Sl. No.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE	AMENDMENT
	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1)	1.0	4 of 16	(l)	Emergency DG Set	D	Emergency DG Set including bulk oil storage tank with pumping facility To be read as ~~Emergency DG Set including bulk oil storage tank with pumping facility~~
2)	5.1	9 of 11	9.0	Compressor Margin	M	In general, compressors shall be designed to a minimum of **120 %** of their maximum required flow. To be read as In general, compressors shall be designed to a minimum of **110 %** of their maximum required flow.
3)	4.0	8 of 47	2.1.8	Ammonia Synthesis Convertor Configuration	D	Synthesis loop…. ……. Ammonia Synthesis converter of hot wall design shall not be acceptable. **Single convertor philosophy should be followed.** To be read as Synthesis loop……Ammonia Synthesis converter of hot wall design shall not be acceptable. ~~**Single convertor philosophy should be followed.**~~
4)	4.0	12 of 47	2.2.3(1)	Urea Reactor	M	Solid single layer urea reactor is preferred. Vendor for …….. permitted. To be read as ~~Solid single layer urea reactor is preferred.~~ **Urea Reactor and tray types shall be as per Licensor recommendation.** Vendor for ……..permitted.
5)	4.0	27 & 28 of 47	3.4.8.3, i) 3.4.8.4, i)	Ammonia Transfer and Loading Pumps	M	Type : **Submersible**, Multistage, Vertical To be read as Type : **Barrel**, Multistage, Vertical
6)	5.1 4.0	3 of 11 3 of 47	1.0 1.1	Power loss reformer alive scenario	D	Ammonia plant shall be **designed with philosophy of primary reformer in operation during loss of power**. To be read as ~~Ammonia plant shall be **designed with philosophy of primary reformer in operation during loss of power**.~~
7)	7.0	11 of 17	1.7.1	Suspended	M	Prilling Tower - Suspended Particulate Matter (mg/Nm3): ≤ **45**

<table>
<tr><td></td><td>4.0</td><td>23 of 47</td><td>3.2.2</td><td>Particulate Matter</td><td></td><td><u>To be read as</u>
Prilling Tower - Suspended Particulate Matter (mg/Nm3): ≤ 50</td></tr>
<tr><td>8)</td><td>1.0

1.0

3.0</td><td>SHEET 3 of 16

SHEET 16 of 16

SHEET 3 of 47</td><td>Clause 1.0 (h)
Clause 1.0 (k)

Clause 3.17

Clause 1.1 (g)</td><td>Chemicals and consumables</td><td>A</td><td>Chemicals and consumables for a period of three month from completion of Sustained load Test.

<u>To be read as</u>
Chemicals and consumables for a period of three month from completion of Sustained load Test or equivalent quantity for six months post Urea Production (1st Prill of Urea) whichever is achieved earlier.</td></tr>
<tr><td>9)</td><td>7.0</td><td>5 of 17</td><td>1.1.8</td><td>Works cost</td><td>M</td><td>
<table>
<tr><th>Sl. No</th><th>Raw Material/ Utilities</th><th>Unit Price in $</th><th>Consumption per MT of Urea</th><th>Cost per MT of Urea.</th></tr>
<tr><td>1.0</td><td>Natural Gas, Gcal as per Net Calorific Value</td><td>35.712</td><td></td><td></td></tr>
<tr><td>2.0</td><td>Process Water, m^3</td><td>0.41</td><td></td><td></td></tr>
<tr><td>3.0</td><td>DM water, m^3</td><td>0.61</td><td></td><td></td></tr>
<tr><td>6.0</td><td colspan="3">Guaranteed Total Works Cost = ∑{Sl.No.1-5}</td><td></td></tr>
</table>
<u>To be read as</u>
<table>
<tr><th>Sl. No</th><th>Raw Material/ Utilities</th><th>Unit Price in $</th><th>Consumption per MT of Urea</th><th>Cost per MT of Urea.</th></tr>
<tr><td>1.0</td><td>Natural Gas, Gcal as per Net Calorific Value</td><td>35.712</td><td></td><td></td></tr>
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<tr><td>3.0</td><td>DM water, m^3</td><td>0.61</td><td></td><td></td></tr>
<tr><td>4.0</td><td colspan="3">Guaranteed Total Works Cost = ∑{Sl.No.1-3}</td><td></td></tr>
</table>
</td></tr>
<tr><td>10)</td><td>2.0</td><td>5 of 9</td><td>2.7</td><td>DM water temperature</td><td>A</td><td>Temperature – Ambient

<u>To be read as</u>
Temperature - Ambient / 38 Deg C(max)</td></tr>
<tr><td>11)</td><td>1.0</td><td>10 of 16</td><td>3.6</td><td>Export Process condensate quality</td><td>M</td><td>Export Process condensate quality- Ammonia <= 5 ppm

<u>To be read as</u>
Export Process condensate quality- Ammonia – 10 ppm</td></tr>
<tr><td>12)</td><td>7.0
4.0</td><td>9 of 16
7 of 47</td><td>1.6.3
2.1.6</td><td>CO2 Slip in scrubbed gas</td><td>M</td><td>CO_2 Slip in scrubbed gas leaving the CO2 Absorber : 100 ppm (v/v) maximum</td></tr>
</table>

				leaving the CO2 Absorber		To be read as CO_2 Slip in scrubbed gas leaving the CO2 Absorber : **500 ppm (v/v) maximum**
13)	3.0	3 of 47	1.0	Contractor's general scope of work	M	Contractor's …… ammonia plant and single/ **double** stream 3850 MTPD Prilled urea plant, ……. for AVFCCL To be read as Contractor's …… ammonia plant and single/ ~~**double**~~ stream 3850 MTPD Prilled urea plant, ……. for AVFCCL
14)	4.0	19 of 47	3.1.2	Cooling water pumps	M	3 Nos. (2+1) Horizontal ……..The capacity of cooling water Pump shall have **10% extra margin over** maximum Cooling Water requirement for Ammonia/Urea Cooling Towers. …….. pump sump. To be read as 3 Nos. (2+1) Horizontal ……..The capacity of cooling water Pump shall ~~**have 10% extra margin over**~~ also cater maximum Cooling Water requirement for Ammonia/Urea Cooling Towers. …….. pump sump.
15)	1.0 1.0	7 of 16 8 of 16	3.2 3.3	Technology Suppliers	D	The following Ammonia technologies shall be considered. a. Haldor Topsoe, Denmark b. KBR, Houston c. UHDE, Germany The following Urea technologies shall be considered. a. Saipem, Italy b. Stamicarbon, The Netherlands c. Toyo, Japan To be read as ~~The following Ammonia technologies shall be considered.~~ ~~a. Haldor Topsoe, Denmark~~ ~~b. KBR, Houston~~ ~~c. UHDE, Germany~~ ~~The following Urea technologies shall be considered.~~ ~~a. Saipem, Italy~~ ~~b. Stamicarbon, The Netherlands~~ ~~c. Toyo, Japan~~

<table>
<tr>
<td>16)</td>
<td>2.0</td>
<td>3 of 9</td>
<td>1.0</td>
<td>NG- Composition</td>
<td>M</td>
<td>
<table>
<tr><th>Sl. No</th><th>Components</th><th>Case-1</th><th>Case-2</th></tr>
<tr><td>1.0</td><td>Methane (CH_4), Vol %</td><td>Not less than 80</td><td>99.509</td></tr>
<tr><td>2.0</td><td>Ethane (C_2H_6), Vol%</td><td>Not more than 9.2</td><td>0.058</td></tr>
<tr><td>3.0</td><td>Propane (C_3H_8), Vol%</td><td>Not more than 4.5</td><td>0.026</td></tr>
<tr><td>4.0</td><td>Butane, (C_4+), Vol%</td><td>Not more than 2.5</td><td>0.003</td></tr>
<tr><td>5.0</td><td>Pentane (C_5+), Vol %</td><td>Not more than 0.35</td><td>0.002</td></tr>
<tr><td>6.0</td><td>Nitrogen (N_2), +Carbon dioxide (CO_2), Vol %</td><td>Not more than 8.0</td><td>0.402</td></tr>
<tr><td>7.0</td><td>Organic & Inorganic Sulphur as H_2S (Max.), ppm</td><td>10</td><td>10</td></tr>
<tr><td>8.0</td><td>Average Mol. Wt</td><td></td><td>16.15</td></tr>
<tr><td>9.0</td><td>Pressure @ B.L, kg/cm^{2}g (Min/Max)</td><td>45/55 (HOLD)</td><td>45/55 (HOLD)</td></tr>
<tr><td>10.0</td><td>Temperature, °C</td><td>ambient</td><td>15</td></tr>
<tr><td>11.0</td><td>Net Heating Value, Kcal/Sm^3</td><td>8500</td><td>8089</td></tr>
</table>
<u>To be read as</u>
<table>
<tr><th></th><th>Composition</th><th>Case-1(% mol)</th><th>Case-2(% mol)</th></tr>
<tr><td>1)</td><td>Methane</td><td>91.49110</td><td>99.34380</td></tr>
<tr><td>2)</td><td>Ethane</td><td>4.11900</td><td>0.27210</td></tr>
<tr><td>3)</td><td>Propane</td><td>1.46910</td><td>0.02340</td></tr>
<tr><td>4)</td><td>i-Butane</td><td>0.32980</td><td>0.00170</td></tr>
<tr><td>5)</td><td>n-Butane</td><td>0.40400</td><td>0.00180</td></tr>
<tr><td>6)</td><td>i-Pentane</td><td>0.17400</td><td>0.00000</td></tr>
<tr><td>7)</td><td>n -Pentane</td><td>0.13150</td><td>0.00000</td></tr>
<tr><td>8)</td><td>n Hexane</td><td>0.32790</td><td>0.06810</td></tr>
<tr><td>9)</td><td>n Heptane</td><td>0.01300</td><td>0.00060</td></tr>
<tr><td>10)</td><td>n Octane</td><td>0.00360</td><td>0.00040</td></tr>
<tr><td>11)</td><td>n Nonane</td><td>0.00060</td><td>0.00020</td></tr>
<tr><td>12)</td><td>n Decane</td><td>0.00030</td><td>0.00010</td></tr>
<tr><td>13)</td><td>n Undecane</td><td>0.00040</td><td>0.00020</td></tr>
<tr><td>14)</td><td>n Dodecane</td><td>0.00070</td><td>0.00020</td></tr>
<tr><td>15)</td><td>Nitrogen</td><td>0.39950</td><td>0.28300</td></tr>
<tr><td>16)</td><td>Carbon di-oxide</td><td>1.13550</td><td>0.00440</td></tr>
<tr><td>17)</td><td>Organic & Inorganic Sulphur as H_2S (Max.), ppm</td><td>On Hold</td><td>On Hold</td></tr>
<tr><td>18)</td><td>Density</td><td>0.7691</td><td>0.6855</td></tr>
<tr><td>19)</td><td>Gas Gravity</td><td>0.6275</td><td>0.5593</td></tr>
<tr><td>20)</td><td>GCV Kcal/ SCUM</td><td>9718.84</td><td>9043.03</td></tr>
<tr><td>21)</td><td>NCV Kcal/ SCUM</td><td>8777.43</td><td>8143.18</td></tr>
<tr><td>22)</td><td>Pressure @ B.L, kg/cm^{2}g (Min/Max)</td><td>45/55</td><td>45/55</td></tr>
<tr><td>23)</td><td>Temperature, °C</td><td>Ambient</td><td>Ambient</td></tr>
</table>
</td>
</tr>
<tr>
<td>17)</td>
<td>1.0</td>
<td>8 of 16</td>
<td>3.2</td>
<td>Energy consumption - Ammonia</td>
<td>D</td>
<td>The technology suppliers……..& high reliability of plant. Low energy consumption per tonne of Ammonia produced will be one of the major selection criterions. Ammonia plant planned Shutdown…….. scope of the LSTK Contractor.

