 672 latest edition.
111	Scope of Work (PC183/E/4008/SEC -VI/PART-1.0)			6 of 13	2.3 l) Fire proofing as per requirement of the bid package	As the IA/PA plant located in Safe Area, fire proofing is not applicable here. Please confirm.	Noted

112	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)	SCOPE OF SUPPLY	2.0	6 of 13	2.3 o) Supply of mandatory (spare parts for two year operation) and commissioning spares attached elsewhere in bid package.	We understood that Mandatory spares and commissioning spare are in bidder scope. But Two year spares is in bidder's scope. Please confirm.	Supply of mandatory and commissioning spares along with operation and maintenance spares for two years shall be in bidder's scope
113	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)			6 of 13	2.3 o) Supply of material & equipment required for blast cleaning, chemical cleaning, pickling Passivation, surface preparation & polishing & coating of internal surface, epoxy coating, rubber lining, and FRP lining e.t.c. for equipment as applicable.	Pickling, passivation, coting of internal surface, epoxy coating, rubber linining and FRP lining are not applicable for the IA/PA package. Please confirm.	Agreed
114	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)			8 of 13	2.5.2 All statutory clearances and permits from local, statutory and other bodies such a Indian Boiler Regulations, Static and mobile pressure vessel rules, Chief controller of explosives, Factory inspector, Labour Inspector, Electrical inspector, pollution controls board etc.	These are not applicable for this package. Clearance from pollution control board shall be in Owner's scope. Please confirm.	Support activities for all statutory clearances and permits from local, statutory and other bodies shall be in bidder's scope
115	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)			8 of 13	2.5.2 ASME Code Stamping	We understand that ASME Code stamping is not required for this project. Please confirm requirement.	As per NIT
116	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)			8 of 13	2.5.2 Compliance to Petroleum rules, etc	We understand that Petrolium rules is not applicable here. Please confirm.	Confirmed
117	Scope of Work (PC183/E/4008/ SEC -VI/PART-1.0)			8 of 13	2.5.2 Special Tools & Tackles (if any) (itemized list to be submitted. Price shall be part of base price)	Special Tools & tackles are not applicable for this package.	As per NIT
118	Scope of Work(PC183/E/ 4008/SEC - VI/PART-1.0)	Scope of Services	3.1	10 of 13	q) Undertake a HAZOP and Disaster Management studies for the system. The HAZOP will be carried out at PDIL/TFL office. Bidders to incorporate all HAZOP changes into their design and supply without any price and time implication.	We understand Disaster management studies are not appicable for this IA/PA system , only HAZOP is applicable. Please confirm.	Under review, Amendment if required, shall be issued shortly
119	Scope of Work(PC183/E/ 4008/SEC - VI/PART-1.0)			10 of 13	r) Two months supervision are in vendor scope of work.	Please elaborate the scope mentioning the detail requirement such as Nos. of supervisor required in each shift, whether service is required on Sunday / holidays, Service required in all three shifts or only in general shift etc.	All three shifts (One technical operating person per shift plus one supervisior in general shift for two months periods) including sundays/holidays
120	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Hazardous Area Classification:	2.4	3 of 10	In general Area classification shall be in accordance with IS 5572 along with latest update.	We understand that the IA/PA plant is located in SAFE AREA and all the electrical & instrumentation items shall be suitable for Safe Area. Please confirm.	As per NIT
121	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			3 of 10	Suction Pressure: Atmospheric	We understand that the suction pressure of the compressor shall be as per elevation of the site. Hence, please confirm the site barometric pressure.	Site Barometric pressure is 1008 mbar
122	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			3 of 10	Discharge Pressure: 9.5 Kg/cm2g (g)	We understand that discharge pressure of the compressor shall be selected by the bidder so that the B/L pressure for IA & PA are maintained. Please confirm.	Shall be as per NIT B/L pressure for IA, 8.8 kg/cm2g minimum & Plant air pressure at B/L shall be 9.3 kg/cm2g minimum. compressor discharge pressure shall be 9.5 kg/cm2g

123	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Air Compressor	2.5.1	3 of 10	Capacity Control: 0-100%	Capacity Control of 0-100% for cetrifugal compressor is not possible. Capacity control of centrifugal compressor is limited to 80-100%.	Under review, Amendment if required, shall be issued shortly
124	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			4 of 10	Coincident temperature of Air Compressor	Coincident temperature of the air compressor is not mentioned. Please specify the coincident temperature and relative humidity for compressor design.	RH-100%, at 31.9 Deg C Max Temp, 46.3 DegC Min Temp, 1 Deg C Avg Temp 31.9 Deg C Atm Pressure- 1008 Mbar
125	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			4 of 10	All compressors must be able to operate in parallel.	We understand that two compressors will be in operation and not all three. Please confirm.	2 (working) and 1 (standby) shall be iin operation but during change over of compressor all three may run for few hours if required. Bidder has to provide suitable line size accordingly However Pipeline headers /utility headers,power cabling aux etc to take care the changeover conditions.
126	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Air Compressor After cooler	2.5.2	4 of 10	Allowed pressure drop (cooling water): 0.5 Kg/cm2 (between Battery Limit)	We understand that allowed pressure drop of 0.5 kg/cm2 is applicable for the water cooler . However to maintain an optimum pipe line velocity to avoid dirt deposition inside the cooler tube, pressure drop from B/L to B/L will be atleast 1.0 kg/cm2.	Noted
127	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Adsorber	2.5.4	4 of 10	Material of Construction: C.S. (internals S.S.)	All internals will not be SS. Only wiremesh or 1.5 mm thick perforated sheet will be SS. All other parts will be of CS.	As per NIT
128	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			5 of 10	Desiccant : Molecular sieves.	Alumina is used for instrument air dryer system and not the molecular sieve. Please make necessary correction.	Under review, Amendment if required, shall be issued shortly
129	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Air dryer Pre-Filter	2.5.5	5 of 10	Nos. : 4	We understand that there will be 2 Nos. Pre-filter for each Air dryer and hence total 4 Nos. Pre-Filter. Please conirm.	Confirmed
130	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Air dryer After-Filter	2.5.6	5 of 10	Nos. : 4	We understand that there will be 2 Nos. After-filter for each Air dryer and hence total 4 Nos. After-Filter. Please conirm.	Confirmed
131	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Regeneration After cooler	2.5.9	5 of 10	Nos. : 2	We understand that there will be 1 Nos. Regeneration After-cooler for each Air dryer and hence total 2 Nos. Regeneration After-cooler. Please conirm.	Confirmed
132	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Regeneration Air Moisture Separator	2.5.10	6 of 10	Nos. : 2	We understand that there will be 1 Nos. Regeneration Air Moisture separator for each Air dryer and hence total 2 Nos. Regeneration Air Moisture Separator. Please conirm.	Confirmed

133	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Electric Heater	2.5.11	6 of 10	Nos. : 2	We understand that there will be 1 Nos.Electric Heater for each Air dryer and hence total 2 Nos. Electric Heater. Please conirm.	Confirmed
134	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Performance guarantee and trial run:	3.2	8 of 10	The sustained load test of the composite plant shall be deemed to have been completed, if Plant produces an average of not less than 90% of the daily rated capacity.	Please clarify this clause as it is contradictory to Cl. No.3.3 Process Guarantee.	Under review, Amendment if required, shall be issued shortly
135	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Process Guarantee	3.3	9 of 10	3.3.10 Dryer outlet temperature as 45 deg c	We understand that this is the maximum permissible temperature at dryer outlet. Please confirm.	Confirmed
136	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)	Guarantee of Utilities:	3.4	10 of 10	3. The power consumption (power at motor input) at full Load of one compressor including auxiliaries (8000 Nm3/hr at 9.5 Kg/cm2 g).	We understand that power consumption shall be considered for two compressors and not for one compressor. Please confirm.	Under review, Amendment if required, shall be issued shortly
137	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			10 of 10	4. Total cooling water requirement for complete instrument air system at full Load with one compressor & dryer working	We understand that cooling water requirement shall be considered for two compressors and one set of IA dryer system as guaranteed utility consumption. However,Cooling water flow for stand by compressors and coolers for stand by IA dryer will have to continue to avoid fouling due to sludge deposition for water stagnation. Colling water for all the 3 no.of Air compressors and 2 no. of Air Dryer system will require to continue whether the plant is in full load/partial load/or machine is in stand by mode.	Under review, Amendment if required, shall be issued shortly
138	Technical Specification (PC183/E/4008/ SEC -VI/PART-2.0)			10 of 10	6. Bidder shall submit following separately in hard copy, which shall be evaluated by TFL/PDIL before price bid opening: a) Expected cooling water consumption along with calculations. b) Expected power consumption for Air Compressor with calculations. c) Expected Balance Power Consumptions with calculations.	As these informations are part of the Price bid we will not these information during technical evaluation stage.	Bidder understanding is correct
139	Design Specification (PC183/E/4008/ SEC-VI/PART-3.1)	General	1.0	3 of 8	The plants shall be designed to operate safely and satisfactorily at a capacity of 50 to 110% of Design Capacity	Plant shall be designed as per guaranteed capacity without any margin.	Under review, Amendment if required, shall be issued shortly
140	Design Specification (PC183/E/4008/ SEC-VI/PART-3.1)	Compressors	7.0	7 of 8	In general, compressors shall be designed to a minimum of 110 % of their maximum required flow.	Compressors shall be designed as per the guaranteed figure.	Under review, Amendment if required, shall be issued shortly

141	Design Philosophy-Static equipment (PC183/E/4008/SEC-VI/PART-3.2.1)	DESIGN DOCUMENTATION	1.3	7 of 39	1.26.3 3D PDS Model for Piping and Equipment Layout	We understand that AVEVA PDMS Ver. 12.1.SP5.17 is also acceptable Please confirm.	Noted
142	Design Specification Rotating (PC183/E/4008/SEC-VI/PART-3.2.2)	Centrifugal Compressors (for Air services)	3.2	7 of 10	3.2.14 All the trip interlock shall be two out of three voting logic	2oo3 voting logic shall be provided as per OEM recommendation and not for all trips.	Noted
143	Design Specification Rotating (PC183/E/4008/SEC-VI/PART-3.2.2)	Reciprocating Compressors	3.3	7 of 10	The reciprocating compressors shall conform to API-618, latest edition	Reciprocating compressor shall be as per manufacturer's standard.	As per NIT
144	Design Specification Rotating (PC183/E/4008/SEC-VI/PART-3.2.2)	EOT Cranes	3.4	8 of 10	Bidder to provide EOT Cranes of adequate capacity in Compressor House and other location wherever required for ease in operation and maintenance activities	We understand that both compressor house and EOT crane are not in Bidder's scope. Owner will provide the compressor house along with suitable EOT crane. Please confirm.	As per NIT EOT crane shall be part of bidder scope.