<u>To be read as</u>
The technology suppliers……. & high reliability of plant. <s>Low energy consumption per tonne of Ammonia produced will be one of the major selection criterions.</s> Ammonia plant planned Shutdown…….. scope of the LSTK Contractor.</td>
</tr>
</table>

18)	1.0	9 of 16	3.4	Cooling water pumps	M	Two numbers of RCC ..... plants. Three numbers (2+1) of cooling water pumps shall be provided for each cooling tower of capacity 3000 / 2500 m3/hr respectively. In addition to that, two emergency cooling water pump each for Ammonia and Urea cooling tower, to provide cooling water during emergency. The cooling.....system. To be read as Two numbers of RCC..... plants. Three numbers (2+1) of cooling water pumps shall be provided for each cooling tower. ~~**of capacity 3000 / 2500 m3/hr respectively. In addition to that, two emergency cooling water pump each for Ammonia and Urea cooling tower, to provide cooling water during emergency**~~. **LSTK Contractor shall provide Four emergency cooling water pumps of capacity 3000 m3/hr ((1W+1S) for Ammonia Plant Cooling Tower) and 2500 m3/hr ((1W+1S) for Urea plant Cooling Tower) for cooling water system flushing & start-up which includes 300 m3/hr additional capacities for emergency cooling water requirement of other facilities.** The cooling ..... system.
19)	1.0	15 of 16	3.14	Fire Fighting System	M	All requirements for fire fighting system inside Ammonia, Urea & Cooling tower shall be provided by LSTK Contractor as per NFPA requirements and as detailed out in section 5.2.5 design philosophy for fire fighting system. To be read as All requirements **including communication cables** for fire fighting system inside Ammonia, Urea & Cooling tower shall be provided by LSTK Contractor as per NFPA requirements and as detailed out in section 5.2.5 design philosophy for fire fighting system.
20)	1.0	14 of 16	3.12	Effluent	A	Ammonia/Urea Plants shall have in built treatment facilities to treat effluents …….indicated in ITB. To be read as Ammonia/Urea Plants shall have in built treatment facilities to treat effluents …….indicated in ITB. **No effluent without treatment should be drained to storm water. Sluice gate to be provided at individual plants (in the scope of LSTK Contractor) battery limit to hold storm water to avoid any contamination (in case of leakage) in the whole storm water discharge system.**

21)	3.0	46 of 47	5.10	Storage of instruments / electronic items / chemical reagents etc	M	Contractor's scope includes …….open storage. Items requiring covered storage and air-conditioning storage is to be highlighted along with the bid. Items contemplated for fabrication at site to be submitted along with the bid although both these aspects would be covered under the Contractor's responsibility. To be read as Contractor's scope includes …….open storage. Items requiring covered storage and air-conditioning storage is to be highlighted along with the bid. **Proper storage of instruments / electronic items / chemical reagents etc in AC rooms shall be ensured as per OEM recommendations by the LSTK contractor till handover to Owner / PMC**. Items contemplated for fabrication at site to be submitted along with the bid although both these aspects would be covered under the Contractor's responsibility
22)	5.1	9 of 11	1.1	Compressor margin	M	In general, compressors shall be designed to a minimum of **120 %** of their maximum required flow … leakage Class-V. To be read as In general, compressors shall be designed to a minimum of **110 %** of their maximum required flow…….leakage Class-V.
23)	4.0	9 of 47	2.1.9	Compressor margin	M	All the following……..B/L. The compressors shall have adequate design margin to cover worst operating conditions and cater **120%** of plant capacity. To be read as All the following……..B/L. **The compressors along with associated auxiliaries/equipments shall have adequate design margin to cover worst operating conditions and cater to 115% of plant capacity**
24)	4.0	5 of 47	2.1.2	Ammonia Plant.	M	Using lean……feedstock, **the excess synthesis gas shall be used as fuel in primary reformer**. Facilities……. provided. To be read as Using lean Natural……. Gas feedstock, the excess synthesis gas may be utilized **either fully or partially,** as primary reformer fuel **and as make-up gas to synthesis gas compressor for production of surplus ammonia**. Facilities……. provided.
25)	4.0	10 of 47	2.1.10 (7)	BFW/ Steam System	M	As a design guideline, turbine condenser of Syngas compressor and CO2 Compressor are designed for **2/3 and 80%** of rated compressor power respectively with zero extraction steam flow.

						To be read as As a design guideline, turbine condenser of Syngas compressor and CO2 Compressor are designed for **100%** of rated compressor power respectively with zero extraction steam flow.
26)	4.0	11 of 47	2.2.1	CO_2 Compressor	A	Wherever CO2 is sent only to Urea reactor or sent parallel to Urea reactor & stripper……..suitable location. To be read as Wherever CO2 is sent only to Urea reactor or sent parallel to Urea reactor & stripper **including CO2 common line with adequate flushing arrangement,** …….. suitable location.
27)	4.0	13 of 47	2.2.3 (7)	Urea Synthesis & Recovery	M	M.P. Condenser shall be designed to have the low cooling water outlet temperature **equal to** 43°C using Ammonia Condenser outlet cooling water. To be read as M.P. Condenser shall be designed to meet cooling water outlet temperature **less than** 43°C.
28)	4.0	14 of 47	2.2.4	Vacuum Concentration	M	LSTK Contractor to provide complete system of neem oil coating (SS-304) consisting of 40 days of main storage tank & 1.5 days (1W + 1S) day tank… …….. water scrubbing). To be read as LSTK Contractor to provide complete system of neem oil coating (SS-304) consisting of 40 days of one main **& one standby** storage tank & 1.5 days(1W + 1S) day tank, …….…….. water scrubbing).
29)	4.0	13 of 47	2.2.3 (2)	Urea Synthesis & Recovery	M	Feeding of passivation air shall be normally done by tap-off from Process Air Compressor. **One number independent air blower shall be provided**, with automatic startup arrangement in case of failure of air supply from Process Air Compressor. To be read as Feeding of passivation air shall be normally done by tap-off from Process Air Compressor. ~~One number independent air blower~~ **Passivation air compressors should be one working + one standby** shall be provided, with automatic startup arrangement in case of failure of air supply from Process Air Compressor.
30)	4.0	13 of 47	2.2.3 (4)	Urea Synthesis & Recovery	M	Necessary provision…….. MOC for Urea Dissolving Tank & Urea solution tank shall be **SS-316 Urea Grade**.

						To be read as Necessary provision……. MOC for Urea Dissolving Tank & Urea solution tank shall be **SS-316L.**
31)	4.0	45 of 47	3.7.2.3	HRSG	M	The Heat Recovery ……during winter. To be read as The Heat Recovery ……during winter. **Interconnection between BFW headers of of HRSGs to be considered in case two HRSGs are considered. MSSV (Main Steam Stop Valve)for HRSGs shall be inching type MOV**
32)	4.0	10 of 47	2.1.10	BFW / Steam System	A	Three Nos…… CW system. To be read as Three Nos…… CW system. **8. Online Analyzer of DO shall be provided in Ammonia and CPP De-aerators.** **9. Silica Online Analyser to be provided in All boilers**
33)	4.0	10 of 47	2.1.10 (7 iv)	Common Condenser	M	As a design guideline…….Common Condenser, if recommended by Process Licensor, shall be acceptable for following: i) Lean and semi-lean pumps ii) CT pumps of Ammonia iii) CT Pumps of Urea **iv) Syn Gas and NG compressor** v) BFW Pumps of Ammonia CW supply ……Urea CW system. To be read as As a design guideline…….Common Condenser, if recommended by Process Licensor, shall be acceptable for following: i) Lean and semi-lean pumps ii) CT Pumps of Ammonia iii) CT Pumps of Urea ~~**iv) Syn Gas and NG compressor**~~ v) BFW Pumps of Ammonia CW supply ……Urea CW system
34)	4.0	18 of 47	3.1.1	Cooling Water System	A	Cooling water for …….. with hoist shall be provided.