145	Design Specification Rotating (PC183/E/4008/SEC-VI/PART-3.2.2)	HVAC System:	3.5	9 of 10		We understand that HVAC system is not under Bidder's scope. Please confirm.	Under review, Amendment if required, shall be issued shortly
146	Design Specification Piping (PC183/E/4008/SEC-VI/PART-3.2.3)	General Design	4.0	6 of 44	4.3 The minimum size of piping to be used in pipe-racks shall be 2" NB.	Pipe size shall be as per P&ID, irrespective of where it is located.	As per NIT
147	Design Specification Piping (PC183/E/4008/SEC-VI/PART-3.2.3)	Utility Stations	5.2.9	14 of 44	Requisite number of utility stations shall be provided throughout the unit to cater for the utility requirement. Utility stations shall have four connections one for LP steam (SL), one for Plant Air (AP), one for Service Water (WS) and one for nitrogen each of 1.0" with isolation valves unless otherwise specified in P&ID.	Please remove the Steam Line as it is not required here and it will attract IBR. We also understand that all the utility will be supplied by Owner at the plant B/L. Please confirm.	Noted
148	Design	Flexibility Analysis and	5.1	19 of 44		As there is no critical line in this package, we understand	As applicable within package battery limit

149	Design Specification Piping (PC183/ E/4008/SEC-VI/PART-3.2.3)	Pipe	6.2	23 of 44	6.2.5 Hydrostatic tests shall be applied to each length of pipe and be in accordance with the requirements of ASTM A530/A530M, unless otherwise specified.	Hydrostatic test shall be done only for water lines, Air lines shall be pneumatically testes as per Linde Design Philosophy.	As per NIT /OEM stnd for equipment.
150	Design			24 of 44	6.2.6 Check analysis shall be carried out as per ASTM-A-530 for pipes	The requirement is not Understood please clarify this	As per NIT
151	Design	Fittings	6.3	24 of 44	6.3.1 Type of fittings shall be equivalent to pipe type. All fittings	The Fittings shall be as per PMS. Hence project Specific PMS	As per NIT
152	Design			24 of 44	6.3.5 All pipes employed for manufacturing of fittings shall be	Fittings shall be as per ASME B16.9 & ASME B16.11 and shall	As per NIT
153	Design Specification Piping (PC183/ E/4008/SEC-VI/PART-3.2.3)			24 of 44	6.3.6 All welded fittings shall be 100% Radio-graphed by X-Ray on all welds.	Fittings shall be procured as per relevant material code.	As per NIT
154	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)	1.0 INSTRUMENT AND CONTROL PHILOSOPHY SCOPE	1.0	8 of 87	Other specification like panel earthing, instrument earthing, MCT material, temp monitoring inside panels, inside CR the scope of vendor shall still be as per contract, UPS monitoring alarms in Control system, H2 detector in battery room etc. shall be as specified elsewhere in this tender.	We understand that these are not in Bidder scope. Please confirm.	These all are in Bidders scope
155	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)	CONTROL PHILOSOPHY (GENERAL)	3.0	14 of 87	3.30 All trip interlocks must be designed on 2oo3 philosophy.	2oo3 voting logic shall be provided as per process design.	kindly comply NIT requirement
156	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)			14 of 87	3.34 All Analysers shall be Ex.proof (Minimum IP65 or better) irrespective of area of installation	All Analyses shall be suitable for Safe Area.	kindly comply NIT requirement
157	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)			17 of 87	3.72 FOR ON/OFF VALVE OPEN/ CLOSE INDICATION, SOV (EITHER REDUNDENT OR 2003), PST, FEEDBACK OF SOV IF 2003, IF ANY SIGNAL FROM SWITCH IS GOING TO ESD, 2003 SHALL BE PROVIDED.	THIS CLAUSE IS NOT APPLCABLE FOR ABSORBER SWING VALVE (ON/OFF TYPE).	Noted as per Tender requirement

158	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)	INSTRUMENTATION CODE AND PRACTICES	4.0	19 of 87	CONTROL VALVE LEAKAGE TEST WILL BE AS PER ANSI-B16.104 STANDERED	OEM ALL CONTROL VALVE IS FOLLOWING FCI 70-2 FOR VALVE LEAKAGE TEST. PLEASE CONFIRM ACCEPTANCE.	Noted as per Tender requirement
159	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)	HAZARDOUUS AREA CLASSIFICATION & ELECTRICAL EXECUTION	5.0	19 of 87	IRRESPECTIVE OF ARE CLASSIFICATION, THE EXECUTIOIN OF INSTRUMENTATION SHALL BE AS PER AREA ZONE2,GROUP IIC, T6, EXIA. ELECTRICAL / ELECTRONIC INSTRUMENT -- IP67. SENSER, RTD, TC ETC -- IP65 LOCAL GAUGE, PG ETC -- IP55 PNEUMATIC INSTRUMENTS --IP 54 SOLENOIED VALVE -- IP67 LOCAL PANEL / SKID MOUNDED PANELS -- IP55	We understand that the above clause is applicable for Field Instruments only except Dew Point Meter / Moisture Analyser. Please confirm.	For analysers refer clause 3.34 of Instrument deisgn philosophy
160	Design Philosophy Instrumentation (PC183/E/4008/ SEC-VI-PART-3.4, REV-1)	PLC CONTROL SYSTEM		46 of 87	SYSTEM REDUNDANCY.	DRM PLC - REDUNDANT IN TERMS OF CPU, POWER SUPPLY, COMMUNICATION ONLY. I/O REDUNDANTCY IS NOR REQUIERD. PLEASE CONFIRM, OUR UNDERSTANDING IS CORRECT OR NOT?.	For closed loop, IOS redundacy is required.
161	Spare Parts (PC183/E/4008/ SEC-VI-PART-5, REV-0)	ROTATING EQUIPMENT	2.2	4 of 20	b) EOT Crane	As the EOT Crane is not under bidder scope, hence spares for EOT crane is also not in bidder's scope. Please confirm.	As per NIT EOT crane shall be part of bidder scope.
162	Spare Parts (PC183/E/4008/ SEC-VI-PART-5, REV-0)	CENTRIFUGAL COMPRESSOR	2.1	4 of 20	2.2 Spares for lube oil pump :	Bidder is supplying a complete lube oil pump with drive against 2.1 there is no need to supply spares for lub oil pump separately. Please confirm.	As per NIT
163	Spare Parts (PC183/E/4008/ SEC-VI-PART-5, REV-0)	INSTRUMENTATION ITEMS	2.4	9 of 20	VIBRATION PROBE, PROXIMITTER EXTN CABLE ETC SPARE 10% OR 2 nos(MIN)	All probe & proximitter will be as per OEM standard.	As per NIT
164	Design Specification - Electrical (PC183/E/4008/ SEC-VI/PART3.3 , REV-P1)			4 of 34	1.3 The minimum scope of work shall include supply , installation ,testing & commissioning of following 1.Motor 2. Local control stations for motor 3.HV motor soft starter 4. earthing and lighting protection 5.Electric heater and control panel for Air dryer system 6. cables 7. Any other items not specified but required for the safe and complete opeartion of the system.	1.As HV motor rating will be small, hence soft starter is not required. 2. As the civil work is not in bidder's scope, Earth pits will also be not in Bidder's scope. Please confirm.shall be in owner scope .Please confirm. 3. We understand that all HT & LT cable required for IA/PA package shall be in owner scope. Please confirm. 4. We understand that all the HT & LT Feeders required for the IA/PA Package shall be provided by Owner. Please confirm.	1. As per NIT 2. Earth pits shall be included in bidder's scope and laying of burried electrical cables shall be in bidder's scope. However, concrete trench and pits shall be in Owner's scope. 3. Only HT cable required for IA/PA package shall be in Owner's scope. All LT Power and Control Cable shall be in Bidder's scope. 4.Feeders shall be provided by Owner, as per NIT. However, Bidder to submit details of Loads in the Bid fro all HT Power, LT Power, UPS power etc.

165	Design Specification - Electrical (PC183/E/4008/ SEC-VI/PART3.3 , REV-P1)	SCOPE	1.0	4 of 34	1.5 The owner shall supply & lay all power and control cables from their switchboards to the following load terminals of instrument Air package. a) Main Compressor Motor b)Lube oil pump motor c) Heater Control Panel Incomer only d) UPS DB incomer	We understand that aLL HT & LT cable required for IA/PA package shall be in owner scope. Please confirm.	All HT cable required for IA/PA package shall be in Owner's scope
166	Design Specification - Electrical (PC183/E/4008/ SEC-VI/PART3.3 , REV-P1)			4 of 34	1.6 Heater control panel shall be installed in offsite & Utilities substation of respective plants.	Please provide the distance from utilities substation to IA/PA plant battery limit.	Location of Utilities Substation (OUSS) Marked in plot plan.
167	Design Specification - Electrical (PC183/E/4008/ SEC-VI/PART3.3 , REV-P1)	BASIS OF DESIGN	2.0	6 of 34	2.1.C iv) As applicable , bidder shall obtain approval from all statutory authorities as applicable such as Central Electricity Authority (CEA)/Electrical Inspectorate, CPCB etc.	Bidder will be responsible for the equipment supplied and installed at field by bidder for IA/PA package. Substation approval not in bidder scope. Please confirm.	Noted.
168	General Queries				Plant Lighting	Nothing is mentioned about plant lighting. We understand that plant lighting shall be in owner scope. Please confirm	Noted.