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td><u>To be read as</u>
Cooling water for …….. with hoist shall be provided. Interconnection to be provided in Cooling Water headers of Ammonia and Urea Plant with Double Valve isolation</td></tr>
<tr><td>35)</td><td>4.0</td><td>12 of 47</td><td>2.2.2</td><td>Carbamate & Ammonia Pumping</td><td>A</td><td>1. Carbamate ..... each pump.
2. Remote operated ..... motor drive.
3. 2 nos. cartridge .....plant.
4. Magnetic flow ..... pumps.

<u>To be read as</u>
1. Carbamate ..... each pump.
2. Remote operated ..... motor drive.
3. 2 nos. cartridge .....plant.
4. Magnetic flow ..... pumps.
5.N2 booster compressor(if applicable) in Urea Plant to be considered as 1W+1S.</td></tr>
<tr><td>36)</td><td>4.0</td><td>15 of 47</td><td>2.4.1</td><td>Plant Equipment Metallurgy</td><td>A</td><td>
<table>
<tr><td>1)</td><td>CO_2 Regenerator: From Top dished head up to 100 mm below top packing bed</td><td>SS 304</td></tr>
<tr><td>2)</td><td>Packing & Tower internals of Towers of CO_2 Removal Section</td><td>SS 304</td></tr>
<tr><td>3)</td><td>Process Condensate Stripper cladding</td><td>CS with SS 304</td></tr>
<tr><td>4)</td><td>Internals of PC Stripper</td><td>SS 304</td></tr>
<tr><td>5)</td><td>HP WH Boilers in Reforming/ Shift Conversion</td><td>Cold end of W.H.Boiler Exit Secondary Reformer shall use Inconnel 600 Series material or material resistant to Metal dusting</td></tr>
<tr><td>6)</td><td>CO_2 O/H Condensers/ CO_2 Cooler Re-boilers, Shift gas coolers</td><td>SS304 for Parts coming in contact with moist CO_2 gas or solution</td></tr>
<tr><td>7)</td><td>Synthesis W.H.B., Gas side</td><td>2 ¼ Cr 1 Mo</td></tr>
<tr><td>8)</td><td>Synthesis Hot heat exchanger</td><td>1 ¼ Cr ½ Mo</td></tr>
<tr><td>9)</td><td>Synthesis chillers</td><td>Low temp. CS</td></tr>
<tr><td>10)</td><td>Synthesis Converter outlet line</td><td>347H</td></tr>
<tr><td>11)</td><td>Intercooler tubes of PAC</td><td>SS 304</td></tr>
<tr><td>12)</td><td>HDS Reactor, ZnO Absorber, HT Shift and Methanator</td><td>1 ¼ Cr ½ Mo</td></tr>
<tr><td>13)</td><td>Air gun of Secondary Reformer</td><td>Incolloy 800 H</td></tr>
<tr><td>14)</td><td>Primary Reformer catalyst tubes</td><td>HP 50 modified or equivalent with Micro alloying Elements. Tubes shall be suitable for min. 100,000 hrs of operation before replacement</td></tr>
</table>

<u>To be read as</u></td></tr>
</table>

						<table><tr><td>1)</td><td>CO_2 Regenerator: From Top dished head up to 100 mm below top packing bed</td><td>SS 304</td></tr><tr><td>2)</td><td>Packing & Tower internals of Towers of CO_2 Removal Section</td><td>SS 304</td></tr><tr><td>3)</td><td>Process Condensate Stripper cladding</td><td>CS with SS 304</td></tr><tr><td>4)</td><td>Internals of PC Stripper</td><td>SS 304</td></tr><tr><td>5)</td><td>HP WH Boilers in Reforming/ Shift Conversion</td><td>Cold end of W.H.Boiler Exit Secondary Reformer shall use Inconnel 600 Series material or material resistant to Metal dusting</td></tr><tr><td>6)</td><td>CO_2 O/H Condensers/ CO_2 Cooler Re-boilers, Shift gas coolers</td><td>SS304 for Parts coming in contact with moist CO_2 gas or solution</td></tr><tr><td>7)</td><td>Synthesis W.H.B., Gas side</td><td>2 ¼ Cr 1 Mo</td></tr><tr><td>8)</td><td>Synthesis Hot heat exchanger</td><td>1 ¼ Cr ½ Mo</td></tr><tr><td>9)</td><td>Synthesis chillers</td><td>Low temp. CS</td></tr><tr><td>10)</td><td>Synthesis Converter outlet line</td><td>347H</td></tr><tr><td>11)</td><td>Intercooler tubes of PAC</td><td>SS 304</td></tr><tr><td>12)</td><td>HDS Reactor, ZnO Absorber, HT Shift and Methanator</td><td>1 ¼ Cr ½ Mo</td></tr><tr><td>13)</td><td>Air gun of Secondary Reformer</td><td>Incolloy 800 H</td></tr><tr><td>14)</td><td>Primary Reformer catalyst tubes</td><td>HP 50 modified or equivalent with Micro alloying Elements. Tubes shall be suitable for min. 100,000 hrs of operation before replacement</td></tr><tr><td>15)</td><td>CO2 Removal section</td><td>SS 304/SS 304L</td></tr></table>
37)	4.0	17 of 47	2.5.2	Urea Dissolving System	M	Urea dissolving system shall be installed underground. The capacity of the dissolving tank shall be designed for 20 tons/day. Filter system associated with Neem oil recovery shall be adequately sized and provisioned to ensure effective treatment of the effluent. Neem oil content in the effluent treated by the filter system shall not exceed 10 ppm. To be read as Urea dissolving system shall be installed underground. The capacity of the dissolving tank shall be designed for 20 tons/day. Filter system **including Filter backwash solution** associated with Neem oil recovery shall be adequately sized and provisioned to ensure effective treatment of the effluent. Neem oil content in the effluent treated by the filter system shall not exceed 10 ppm.
38)	4.0	20 of 47	3.1.3.2	Acid/ Alkali Dosing	M	Provision……. Two acid / alkali storage tanks, each with 40 days storage capacity shall be provided for this purpose…….pump sump. To be read as Provision…….Two acid and Two alkali storage tanks, each with **min 30 KL** storage capacity shall be provided for this purpose…….pump sump.
39)	4.0	24 of 47	3.4.1 (a)	Ammonia Storage System	A	Two number of double wall & double integrity type, Atmospheric storage tank each having an effective storage capacity of 5000 MT. To be read as Two number of double wall & double integrity type, Atmospheric storage tank each having an effective storage capacity of 5000 MT. **Emergency Stairs both side of each**

						Ammonia storage tank to be provided.
40)	4.0	44 of 47	3.6	Aux Boiler	M	GTG / STG……..Bidder It is essential to generate high pressure steam in HRSG system. <u>To be read as</u> GTG / STG…….Bidder It is essential to generate high pressure steam in HRSG system & **Aux Boiler (if applicable).**
41)	7.0	7 of 17	1.2.2	Urea production demonstration during PGTR.	M	Ammonia / Urea Plants are……. licensors. To demonstrate Urea Production 3850 MTPD, Ammonia plant load may vary to meet equivalent quantity of CO2 required for 3850 MTPD Urea production. <u>To be read as</u> Ammonia / Urea Plants are……. licensors. To demonstrate Urea Production 3850 MTPD, Ammonia plant load may vary to meet equivalent quantity of CO2 required for **minimum** 3850 MTPD Urea production.
42)	2.0	3 of 9	1.0	Natural Gas	M	Natural Gas shall be arranged by Owner for Pre commissioning to till achievement of 1st drop of Urea Prill for maximum quantity of 40 days x 84792 MMBTU. In case, quantity exceed due to reason not attributable to LSTK Contractor, natural gas quantity will be suitably amended with prior approval from PMC / Owner. <u>To be read as</u> Natural Gas shall be arranged by Owner for Pre commissioning to till achievement of 1st drop of Urea Prill for maximum quantity of **~~40 days x 84792~~ 3391680** MMBTU. ~~In case, quantity exceed due to reason not attributable to LSTK Contractor, natural gas quantity will be suitably amended with prior approval from PMC/Owner~~. **In case, quantity exceeds due to reasons attributable to LSTK Contractor, cost of additional NG shall be borne by LSTK Contractor.**
43)	7.0	3 of 17	1.1.1	Performance Guarantees	A	LSTK Contractor shall ….. 7. Life of the Catalyst & Adsorbents <u>To be read as</u> LSTK Contractor shall ….. 7. Life of the Catalyst & Adsorbents **8. Demonstration of Grid tripping Scenarios impacting CPP in house generators, load shedding, Generators operation & control mode changes in all possible configurations, starting of GTG/STG by utilizing DG Set.**

LEGEND: M: MODIFICATION, D: DELETION, A: ADDITION

Sl. No.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE	AMENDMENT
	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 60 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 1.4.1 of Doc No.- PC230/E-1/P-II/5.5	IS: 1893 (Part 1):2002 –Criteria for Earthquake Resistant Design of Structures (Part 1 – General Provisions and Building).	M	IS: 1893 (Part 1):2025 –Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures – Code of Practice (Part 1 – General Provisions).
2.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 60 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 1.4.1 of Doc No.- PC230/E-1/P-II/5.5	IS: 1893 (Part 4):2005 –Criteria for Earthquake Resistant Design of Structures (Part 4 – Industrial Structures including Stack-Like Structures).	M	IS: 1893 (Part 4):2024 –Criteria for Earthquake Resistant Design of Structures (Part 4 - Industrial Structures and Stack-like Structure).
3.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 60 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 1.4.1 of Doc No.- PC230/E-1/P-II/5.5		A	IS: 1893 (Part 5):2025 –Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures – Code of Practice (Part 5 - Buildings).
4.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 32 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 2.5.21 of Doc No.- PC230/E-1/P-II/5.5	Under deck insulation below RCC roof and over false ceiling (both locations) shall be provided for air-conditioned office/space.	M	Under deck insulation below RCC slab and beams shall be provided for air-conditioned office/space.