169	General Queries				PLC/DCS UPS supply	We understand that aLL power cable for PLC/DCS, laying and termination shall be in owner scope. Please confirm.	The same shall be in Bidder scope
170	General Queries				BARRIER FOR PLC	NO BARRIER IS REQUIRED IN DMR PLC SINCE "CAS" AREA IS UNDER SAFE ZOINE. PLEASE CONFIRM.	kindly refer Inst design philiosophy clause no 8.1.1 (b) for Barrier requirements
171	General Queries					PLEASE PROVIDE DISTANCE BETWEEN CONTROL ROOM & PLANT.	Please refer Area plot plan attached with the Tender
172	General Queries					PLEASE CONFIRMED WHETHER MULTICORE CABLE WILL BE LAYED THROUGH UNDER GROUND OR OVERHEAD.	All cables shall be on overhead cable trays only.
173	General Queries					Bidder understand that shed for Air Dryers shall be in Owner scope. Please confirm.	Confirmed.Civil, structural and architechtural works are not in bidder' s scope. However, installation of various equipments and equipments bolts shall be in bidder's scope. Also, const. of earth pits for laying of burried electrical cables is also in bidder's scope.Concrete trench and pits shall be in Owner's scope. It should be noted that Bidder has to timely provide the following information to the Owner/PMC -equipment installation schedule, foundation plan with pocket details, load data etc for design and construction of foundations etc.
174	Section II/ 1.1	Bid Evaluation Criteria		13 of 915		As per our understanding, the Purchase Order and commissiong certificate for atleast 1 Interrally geared compressor of IA & PA should suffice for Technical BEC	Bidder understanding is not clear. To meet the Technical BEC criteria, bidder shall furnish all require documents as per clause no 5.0(i), section II of NIT
175	Section II/ 1.2 (ii)	Bid Evaluation Criteria		13 of 915		Can we submit commissionig report instead of completion certificate as many of the organizations shall not have a completion certificate format. We only record this against Commissioning report of the job IA/PA compressor	bidder shall furnish all require documents as per clause no 5.0(i), section II of NIT

176	Section II	Evaluation Methodology		17 of 915		Please elaborate on the calculation for NPV of Total Works Cost.	The lowest Total works cost shall be considered as the base value and no loading shall be done on that bidder for works cost. The diffrential works cost from the base value shall be calculated for other bidders. Net present value of this diffrential works cost for 25 yrs considering discount factor of 10% shall be calculated and loaded for other bidders. .
177	Section III - ITB	Procudere for evaluation of Performance of vendors		51 of 915		The Perfomance Guarantees as per Performance rating data Sheet shall be shown at manufacturer's works and not at site	No change , NIT clause prevails.
178	Section III - ITB	Clause regarding Provision for Procurement from a bidder which shares a land border with India		80 of 915		As per this clause, we understand that this is applicable only for bidders quoting from outside India. Bidders within India can still offer/quote products from countries sharing land borders with India and qualified under BEC	Bidder to qualify BEC as per the requirement specified in Section II. "CLAUSE REGARDING PROVISION FOR PROCUREMENT FROM A BIDDER WHICH SHARES A LAND BORDER WITH INDIA" is a separate provision which has to be strictly complied.
179	Section V - SCC	14. 3.2 - Terms of Payment including spares, lubricants etc & 14.3.3 - Terms of payment for Services	14. 3.2 & 14.3.3	255 of 915		These payment terms are totally in favour of PDIL. We request PDIL to further relax the payment terms proposed as below: For Supplies: 20% advance with LOA, 30% against Identification of Major materials as per Approved list, 40% against Inspection clearance and MDCC & rest 10% upon reciept of materials at site within 30 days For Services: 100% against Pro-Rata basis against bills	Under review. Amendment if required shall be issued shortly
180	Section V - SCC			255 of 915		Please confirm if 2 separate orders shall be issued by PDIL, in case of Award of Job with respective payment terms for Supply & Services sperately. Because as per BOQ, only lumpsum price for LSTK is to be submitted	This being LSTK Job on single point resposibility basis , single contract shall be awaraded to successful bidder.
181	Section V - SCC	Defect Liability Period	17.0	260 of 915		Shall be 12 months from commissioning of equipment (or) 18 months from date of last supply invoice, whichever is earliest	No change , NIT clause prevails.
182	Section V - SCC	Overall ceiling on Total liability	22.0	266 of 915		This shall be limited to 10% of basic order value	No change , NIT clause prevails.
183	Section-VI : SOW & Tech. Specs	Technical Part 1.0 - Scope of Work 2.5.2 Detailed Engineering	1.0 & 2.5.2	287 of 915		Stage-wise inspection at Shop is not applcable. Only final finished good inspection shall be offered at Mfg Shop	As per NIT
184	Section-VI : SOW & Tech. Specs	Technical Part 1.0 - Scope of Work 3.1 (f) Inspection & testing	1.0 & 3.1 (f)	290 of 915		PGT shall be a part of TPI at manufacturer's works	As per NIT

185	Section-VI : SOW & Tech. Specs	Equipment Specifications	2.5	298 of 915		2.5.2 Air Compressor Aftercooler - it's a part of compressor 2.5.3 Wet Air Receiver K.O. Drum - Not Applicable as reciever comes with inbuilt Moisture trap 2.5.5 Air dryer Pre-Filter - Not required as we are using Oil Free Integrally Geared Compressor 2.5.7 Dried Air after Cooler - Not Applicable 2.5.9 to 2.5.11 - These are a part of teh Air Dryer on common skid	2.5.2 Agreed 2.5.3 Knockout drum after cooler -As per NIT HOC dryer or heater type (No-purge split flow type Dryer) both can be used, Subjected to guarantee parameters are met as per cl 3.3 (Process guarantee) Vendor to consider Hot air from upstream air compressor discharge (Before after cooler) for use in regeneration of dryer beds. Further heating of air to meet the regeneration requirement is to be supplemented by reactivation heater. However electric heater shall be designed by considering only cold air case. 2.5.5 As per NIT 2.5.7 As per NIT 2.5.9 to 2.5.11 - May be considered during detail engineering depneding on best industrial engineering practices.
186	Section-VI : SOW & Tech. Specs	Technical Part 2.0 - Technical Specifications 3.3 Performance Guarantee parameters for Instrument air system:	2.0 & 3.0	301 of 915		These shall be delivered at the below Site data: Suction Pressure: 1.08 bar(a) Amb. Temperature: 30 Deg C Relative Humidity: 60% Cooling Water Inlet: 33 Deg C Tolerances of Flow & Power: No Negative tolerance on Flow & No positive tolerance of Power	Design parameters: RH-100%, at 31.9 Deg C Max Temp, 46.3 DegC Min Temp, 1 Deg C Avg Temp 31.9 Deg C Atm Pressure- 1008 Mbar As per NIT
			Clause	**C/D**	**Specification Content**	**Remarks**	**PDIL/TFL Reply**
187			2.0	C	STANDARDS TO BE FOLLOWED	Motor design and performance are according to latest IEC, IEEE & ISO standards. Motor base design is according to the IEC 60034. Safe area motor offered	Noted. Flameproof motors as applicable shall comply the requirements as per IS/IEC60079 1:2007
188			4.1.1	C	Enclosure	IP 55 motor offered, any type of canopy if required shall not be in ABB scope	As per NIT
189			4.2.2	C	Cooling	CACA motors offered conforming to IC 611	Noted.
190			4.2.7	C	Cooling	Cooling fan shall be non-sparking type made of MS	As per NIT
191			4.5.5	C	Rotor	NDE end shield insulated to prevent shaft current	Noted.
192			4.6.4	C	Windings and Insulation	Replacemnet of coils not possible as VPI is done	Noted.
193			4.6.5	C	Windings and Insulation	ABB patenetd 'MIADUR' insulation provided ofr winding. Winding underoes VPI treatment	Noted.
194			4.8.1	C	Bearings	Grease lubricated antifriction bearings provided	Noted.
195			4.8.2	C	Bearings	Bearings not designed to take any external thrust	As per NIT
196			4.8.9	C	Bearings	Bearing temperature shall be a per ABB design and suitable for given load / application	As per NIT
197			4..9.3	C	Terminal Box	Power TB shall be phase segregated type. Suitable for fault level of 40kA for 0.25 seconds and maximum cabke size of 1Rx3Cx240 sq.mm.	Noted.However cable size of shall be finalized during detail engineering..
198			4.9.4	C	Terminal Box	Main TB offered is PSTB type and neutral is oversized IEC air insulated type to accomodate 3# CT and hence interchangeability is not possible.	Noted.

199			4.9.8	C	Terminal Box	Termination kit not in ABB scope	As per NIT
200			4.9.10	C	Terminal Box	Gland & lugs not in ABB scope	As per NIT
201	**TS Induction Motors – INDUCTION MOTOR : PC150/E/4004/ P-VI-3.3** **TECHNICAL SPECIFICATION – INDUCTION MOTOR: PC009/E/4001/ P-II/ SEC-5.4 R0**		5.1.3/5.1.4		Starting	Will reply after RFQ	As per NIT
202			5.2.1		Locked Rotor Condition	Will reply after RFQ	As per NIT
203			6.0	C	COUPLING DETAILS	Not in ABB scope	As per NIT
204			7.3.1	C	Embedded Temperature Detectors	6# simplex RTDs provided for winding between coil sides	Noted.
205			7.3.2	C	Embedded Temperature Detectors	1# RTD for warm aie & 2# RTDs for bearings provided.	Noted.
206			7.4.2	C	Dial Type Thermometers	In stead of mercury filled dial type thermometers (which are banned), gas filled capillary type are offered	Noted.
207			9.0	C	NOISE LEVEL	Noise level on no-load measured at 1m distance on test bed shall be 85 dB without tolerance.	As per NIT
208			10.0	C	PAINTING	Painting procedure shall be as per ABB standard procedure. However corrosion category, paint shade & DFT shall be a sper client requirement	Finalized during detail engineering.