5.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 58 of 157 (Doc No.- PC230/E-1/P-II/5.5)	6.4	FIRE PROOFING OF STEEL STRUCTURES	M	Deleted
6.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 25 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 2.5.2 of Doc No.- PC230/E-1/P-II/5.5 Table point-a	Cable Cellar Floor -Top of approach Road+450mm	M	Cable Cellar Floor -Top of approach Road+500mm
7.	Part-II, Technical Section 5.5 Design Philosophy-Civil & Structural Work (Doc No.- PC230/E-1/P-II/5.5)	Page 25 of 157 (Doc No.- PC230/E-1/P-II/5.5)	Clause 2.5.2 of Doc No.- PC230/E-1/P-II/5.5 Table point-b	Transformer Bay -Top of approach Road+150mm	M	Transformer floor - Top of approach Road+500mm
8.						

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SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
1.	SEC – 5.4	SHEET 27 of 127	8.1	All licenses like Anitvirus, field display & control units, CEMS connectivity with CPCB server etc shall be for min 5 years (from commissioning) in scope of LSTK contractor.	M	All licenses like Anitvirus, field display & control units, CEMS connectivity with CPCB server etc shall be for min 3 years (from commissioning) in scope of LSTK contractor.
2.	SEC – 5.4	SHEET 4 of 127 SHEET 102 of 127	2.1 (g) 21.0	CCTV system at vulnerable strategic location of Ammonia (minimum 15 Nos Camera), Urea plant (minimum 10 Nos Camera), Ammonia Storage plant (minimum 4 Nos Camera), GTG/ HRSG plant (minimum 4 Nos Camera), IG-IA/PA plant (minimum 4 Nos Cameras). Bidder shall submit CCTV layout for both the plants. No. Of cameras shall be sufficient for surveillance of all the units of the plant. Bidder shall submit CCTV layout for both the plants. No. Of cameras shall be sufficient for surveillance of all the units of the plant.	M	CCTV system at vulnerable strategic location of Ammonia (minimum 15 Nos Camera), Urea plant (minimum 10 Nos Camera), Ammonia Storage plant (minimum 4 Nos Camera), GTG/ HRSG plant (minimum 4 Nos Camera), IG-IA/PA plant (minimum 4 Nos Cameras). Bidder shall submit CCTV layout for all ISBL units. No. Of cameras shall be sufficient for surveillance of all the units of the plant. Bidder shall submit CCTV layout for all ISBL units. No. Of cameras shall be sufficient for surveillance of all the units of the plant.
3.	SEC – 5.4	SHEET 9 of 127	3.10 10.0	Common control room has been envisaged for Ammonia, Urea, IG-IA/PA. Two Separate Control room to be considered for Ammonia Storage Tank and GTG/HRSG. There shall be one Central Control Room(CCR) for Ammonia, Urea, IG & IA/PA, offsite. Separate Control rooms for Ammonia Storage and Separate Control Room for GTG/HRSG/BMS system.	M	Common control room has been envisaged for Ammonia, Urea, IG-IA/PA. Two Separate Control room to be considered for Ammonia Storage Tank and GTG/HRSG. Control of CPP (GTG/HRSG/BMS/STG/Boiler) shall be from CCR. Details are mentioned in Annexure-3. There shall be one Central Control Room(CCR) for Ammonia, Urea, IG & IA/PA, offsite. Separate Control rooms for Ammonia Storage and Separate Control Room for GTG/HRSG/BMS

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						system. Control of CPP (GTG/HRSG/BMS/STG/Boiler) shall be from CCR. Details are mentioned in Annexure-3.
4.	SEC – 5.4	SHEET 9 of 127 SHEET 74 of 127	3.11 CONTROL PHILOSOPHY (GENERAL) & 11.2.12	All vibration, axial displacement and speed signals shall be are connected with DCS through redundant Modbus communication, however critical signals to be connected to DCS with hardwired. The transmission shall be through serial communication. However all critical vibration, axial displacement and speed signals are connected with DCS through 4-20 mA loop.	M	All MMS signals shall be connected with DCS through hardwired.
5.	SEC – 5.4	SHEET 17 of 127	48	All wetted part materials for all instruments (sensing elements) for corrosion prone area like Urea, carbamate, corbonate, traces of urea shall be min SS316L. Thermowell material for corrosion prone area like Urea, carbamate, corbonate, traces of urea in general shall be of SS316L. For High pressure and medium pressure Urea, carbamate, corbonate solutions valve trim material shall be HVD-1 (min) or equivalent grade. All control valves trims for corrosion prone area like Low pressure Urea, carbamate, carbonate, traces of urea shall be min SS316L with hard facing trim. All tubing and fitting materials shall be SS316L.	M/A	All wetted part materials for all instruments (sensing elements) for corrosive services like Urea, carbamate, carbonate, traces of urea shall be min SS316L or superior material. Thermowell material for corrosive services like Urea, carbamate, carbonate, traces of urea shall be of minimum SS316L or superior material. For High pressure and medium pressure Urea, carbamate, carbonate solutions, control / Safety/Relief valves trim material shall be HVD-1 (min) or equivalent grade. All control/ Safety/Relief valves trims for corrosive services like Low pressure Urea, carbamate, carbonate, traces of urea shall be min SS316L or superior material with hard facing trim. All tubing and fitting materials shall be SS316L for above services. Full Steam Jacket for control/ Safety/Relief valves shall be considered for Crystallizing fluid at ambient temperature.

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6.	SEC – 5.4	SHEET 41 of 127	8.7.4	Min. SS316L with Hardened trim for corrosion prone area like Urea, Carbamate, carbonate, traces of urea shall be provided. For Urea and Carbamate solutions, trim material shall be HVD-1 (min) / equivalent wherever specified in datasheet.	D	These paragraphs are deleted.
7.	SEC – 5.4	SHEET 18 of 127	57	Corrosion test (Huey test) shall be carried out for High Cr Austenitic or Duplex Stainless Steel instruments.	M	Corrosion test (Huey test), Ferrite content test for valves shall be carried out in accordance with to standards for High Cr Austenitic or Duplex Stainless Steel. Certificates shall be provided from approved laboratory.
8.	SEC – 5.4	SHEET 19 of 127	4.0	Design Basis	A	All the network devices such as network switches, media converters, connectors etc, utilized in communication system/ sub-system shall be of industrial grade type and of rugged design.
9.	SEC – 5.4	SHEET 25 of 127	7.0	Two separate AC distribution board (Dual ACDB) fed from redundant UPS are essential for Instrumentation power distribution system for the improved reliability.	M	AC distribution board (Dual ACDB) fed from redundant UPS are essential for Instrumentation power distribution system for the improved reliability.
10.	SEC – 5.4	SHEET 27 of 127	8.1 Analyser	Bidder shall supply required hardware and software for connecting these analyzers to the CPCB/PPCB portal with min. 20% spare points for future use.	M	Bidder shall supply required hardware and software for connecting these analyzers to the CPCB/SPCB portal with min. 20% spare points for future use.

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11.	SEC – 5.4	SHEET 29 of 127	8.1 Analyser	Analyser Shelter	A	ADSU shall be as per GSTD-0003. It shall have latest Console PCs with 27" LED, one in shelter and one located in control room as per GSTD-0003.
12.	SEC – 5.4	SHEET 40 of 127	8.7.2 Valve Type	Ball Valves	A	For PGHRU valves, Steam rising type valves shall not to be considered and instead Ball valve with rack & pinion type actautor arrangement shall be considered.
13.	SEC – 5.4	SHEET 42 of 127	8.7.8 Actuators	Volume tank with airlock relay, booster relays shall be avoided as far as possible for piston actuators.	A	Volume tank with airlock relay, booster relays shall be avoided as far as possible for piston actuators. The volume tank shall be of Carbon Steel construction and sized as per ASME Section VIII with design pressure of 10 kg/cm2 g as a minimum. Trim material of all the volume tank accessories shall be minimum SS316. All volume tanks shall be offered with corrosion resistant paint.
14.	SEC – 5.4	SHEET 62 of 127	9.2.1	ESDS requirements:	A	Parameters, which are tripping the plant or may cause production loss, shall be wired with 2 out of 3 transmitter trip voting interlock in ESD. There shall be three separate analog input channels in three diff. AI cards shall be used for this purpose in ESD. Same thing is applicable to Digital inputs also.
15.	SEC – 5.4	SHEET 67 of 127	10.0	Central Control room (CCR) shall be completely blast proof building. All doors of CCR shall also be blast proof. In front of all the doors blast proof walls shall also be provided. CCR size shall be minimum 80 x 40 meters.	M	Central Control room (CCR) shall be completely blast proof building. All outer entry/exit doors of CCR shall also be blast proof. In front of all the doors blast proof walls shall also be provided. CCR size shall be minimum 80 x 40 meters.