209			11.0	C	TESTS AND INSPECTION	AS per standard ABB QAP attached.	As per NIT
210			11.4	C	TESTS AND INSPECTION	Final acceptyance shall be based on FAT. Site inspection is not in ABB scope'	As per NIT
211			12.0	C	PACKING	AS per standard ABB procedure.	As per NIT
212			13.0	C	DRAWINGS AND DOCUMENTS	AS mutually agreed & project requirement. Shall be furnished in soft format	As per NIT
213					**Design Specs Electrical**		
214					We have only reffered claise 5.3 Motor. If any other point please advise.		
215			k)		DCS	Connection to DCS not in ABB Scope.	As per NIT
216			n)		Starting Current	IR need to confirm exact requirement	As per NIT
217			u)		CT	OK	As per NIT
218					**Engineering Standard - electrical erection, testing and Commissionin**		
219					We have only reffered claise 5.3 Motor. If any other point please advise.		
220			7.1		ERECTION, TESTING & COMMISSIONING	Kindly follow ABB O&M Manual	As per NIT
221			7.11.11		Testing	As per IEC Standard. Abb ITP Plan attached	As per NIT
222							
223					**Specs for heater**		
224					This is for LT Motor	This is for LT Motor	Query is not clear.
225							
226					**Additional note**		
227			TB fault		TB Fault level : PSTB :: 6.6KV and below -TB Fault Level 43.7kArms for 0.25s and PSTB: 11KV -TB Fault Level 40kArms for 0.25s,		As per NIT
228			Cable Size		Max Allowable Cable Size : PSTB : Max Allowable Cable Size 1R X 3CX 240 sq.mm		Cable size of shall be finalized during detail engineering.
229			RTD		Due to space constraint in stator slots 12 numbers simplex winding RTD PT100- unshielded shall be provided. However bearings		As per NIT
230			Bearing		NDE Side bearing housing is insulated to prevent shaft current. Hence, we are not offering insulated bearing.		As per NIT
231			Vibration		We are offering Vibration Pad, vibration measuring device is not in ABB Scope.		As per NIT
232					Glands , lugs , termination kits not in ABB scope		As per NIT
			REFERENCE		**SPECIFIED REQUIREMENT**	**COMMENTS / DEVIATIONS OFFERED BY SUPPLIER**	**PDIL/TFL Reply**
233			2.3		Flame proof motors shall, in addition, comply with the requirements laid down in IS: 2148.	Flameproof motors shall comply the requirements as per IS/IEC60079 1:2007	Noted.

234			4.1.1		The enclosure of motors for indoor and outdoor services shall be IP-54 and IPW-55 respectively as per IS: 4691, unless otherwise specified.	Motors shall be IP55 protected.The term IPW55 is not applicable as per clause 10 of IEC: 60034-5. As per this clause “The degree of protection W is intended for air-cooled open machines with open circuit cooling, that is, machines with cooling systems designated by IC0X to IC3X according to IEC 60034-6. Moreover Canopy if required shall not be in BHEL's scope.	As per NIT
235			4.2.1		All motors shall be totally enclosed fan cooled conforming to IC-0141 as per IS: 6362 unless otherwise specified.	Totally enclosed fan cooled motor with IC511 cooling to be incorporated. BHEL do not manufacture flameproof motor in TEFC enclosure with IC411 cooling. Only TETV enclosure with IC511 cooling can be offered for Ex'd motor.	For EXD
236			4.2.2		In case of CACA construction, the same shall conform to IC-0161 as per IS: 6362.	Motor enclosure will be IC611(for CACA type motors) as per relevant IEC standards.	Noted.
237			4.2.4		Wherever service conditions indicated in the specification sheet are such that corrosive agents are present in the surroundings, the following materials of construction for cooling tubes shall be adopted, unless otherwise specified. For CACA motor - Aluminium tubes having minimum thickness of 1.6 mm For CACW motor - Low carbon alloy steel	- For CACA motor: Aluminum tubes, tube thickness shall be 1mm as per BHEL standard	As per NIT
238			4.2.6		The cooling fans shall be suitable for bidirectional rotation of motors. These shall be fastened to the motor shaft by means of compensating rings or will be balanced independent of the motor. Guide key or reference points shall be supplied to prevent wrong assembly. The cooling air shall be sucked from the non-driving end.	All two pole motors shall be unidirectional type. Motors with rating more than 1500kW shall be provided with uni directional motor. As per BHEL design practice all 2 pole motors are manufactured with unidirectional fan only.	Noted. However during commissioning run stage for no laod trial motor shall be suitable for Bi directional rotation.
239			4.2.7		The cooling fans shall be made of non-sparking materials such as cast Aluminium (LM- 6 alloy) / cast iron.	Non-sparking fan shall be M.S. fabricated only as per standard and past experience.	As per NIT
240			4.3.1		Motors shall be suitable for both directions of rotation. In case of any design limitation, the same shall be indicated in the offer.	All two pole motors shall be unidirectional type. All two pole motors shall be unidirectional type. Motors with rating more than 1500kW shall be provided with unidirectional motor.As per BHEL design practice all 2 pole motors are manufactured with unidirectional fan only.	Noted. However during commissioning run stage for no laod trial motor shall be suitable for Bi directional rotation.