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16.	SEC – 5.4	SHEET 69 of 127	10.0 (C)	Instrument Maintenance Room: The maintenance room will be located in the central control room. The minimum requirement …… ……. stools, vice and grinding machine, etc.	M	Instrument Maintenance Room: The maintenance room will be located in the central control room. This room shall be used for documentation and storage of critical items. Maintenance of instrumentation in this room to be avoided. The minimum requirement of instrument maintenance room shall be as follows: i. It shall be equipped with file racks/cupboard and pigeon hall lockers for storing various instrument documents/tools/tackles ii. It shall be with HVAC air conditioners iii. It shall be provided with lockable doors iv. It shall be furnished for minimum 8 engineers/technicians and 4 tables and chairs.
17.	SEC – 5.4	SHEET 76 of 127	11.2.13	Speed control and over-speed systems controller shall be independent. There shall be separate over speed trip system for the rotating machines as per the API 672 standard.	M	Speed control and over-speed systems controller shall be independent. There shall be separate over speed trip system for the rotating machines as per the relevant API standard.
18.	SEC – 5.4	SHEET 84 of 127	15.2	Bidder to consider erection and supply of 8 nos., 600mm cable tray / trenches from O&U battery limit to the control room till O&U MCT blocks. These 8 cable tray layout details shall be decided by Owner/PMC during detail engineering phase.	M	Bidder to consider erection and supply of 4 nos., 300mm cable tray / trenches from O&U battery limit to the control room till O&U MCT blocks. Cable tray erection and supply from O&U MCT block to O&U panels inside CCR rack room shall also be considered in LSTK contractor scope. These cable tray layout details shall be decided by Owner/PMC during detail engineering phase.
19.	SEC – 5.4	SHEET 84 of 127 SHEET 86 of 127	15.3 15.3.4	In general Instrument Cables shall be in accordance BSEN: 50288-7 & IS: 1554 P-1 standards latest edition. All power supply cables shall be as per IS-1554 Part I and shall have copper conductors. Minimum conductor size shall be 2.5 mm2.	M	In general Instrument Cables shall be in accordance BSEN: 50288-7 & IS: 7098 P-1 standards latest edition. All power supply cables shall be as per IS: 7098 P-1 and shall have copper conductors. Minimum conductor size shall be 2.5 mm2.

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				The cables shall be PVC insulated and armoured. The higher size conductors shall be used incase of long distance power cable where voltage drops more than 3 volts than required supply.		The cables shall be XLPE insulated and armoured. The higher size conductors shall be used in case of long distance power cable where voltage drops more than 3 volts than required supply.
20.	SEC – 5.4	SHEET 85/86 of 127	15.3.1(C) /15.3.2 Cables	Signals (4-20 mA or switch 'contact): 6/12 pair individually and over all shielded (screened) and armoured, twisted, 0.5 mm2 conductor	M	Signals (4-20 mA or switch 'contact): 6/12 pair individually and over all shielded (screened) and armoured, twisted, 0.75 mm2 conductor as a minimum and higher size based on voltage drop calculations.
21.	SEC – 5.4	SHEET 85 of 127	15.3	Bidder shall ensure a minimum of 20% of quantity of each type of cables supplied as spare including any special cable. / in each multipair cables 20% pairs shall be kept as spare.	M	Bidder shall ensure 10% of quantity of each type of cables supplied as mandatory spare including any special cable.
22.	SEC – 5.4	SHEET 91 of 127	16.0	Automation of fire water pumps shall be considered and provided in FGS PLC system. Accordingly AI, DI and DO signals provision must be considered by the bidder for 2nos. jockey's, 2 nos. HT and 2 nos. diesel pump.	M	Automation of fire water pumps shall be considered and provided in FGS PLC system. Accordingly AI, DI and DO signals provision must be considered by the bidder for 2nos. jockey's, 2 nos. HT and 3 nos. diesel pump.
23.	SEC –	SHEET	21.0	Bidder shall give a CCTV system which shall have complete provision of	M	Bidder shall give a Licensed CCTV system which shall have

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	5.4	102 of 127		connecting total 48 Nos. of cameras.		complete provision of connecting total 48 Nos. or more cameras.
24.	SEC – 5.4	SHEET 108 of 127	21.0 CCTV	INTERFACING WITH DCS Interfacing with DCS shall be done to allow DCS operators to view live video along with DCS graphics on the DCS operator consoles. Hardware required for the same shall be provided by vendor. Software required in video management system and DCS shall be provided by vendor.	D	Clause deleted
25.	SEC – 5.4	SHEET 117 of 127	ANNEXURE -1	Pressure and DP transmitter: ± 0.055% of Span	M	Pressure and DP transmitter: ± 0.055% of Span (for Low to High Pressure) ± 0.15% of Span (for very low Pressure less than 500 mmwc) Pressure and DP transmitter(accuracy including seal): ± 0.2% of Span
26.	SEC – 5.4	SHEET 121-127 of 127	ANNEXURE -3	SYSTEM CONFIGURATION	M	Attached Annexure 3 shall be considered instead of NIT Annexure-3. Annexure-3.pdf
27.	SEC – 5.4	SHEET 27 of 38	GSTD-0202 4.2.9.6.5	Various colours used in the generation of graphics like colour of the process lines, utility lines, Instrument signal lines and event modifier conditions shall be finalised during detailed engineering. The colours used to identify	M	Various colors used in the generation of graphics like colour of the process lines, utility lines, Instrument signal lines and event modifier conditions shall be finalized during detailed engineering.

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				event modified conditions shall generally be as follows unless otherwise indicated during detailed engineering Red - All points alarm Blue- Valve open, pump running Green - Valve closed, pump stopped Flashing green - Shut down valve transition state		
28.	SEC – 9	SHEET 37 OF 44	5.2	Mass Spectrometer	A	- 1 no.- Air Conditioning Unit - 1 no.- Rotary valve assembly - 1 set - Sample tubes - 1 set - Calibration gas cylinders
29.	SEC – 9	SHEET 37 OF 44	5.1	Gas Chromatograph	A	- One set of columns - 1 set of calibration gas cylinders
30.	SEC – 9	SHEET 38 OF 44	5.6	Silica Analyser	A	- 1 no.- Colourimeter
31.	SEC – 9	SHEET 38 OF 44	6.4	Complete Actuator with Handwheel	M	Complete Actuator with Handwheel (For all type of Actuator)
32.	SEC – 9	SHEET 41 OF 44	9.4	Speed Sensor - 2 nos for Governor - 2 nos for Overspeed trip system	M	- 2 nos for each type of Governor - 2 nos for Overspeed trip system
33.	SEC – 9	SHEET 43 OF 44	17.0	Rupture Disc with burst sensor - 10% or minimum one of each type	M	- 10% or minimum 2 Nos. of each type

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	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	4	1.6	Wind analysis shall be performed as per IS-875 (Latest Edition).Wind forces shall be increased by 20% (over & above design code requirement) to cater the effect of piping system, platforms and ladders etc. Wind speed as 140.4 km/hr along with other applicable requirement mentioned in IS-875 (Latest Edition) to be followed. Vertical vessels with height/diameter ratio equal to or greater than 10 shall be analyzed for vibration due to vortex shedding when critical wind speed does not exceed 30m/s. For guidelines of Dynamic Wind Analysis refer Annexure-I.	M	Wind analysis shall be performed as per IS-875 (Latest Edition).Wind forces shall be increased by 20% (over & above design code requirement) to cater the effect of piping system, platforms and ladders etc. Stringent wind speed criteria as per the latest revision of IS 875 (Part 3) or as per metrological data (140.4 km/hr) to be followed. Vertical vessels with height/diameter ratio equal to or greater than 10 shall be analyzed for vibration due to vortex shedding when critical wind speed does not exceed 30m/s. For guidelines of Dynamic Wind Analysis refer Annexure-I.
2.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	5	1.7	Seismic analysis shall be performed by Response spectrum coefficient method (RSM) considering seismic Zone-V & other factors as per IS-1893 part-1 & IS-1893 Part 4 (Latest edition). I/R for static equipment shall be kept as 1.	M	Seismic analysis shall be performed by Response spectrum coefficient method (RSM) Considering seismic Zone & other factors as per Latest revision of the codes (IS-1893 Part-1 2025 and IS-1893 Part-4 2024). I/R for static equipment shall be kept as 1.
3.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	5	1.12	Hydro testing of equipment shall be as per UG-99b of ASME Sec VIII Div-1. In order to safeguard against the risk of brittle fracture during hydrostatic test metal temperature during hydrostatic test be maintained at least 30°F (17°C) above the minimum design metal temperature, but need not exceed 120°F(48°C). Min duration of Hydro test shall be 60 min. Design pressure for each nozzle shall be sum of maximum allowable working pressure and static head of corresponding nozzles. Nozzle shall be checked in dearated condition as per UG-44 of ASME Sec VIII div-1.	M	Hydro testing of equipment shall be as per UG-99b of ASME Sec VIII Div-1. In order to safeguard against the risk of brittle fracture during hydrostatic test metal temperature during hydrostatic test be maintained at least 30°F (17°C) above the minimum design metal temperature, but need not exceed120°F(48°C). Min duration of Hydro test shall be 60 min. Design pressure for each nozzle shall be sum of maximum allowable working pressure and static head of corresponding nozzles. Nozzle shall be checked in dearated condition as per UG-44 of ASME Sec VIII div-1. While performing the Nozzle derating, the ASME code case 2901-1 is acceptable.

4.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	15	3.1.21	Vessels/Column to be hydrostatically shop tested in the horizontal position shall be supported adequately to keep local stresses in the shell not exceeding 90% of the yield strength of the material.	M	Vessels/Column to be hydrostatically shop tested in the horizontal position shall be supported adequately to keep local stresses in the shell not exceeding 90% of the yield strength of the material. However For ASME Sec VIII Div.2 equipments, the allowable stress for hydrotest will be Clause 4.1.6.2 of ASME Section VIII division 2.
5.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	27	4.3.1.2	HRSG shall also be designed for GTG full load when no steam is generated (dry run condition).The entire HRSG shall be constructed to form a gas tight envelope to prevent gas leakage	M	HRSG shall not to be designed for Dry run condition, however By pass stack with diverter damper shall be provided. Whenever only GTG is to be operated, HRSG will be isolated with diverter damper & gases will be passed through By-pass stack & will not enter HRSG.
6.	Design Philosophy - Static Equipment (PC230/E/001/P-II//5.2.1)	28	4.3.1.18	Double entry/exit shall be provided in all HRSG Platform	M	Double entry/exit shall be provided in all HRSG Platform except for Stack platforms which can be provided only with single ladder access. However interconnected platform to be provided for stack, from top to bottom for smooth operation.
7.	Section -9.0 Spare Parts (HRSG/Auxiliary Boiler and Its Auxiliaries)	28	5.0	Complete Spare for Burner for each type	M	10% of burner element (Minimum 2 numbers)

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1.	PC230/E/001/P-II/5.2.2	12 of 25	3.5.9	Centrifugal Pump	M	Mechanical seal from John crane / Flowserve / Eagle-Burgmann only shall be provided for centrifugal pumps
2.	PC230/E/001/P-II/5.2.2	12 of 25	3.8	Steam Turbine	A	Steam Turbine to be places inside shed. However Steam Turbine & their auxiliaries shall be designed for outdoor operation also.
3.	PC230/E/001/P-II/5.2.2	17 of 25	3.10.18	Gas Turbine Inlet filter	M	Online cleaning system arrangement to be provided for Suction filters of GT's
4.	PC230/E/001/P-II/5.2.2	10 of 25	3.5	Centrifugal Pump	A	Forced type Lubrication shall be provided for Lean, Semi lean & Turbine driven BFW pumps.
5.	PC230/E-1/P-II/9.0	4 of 44	4.1	Spare list for lube oil system of Centrifugal / Axial / Rotary Compressor	M	Complete Main lube oil pump with Motor
6.	PC230/E-1/P-II/9.0	5 of 44	3.1	Spare list for lube oil system of Reciprocating Compressor	M	Complete Main lube oil pump with Motor
7.	PC230/E-1/P-II/9.0	6 of 44	2.1	Spare list for lube oil system of Screw Compressor	M	Complete Main lube oil pump with Motor
8.	PC230/E-1/P-II/9.0	9 of 44	1.10	Spare list for lube oil system of Gas Turbine	M	Complete Main lube oil pump with Motor

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	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1.	Construction/Erection, Pre-Commissioning, Commissioning & Start up PC230/E/001/P-II /6.0	4 OF 135	1.34	1.0 General scope of work & Services-Construction/Erection	A	Urea required for prill test (technical grade) shall be in LSTK contractor's scope.
2.	Construction/Erection, Pre-Commissioning, Commissioning & Start up PC230/E/001/P-II /6.0	4 OF 135	1.35	1.0 General scope of work & Services	A	Nitrogen required for Syn. loop high pressure leak test during pre-commissioning activities shall be in the scope of LSTK contractor.
3.	Construction/Erection, Pre-Commissioning, Commissioning & Start up PC230/E/001/P-II /6.0)	4 OF 135	1.36	1.0 General scope of work & Services	A	400MT or actual Ammonia required for pre-commissioning activities will be in LSTK contractor's scope which will be required for commissioning of Ammonia Storage and subsequent commissioning of Ammonia Receiver, ammonia feed Pump, Carbamate Feed Pump.
4.	Construction/Erection, Pre-Commissioning, Commissioning & Start up PC230/E/001/P-II /6.0)	12 OF 135	28	Annexure-7-1 LSTK Contractor's Work Definition	A	Provision of field operators and DCS manpower required until plant commissioning shall be within the scope of LSTK contractor.

LEGEND:

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SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION	JUSTIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT			
1.	Section 5.2.4 (sheet 4 of 9)	410 of 521	3	System Description	M	Contractor may consider any other different arrangement below rotary scraper but that shall be proven and that shall fullfill the requirements of transporting the on-spec. urea from prilling tower bottom to next transfer tower & transport of oversize/lump urea to urea dissolving tank. **To be read as** Contractor may consider any other different arrangement below rotary scraper but that shall be proven and that shall fullfill the requirements of transporting the on-spec. urea from prilling tower bottom to next transfer tower & transport of oversize/lump urea to urea dissolving tank. The first transfer tower adjacent to the Prilling Tower, at which the Contractor's conveyor system terminates, shall be under the Contractor's scope. The conveyor system at the bottom of this transfer tower shall be under the Owner's scope	Detail information is missing in NIT.

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SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION	JUSTIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT			
1.	Section 5.2.3 (DESIGN PHILOSOPHY – PIPING) (Sheet 131 of 184)		7.1	INSPECTION	M	"For IBR Items, Please refer to Annexure" **To be read as** "For Inspection of IBR items please refer Clause No. 5.2.10 Steam Piping - Indian Boiler Regulations (IBR)"	
2.	Section 5.2.3 (DESIGN PHILOSOPHY – PIPING) (Sheet 145 of 184)		4.1	INSPECTION	M	"For IBR Items, Please refer to Annexure 4.8." **To be read as** "For Inspection of IBR items please refer Clause No. 5.2.10 Steam Piping - Indian Boiler Regulations (IBR)"	

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SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
1.	SEC – 5.3	7 OF 100, 22 & 23 OF 100, 34 & 35 OF 100	1.2, 5.1.1, 7.1.2, 7.1.4 & 7.1.5	132/220KV	M	Read “132/220KV” as “132KV”
2.	SEC – 5.3	7 OF 100, 34 OF 100	1.2, 7.1.3	132 or 220/11kV	M	Read “132 or 220/11kV” as “132/11kV”
3.	SEC – 5.3	24 OF 100	5.1.6	The design consideration---interconnecting cables shall be in contractor’s scope.	A	The design consideration---interconnecting cables shall be in contractor’s scope. Droop to ISO mode auto change over philosophy shall be in LSTK contractor’s scope and the same shall be demonstrated.
4.	SEC – 5.3	24 OF 100	5.1.13	The Emergency power shall be arranged by the LSTK contractor through one/two number suitably rated DG Set of equal rating.	A	The Emergency power shall be arranged by the LSTK contractor through min. 3 nos. DG Set of rating 2.5MW each at 11kV voltage in the ring main system at CPP substation.
5.	SEC – 5.3	29 OF 100	6.3	The cable cellar floor shall be at least 300 mm above the approach road level	M	Cable Cellar Floor shall be kept at "Top of approach Road+500mm" Transformer floor shall be kept at "Top of approach Road+500mm"
6.	SEC – 5.3	34 OF 100	7.1.2	Power will be made available at 132/220KV (2 Nos.). Switchyard comprising of (2 nos. incoming line bay, 1 no. bus-coupler bay and 2 nos. outgoing transformer bay, 2 nos. Bus PT Bay) shall be in LSTK Contractor’s scope.	A	Power will be made available at 132KV (2 Nos.). Switchyard comprising of (2 nos. incoming line bay, 1 no. bus-coupler bay and 2 nos. outgoing transformer bay, 2 nos. Bus PT Bay) shall be in LSTK Contractor’s scope. For metering purpose ABT Summation meter shall be provided.
7.	SEC – 5.3	46 OF 100	10.3.1	The Emergency power shall be arranged by the LSTK contractor through required number/s suitably rated DG Set of equal rating.	A	The Emergency power shall be arranged by the LSTK contractor through min. 3 nos. DG Set of rating 2.5MW each at 11kV voltage in the ring main system at CPP substation.

SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
8.	SEC – 5.3	69 OF 100	10.18.1.6 f)	50% extra I/O rack of Ammonia-Urea Plant and its connection to central LMS system to be considered for OSBL and this shall be supplied by bidder.	A	50% of installed I/O rack with all type of DI, DO, AI, AO, RTU etc. of Ammonia-Urea Plant and its connection to central LMS system to be considered for OSBL and this shall be supplied, installed & commissioned by the bidder. Graphics of OSBL shall also be in contractor's scope.
9.	SEC – 5.3	73 OF 100	New Clause 10.18.9	--	A	The handover of the electrical substation shall be considered only after commissioning of all substations along with successful completion of SAT (Site Acceptance Test) of the LMS system.
10.	SEC – 5.3	89 OF 100	14.1	Entire underground---codes of practices.	A	Entire underground---codes of practices. Cathodic Protection System digital and analogue signals online monitoring shall be provided at CPP control room.
11.	SEC – 5.3	91 OF 100	16.4	Separate but interconnected---another plant.	M	Separate but interconnected---another plant. Communication from FCS to FCS (intra unit i.e. within the same unit), FCS to FCS (inter unit i.e. from one unit to another unit), FCS to MCS (inter & intra), MCS to FCS (inter & intra), MCS to MCS, Conference call etc. shall be considered. It shall be possible to communicate between two field call stations without the interference of the MCS / operator. Also, it shall be possible to have direct communication with the MCS.
12.	SEC – 5.3	91 OF 100	16.4	Contactor shall furnish Coverage Study for PA System. Minimum no. of field call stations of PA system shall be as below: CPP: 30 nos. Ammonia: 30 nos. Urea: 30 nos.	M	Contactor shall furnish Coverage Study for PA System. Minimum no. of field call stations of PA system shall be as below: CPP (GTG & STG), EDG, IA/PA & N2: 30 nos. Ammonia: 30 nos. Urea & UDU: 30 nos. Cooling Tower (Ammonia & Urea), Flare, Switchyard,

SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
				Cooling Tower (Ammonia & Urea): 30 nos. OSBL and Other misc. Area/Buildings: 60 nos.		Ammonia Storage: 30 nos. OSBL and Other misc. Area/Buildings: 60 nos.
13.	SEC – 5.3	91 OF 100	16.4	5 nos. Master Call Stations along with Exchange (one each for Ammonia, Urea, CPP, Cooling Tower & Ammonia Storage) shall be considered and to be install at the respective control room.	A	5 nos. Master Call Stations along with Exchange (one each for Ammonia, Urea, CPP, Cooling Tower & Ammonia Storage) shall be considered and to be install at the respective control room. LSTK contractor to provide four additional Master Call Station along with Exchange (located at Bagging Plant, LMS Console, Fire Station, OUSS/DM Control Room), 60 nos. field call station, 60 nos. outdoor loudspeaker, 60 nos. indoor speaker and 5 beacons for OSBL facilities. Supply, installation, testing and commissioning of the same shall be in LSTK Contractor's scope. This OSBL Exchange shall be connected with ISBL Exchange. Location shall be finalized during detailed engineering. Location of FCS, loudspeaker etc. shall also be finalized during detail engineering.
14.	SEC – 5.3	93 OF 100	17.1	LSTK Contractor----completeness of system.	M	LSTK Contractor----completeness of system. All Fire Alarm Panel shall be identical and shall be placed in respective control room/substation. Repeater Panel shall be placed in the Fire Station. All the Fire Alarm Panel & Repeater Panel shall be connected in ring formation/network.
15.	SEC – 5.3	93 OF 100	17.4	One number ES/OWS having minimum 32 inch screen and latest generation industrial grade PC with all hardwares Graphics and other required software shall be considered for display, monitoring and control of	A	One number each ES cum OWS in CPP Control Room & Ammonia-Urea Control Room and 2 nos. ES cum OWS in central fire station building, having minimum 27 inch colour LED type dual monitors stack type and latest generation server grade PC with all hardwares Graphics and other required software shall be considered for

SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
				entire plant fire alarm system in CPP, Ammonia, Urea & Ammonia Storage Control room and central fire station building. Necessary PC Console, Furnitures, Chair etc. shall be considered.		display, monitoring and control of entire plant fire alarm system shall be in contractor's scope. Necessary PC Console, Furnitures, Chair etc. shall be considered in respective control room and fire station.
16.	SEC – 5.3	94 OF 100	17.9	Three nos. 415V---locations in the buildings.	A	Three nos. 415V---locations in the buildings. Additionally in all the control rooms, fire/Emergency Siren system shall be provided.
17.	SEC – 5.3 TS-8060	16 OF 30	5.16.1	by owner	D	Delete “by owner”
18.	SEC – 5.3 TS-8060	16 OF 30	5.17.1	owner’s	M	Read “owner’s” as “LSTK Contractor’s”
19.	SEC – 5.3 TS-8061	14 OF 26	4.12.1	by the owner	D	Delete “by the owner”
20.	SEC – 5.3 TS-8061	14 OF 26	4.13.1	owner’s	M	Read “owner’s” as “LSTK Contractor’s”
21.	SEC – 5.3 TS-8206	3 OF 14, 11 OF 14	1.4 , 1.7, 8.13	owner	M	Read “owner” as “LSTK Contractor”
22.	SEC – 5.3	4 OF 14	2.1	The equipment --- motors for driving lifts.	A	The equipment --- motors for driving lifts. EN 81-1: Safety rules for construction and installation of

SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
	TS-8206					lifts. EN 81-20: Technical requirements for construction and installation of lifts EN 81-50: Design rules calculations and tests of lift components ASME A17.1: Safety code for Elevator and Escalators
23.	SEC – 5.3 TS-8206	3 OF 14, 4 OF 14	1.5, 4.2	by the owner	D	Delete “by the owner”
24.	SEC – 5.3 TS-8208	3 OF 11 4 OF 11	1.4, 3.3	owner	M	Read “owner” as “LSTK Contractor”
25.	SEC – 5.3 TS-8208	5 OF 11	5.1.3	owner’s	M	Read “owner’s” as “LSTK Contractor’s”
26.	SEC – 5.3	--	--	Key Single Line Diagram (PC230-7411-0985, Rev. 0)	M	Revised “Key Single Line Diagram (PC230-7411-0985, Rev. 1)”
27.	SEC – 5.3	--	--	LMS Block Diagram (PC230-PNEL-1204, Rev. 0)	M	Revised “LMS Block Diagram (PC230-PNEL-1204, Rev. 1)”
28.	SEC – 9.0	33 OF 44	2.7 Sl. No. 21	Electrical Equipments/Items LMS	A	Following additional Mandatory Spares shall be provided for Load Management System: K) Servers: 1 no. of each type L) HMI: 1 no. M) Temperature Measuring Device/Cards: 10% N) Programming Laptop with License software: 1 no.

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Sl. No.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE	AMENDMENT
	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1.	PART II- TECHNICAL PC230/E/001/5.2.5 **GENERAL DESIGN SPECIFICATION FIRE FIGHTING**	425 of 521	4.4	Clean agent protection systems shall be provided in technical rooms (Computer room, Computer console room, UPS room, Battery room, server/database rack room) of the following buildings, but not limited. • Common Control Room, • Local Control Rooms (GTG control room, Ammonia storage control room and switchyard • control room) and in rack rooms of the following buildings, if applicable: • Main Substation, • Units Substations: Ammonia storage, Urea, Cooling towers & Ammonia substations, • Common Control Room. The design and installation of Clean Agent Fire Extinguishing Systems should meet the requirements of NFPA 2001. (Details mention as per technical Specification attached with NIT). A clean agent must be having property Zero Ozone Depletion Potential (does not damage the ozone layer)	M	However read as: Clean agent protection systems shall be provided in technical rooms (Computer room, Computer console room, UPS room, Battery room, server/database rack room) of the following buildings, but not limited. • Common Control Room, Local Control Rooms (GTG control room, Ammonia storage control room and Switchyard control room) and in electrical MV main distribution panel of the following buildings. • Main Substation • Units Substations: Ammonia storage, Urea, Cooling towers & Ammonia substations. The design and installation of Clean Agent Fire Extinguishing Systems should meet the requirements of NFPA 2001. (Details mention as per technical Specification attached with NIT). A clean agent must be having property Zero Ozone Depletion Potential (does not damage the ozone layer).

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Sl. No.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE	AMENDMENT
	Part / Sec.	Page No.	Clause No.	Description as per NIT	M/D/A	
1.	Part-II, Technical Section 9.0 SPARE PARTS	Sheet 02 of 44 (Doc No.-PC230/E-1/P-II/9.0)	1.0	SPARE PARTS FOR COMMISSIONING	A	Note: 1) Without consent of PMC mandatory spares will not be used for commissioning purpose. 2) Used/Unavailable mandatory spares shall be replenished by contractor on priority.
2.	Part-II, Technical Section 9.0 SPARE PARTS	Sheet 44 of 44 (Doc No.-PC230/E-1/P-II/9.0)	General Notes	General Notes	A	Commissioning spares shall be supplied free of cost and leftover spares post-commissioning shall be handed over to the Owner with proper inventory list.
3.	Part-II, Technical Section 9.0 SPARE PARTS	Sheet 44 of 44 (Doc No.-PC230/E-1/P-II/9.0)	General Notes	General Notes	A	Contractor to provide preservation, tagging and identification system for all spares (Mechanical, Electrical, Instrumentation etc.) with corresponding equipment tag numbers.
4.	Part-II, Technical Section 9.0 SPARE PARTS	Sheet 44 of 44 (Doc No.-PC230/E-1/P-II/9.0)	General Notes	General Notes	A	Contractor shall prepare a Spare Parts Data Dossier containing OEM references, part codes, material and storage instructions.
5.	Part-II, Technical Section 9.0 SPARE PARTS	Sheet 44 of 44 (Doc No.-PC230/E-1/P-II/9.0)	General Notes	General Notes	A	At any point during the project cycle, the Contractor shall not import spares exceeding 10% of the value of the corresponding main equipment. However, in the event that the plant configuration or machine systems necessitate spares valued at more than 10% for proper system setup, the Contractor shall intimate the Owner/PMC in advance and seek prior approval. Any applicable customs duty, assessed on merit, shall be borne by the Contractor
6.	Part-II, Technical Section 9.0 SPARE	Sheet 44 of 44 (Doc No.-PC230/E-1/P-II/9.0)	General Notes	General Notes	A	Complete customs reconciliation, including but not limited to liaisoning with the Customs Authorities and concerned agencies to seek final Project Import Closure certificates from

	PARTS					all ports from where the project imports have been handled as well as the port where the Project Import is registered, shall be entirely the responsibility of the LSTK Contractor. The PMC/Owner shall have no role in the Project Import closure under PIR 1986 or any subsequent amendments to the referenced Customs Act.

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ANNEXURE – 3

SYSTEM CONFIGURATION

The system configuration is defined as a minimum here. The Bidder has also to consider any other item defined in the Section5.4 (e.g. LVS,CMS. Anti surge control, over speed system, speed governer system, ITCC, Mass spectrometer/GC / Analyser system, CCTV, FGS system etc requirements). Any other system required has also to be provided by LSTK bidder. DCS, ESD, FGS, any other package control system/PLC of each unit. i.e.; Ammonia, Urea, Ammonia Storage, IG, IA/PA GTG, HRSG, any other package shall be completely independent system. No common ES, OS, Marshalling, system cabinets, Network cabinets, PDB etc shall be considered. However, Data highway can be common for DCS, ESD & FGS for all plants.

Ammonia Plant

DCS

4 Nos. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each operator station.

1 Nos ES/OS dual personality, 27” COLOR, LED type

1 No Supervisor Station

1 No. Auxilary Console with Annunciator Monitor 27” COLOR, LED type

1 No Operator Stations with, 27”, COLOR, LED type dual monitors (stack type) for each of following compressors: Air compressor, Feed gas compressor, Syn gas compressor, Refrigration compressor and any other compressor. If ITCC is applicable then additional 1 No Industrial Grade Operator Station (view only with minimum 2 year license validity after handover) with, 27”, COLOR, LED type dual monitors(stack type) shall be provided which will be placed near compressor.