241			4.5.5		The rotor shaft shall be electrically and magnetically so balanced that the induced shaft voltage does not exceed 200 millivolt. Otherwise the bearing housing at non-driving end shall be insulated for 2 KV.	NDE bearing housing shall be insulated in case shaft voltage exceeds 350mVrms, which is however better than prescribed limit of 500mV as per IEC 60034 17, Cl 17.	Noted.
242			4.6.5		The winding coils shall be dried, properly impregnated with suitable varnishes to withstand the site conditions and properly baked. At least two additional impregnations and baking shall be applied to the assembled stator coil, making a total of three impregnations and baking. Finally the windings shall be painted with special anti-acid and anti-alkali paints to withstand the site conditions.	BHEL - Standrad system will be applied. Micalastic Global VPI system, wherein Winding shall be properly impregnated by comprehensive vacuum pressure impregnation method. All required insulation parameters are achieved in single impregnation itself. No extra impregnations are required. Benefits a) better insulation b) better life c) better strength.	As per NIT
243	**(PC009-TS-0810) "TECHNICAL**		4.8.9		The bearing temperature shall not exceed 90 C for grease lubricated bearings and 70 C for oil lubricated bearings.	Bearing temperature for oil lubricated bearings (suitable for Forced Lubrication) shall have alarm and trip settings for 85 and 90 deg C	As per NIT

244	TECHNICAL SPECIFICATION INDUCTION MOTOR"		4.9.3 a		The power terminal boxes shall be as follows: a) For H.V. motors - Phase segregated type capable of with standing the system fault level for 0.2 Sec. or more.	In case of flameproof motor, flameproof type terminal box non phase segregated type shall be used, which is suitable for 500MVA for 0.25 sec. In case motor is provided with elastimold type terminal box, the box is phase insulated type having fault level of 25 kA for 0.2 sec.	As per NIT
245	DEVIATIONS / CLARIFICATIONS / EXCEPTIONS 1000-1130KW SCIMs		4.9.4 & 4.9.5		The mounting arrangement of power and neutral side terminal boxes for HV motors shall be identical so that it shall be possible to interchange the boxes at site. In case of H.V. motors, all the six leads of the motors shall be taken out, three on one side and three on the other side to separate terminal boxes. However, neutral shorting link shall be provided on the neutral box for star connection.	Main and neutral terminal box are interchangeable only when CT terminal box is not provided. Wherever CT terminal box is provided neutral terminal box will be Non PSTB type. Also, for 1180 kW motor power terminal box shall be approx 300 mm lower than the motor foot.	Noted. However Main TB shall be PSTB type.
246			4.9.10/12		All terminal boxes shall be complete with heavy duty double compression type cableglands and lugs/connectors to receive the external cables.	Cable lugs for external cables shall not be in BHEL scope. Cable glands shall be heavy duty Double Compression type Nickel plated brass	As per NIT
247			5.1.4		The motors shall be suitable for the following starting cycle: a) With the motor at ambient temperature - 2 successive starts and 3rd start after 5 minutes. b) With the motor at steady state load temperature - 1 immediate start and 2nd start after 5 minutes. This sequence shall be repeated in the next hour.	Motor shall be suitable for 2 consecutive starts in condition a) and 1 start in condition B due to large inertia of load	As per NIT
248			6.2		The coupling half shall be keyed on the shaft with a tapered joint or shrunk with a straight joint	Shrink fit straight joint is applied	Noted.
249			6.5(ii)		The measurement of armature current shall be done with the oscillograph.	The variation in armature current shall be carried out by calculations. Due to test bed limitations.	As per NIT
250			Cl. No. 7.3.2 / 7.4.1		In high voltage motors, the measurement of hot air and bearing temperature (of oil lubricated bearings) by dial type thermometers shall be provided wherever specified.	(Exd/TETV cooled motor) ---Hot air RTDs are required for motors having external mounted coolers i.e CACA or CACW enclosure motors.	Noted.
251			7.4.3		The thermometer shall have two potential free contacts for alarm and trip.	Exd motor- To maintain the flameproofness of offered motor DTT's shall not be provided. Exp motors shall be provided with DTT without contacts.	As per NIT
252			7.5		Oil Supply system	It is not applicable for our offered motors. We will follow API614 chapter 1 and 3 if in case it is required	Noted.
253			9.0		NOISE LEVEL	Noise level for Motors at no load shall be as follows: For 2 pole motor shall be: 88+/- 3 dB	As per NIT
254			11.1			Positive tolerance of the locked rotor torque is not considered. Only positive tolerance of slip will be considerd (it measn upper limit of the motor speed will not be considered)	As per NIT
255			11.2		Additional test	Additional test is not considered to apply since there is no instruction. Type test items are to be appleid only one motor out of motor rating	As per NIT
256			Annexure-I S.No:3		Drawings and data for air / water heat exchangers, if necessary	This is proprietary information. Heat Exchanger drawings cannot be submitted for approval	As per NIT

257		General			BHEL Painting Procedure approved by various Refineries, NTPC , NPCIL , EIL,PDIL etc shall be followed.	Finalized during detail engineering.
258		General			Motor is offered on the basis of rating selection by driven equipment vendor. Service factor considered is 1.0	As per NIT
259		General			FOLS whereever mentioned in the technical offer, shall not be in BHEL's scope of supply	Please specify FLOS.