1 No ES/OS dual personality, 27”, COLOR, LED type for each of following compressors: Air compressor, Feed gas compressor, Syn gas compressor, Refrigration compressor and any other compressor

ESDS

1 Nos ES/OS dual personality, 27”, COLOR, LED type

1 No SOE PC, 27”, COLOR, LED type

Printers

2 Nos A4 Heavy duty Black and white	HP make Laser printer
1 Nos A3 Heavy duty Colour	HP make Laser printer

4 Nos. (70”) LVS with 2x2 configuration for Ammonia Plant

Urea Plant

DCS

3 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station.

1 No ES/OS dual personality, 27" COLOR, LED type

1 No Supervisor Station, 27", COLOR, LED type

1 No. Auxilary Console with Annunciator Monitor 27", COLOR, LED type

1 No Operator Stations (each compressor) with, 27", COLOR, LED type dual monitors (stack type) for Co2 compressor and any other compressor. If ITCC is applicable then additional 1 No Operator Stations (view only without license) with ,27", COLOR, LED type dual monitors (stack type) shall be provided which will be placed near compressor

1 No ES/OS (each compressor) dual personality, 27", COLOR, LED type for CO2 compressor and any other compressor.

ESDS

1 No ES/OS dual personality, 27", COLOR, LED type

1 No SOE PC, 27", COLOR, LED type

Printers

2 Nos A4 Heavy duty Black and white	HP make Laser printer
1 No A3 Heavy duty Colour	HP make Laser printer

4 Nos. (70") LVS (with PC) with 2x2 configuration for Urea Plant is required

Common Stations for Ammonia, Urea and others

1 No AIMS PC, 27", COLOR, LED type

1 No RTDBMS/History Node PC with 1 Year data storage, 27", COLOR, LED type

1 No Instrument Asset Management System with HMS, 27", COLOR, LED type

1 No. OPC Server with interface package station, 27", COLOR, LED type

1 No. Documentation Node 27", COLOR, LED type

1 No. Redundant Fire wall

1 No. Terminal Server, 27", COLOR, LED type

1 No. Unified Gateway Service Both Way system with OPC with 27" COLOR LED monitor with requisite software/hardware for Remote Viewing.

1 No.MCS for LVS 27" , COLOR, LED type

1 Nos ES/OS dual personality, 27" COLOR, LED type for CDSU.

OTS Hardware and software mentioned above in tender.

4 Nos View station for top management connected to PLANT LAN via Firewall (for internet connectivity) & OPC, 27", COLOR, LED type

Machine Monitoring System and CMS

1 No.MMS server 27", COLOR, LED type

Other items

Over Speed system with Laptop

Mass-spectrometer/GC (if applicable) with Laptop

Telephone Central Exchange with Laptop

Instrumentation calibration bench with Laptop

Machine Monitoring Rack Configuration Laptop and wherever required

CCTV System

1 No. CCTV server 27", COLOR, LED type with Keyboard & mouse with joystick (In CCR)

4 Nos 55" CCTV monitors with connectivity for Ammonia unit, Urea unit, CPP Unit and Fire station building

FGS system:

2 No Operator Stations with, 27", COLOR, LED type for FGS (one in CCR and another in Fire station)

1 No ES/SOE ,27", COLOR, LED type for FGS

2 Nos A4 Heavy duty Black and white HP make Laser printer for FGS (1 in CCR and 1 in Fire Station)

1 No 70" LVS(connected with OS) for FGS at Fire Station

Offsites Plant Space in CCR

SPACE In Central Control room(CCR) for Marshalling/System Cabinets offsites (25 Nos), Offsites Consoles (Approx 20 Nos), to be kept by Bidder while designing the Control Room. Printer Tables 7

Nos. shall also be considered by bidder in CCR. Necessary UPS /NON UPS powersupply to be considered for these items .These items to be considered during HVAC sizing.

Analyser PLC

One Analyser PLC for each Analyser shelter shall be provided with redundant connectivity to CCR.

Ammonia Storage

DCS

1 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station

1 Nos ES/OS dual personality, 27", COLOR, LED type

ESD (PLC)

1 No ES/OS dual personality with SOE, Long term History, Alarm Management, 27" COLOR, LED type

1 No. Auxilary Console with Annunciator Monitor 27", COLOR, LED type

Printers

1 No A4 Heavy duty Black and white -HP make Laser printer

HRSG/BMS

Note: Any system can be viewed in all OS screens for each HRSG and each BMS.

DCS (Separate DCS For Each HRSG)

1 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)- (In CPP)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station

2 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)- (In CRR)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station

1 Nos ES/OS dual personality,27", COLOR, LED type-(In CPP)

1 Nos ES/OS dual personality,27", COLOR, LED type-(In CRR)

1 No. Auxilary Console with Annunciator Monitor 27", COLOR, LED type -(In CRR)

1 No History Node and Alarm Management PC with long term history license (Common for both HRSG) with 1 Year data storage, 27", COLOR, LED type

ESD (PLC) for BMS (For Each BMS)

1 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)- (In CPP)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station

1 Nos. Operator Stations with, 27" COLOR, LED type dual monitors (stack type)- (In CRR)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each operator station

1 Nos ES/OS dual personality, 27", COLOR, LED type - (In CRR)

1 Nos SOE, 27", COLOR, LED type

Common Printers

1 Nos A4 Heavy duty Black and white HP make Laser printer

GTG

GTG Control System (For Each GTG)

1 No. ES/OS dual personality with, 27" COLOR, LED type dual monitors (stack type) - (In CPP)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each above station

1 Nos ES/OS dual personality with SOE, 27", COLOR, LED type

1 No. ES/OS dual personality with, 27" COLOR, LED type dual monitors (stack type) - (In CRR)

1 no. of Membrane Operator's Keyboard and 1 no. of QWERTY engineer's keyboards with mouse with each above station

1 No. Auxilary Console with Annunciator Monitor 27", COLOR, LED type - (In CRR)

1 No. Unified Gateway Service Both Way system with OPC with 27" Color LED monitor with requisite software/hardware for Remote Viewing.

1 No History Node (Common for both GTG and STG), 27", COLOR, LED type-(In CRR)

Common Printers

1 Nos A3 Heavy duty Colour HP make Laser printer

GTG-1, GTG-2 and STG Machine Monitroing System with Remote server (Complete Separate Machine Monitoring System for each GTG and STG)

STG and Aux boiler

1 No. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each operator station

1 No. ES/OS dual personality (STG) with, 27” COLOR, LED type dual monitors (stack type) - (In CPP)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

1 No. ES/OS dual personality (STG) with, 27” COLOR, LED type dual monitors (stack type) - (In CRR)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

1 Nos ES/OS(Aux boiler) dual personality, 27”, COLOR, LED type

1 Nos ES/OS (STG) dual personality with SOE, 27”, COLOR, LED type

Inert Gas(IG) and Instrument Air/Plant Air (IA/PA)

1 No. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)- For IA/PA (In CPP)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

3 No. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)- For IA/PA (In CRR)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

1 No. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)- For IG (In CPP)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

3 No. Operator Stations with, 27” COLOR, LED type dual monitors (stack type)- For IG (In CRR)

1 no. of Membrane Operator’s Keyboard and 1 no. of QWERTY engineer’s keyboards with mouse with each above station

1 Nos ES/OS dual personality with SOE, 27”, COLOR, LED type- for IA/PA (In CRR)

1 Nos ES/OS dual personality with SOE, 27”, COLOR, LED type- for IG (In CRR)

Operator & Engineering station

All Operator stations, Engineering stations and any other stations shall be with latest operating system with original license for Operating system and all other software used.

As minimum Genuine Antivirus software (for 3 years), MS office, Adobe reader etc. also shall be supplied in all the stations. All the stations shall be of same make (Dell/HP only) and model Commercial grade PCs with Tower mount CPU.

Specification for server grade Machine as follows:

These Server grade stations should have specifications minimum as per the following:

- Redundant power supply (Hot swappable)
- Redundant hard disk
- RAID –5 Architecture
- Dual Channel 10/100/1000 Ethernet card.
- One hot spare hard disk
- DVD Rewriter Drive
- CPU : Intel Xeon Latest Processor (Min 3GHz) configuration 64 bit Or better
- Memory(RAM) : 16 GB minimum.
- SSD capacity : ≥ 1 TB
- Cooling Fans with dust filters: Yes
- Windows Server 2025 OS or latest

Specification for Workstation grade Machine as follows:

These workstation grade stations should have specifications minimum as per the following:

- Redundant hard disk
- RAID –1 Architecture
- Dual Channel 10/100/1000 Ethernet card.
- One hot spare hard disk
- DVD Rewriter Drive
- CPU : Intel Xeon Latest Processor (Min 3GHz) configuration 64 bit Or better

- Memory(RAM) : 16 GB minimum.
- SSD capacity : ≥ 1 TB
- Cooling Fans with dust filters: Yes
- Windows 11 OS or latest

Server grade machines are ES/OS (dual personality), SOE, AIMS, OPC server, RTDBMS Server, IAMS Station, Terminal Server- History Node Server UGS Servers, MMS server, CDSU etc.

Workstation grade machines are OS, View only stations, Documentation node, CCTV, LVS, Supervisor stations etc.

Specification for Laptops as follows (wherever applicable)

Intel core ultra 7 processor(latest version),Windows 11 Pro or latest OS, 16 GB RAM, 1TB SSD, Full HD display (15"), MS office, 3 yr warranty, HP/DELL make, Antivirus software (for 3 years), etc.

All Laptops, Workstations, Servers etc shall be supplied with latest configuration irrespective of approved specification during DED.

NOTES:

1. Hardware/software required for three nos. of redundant connectivity from offsite and utility DCS/ESD OS/ES to central control network shall be considered by the bidder. OPC server of other offsite DCS/ESD shall not be in the scope of bidder.
2. All hard disks of above mentioned systems shall be SSD instead of HDD.
3. Software should be latest with version and release at the time of handover to client. Obsolescence certificate from OEMs to be provided for min of 5 years from date of Mechanical Completion and support of spares and services till at least 3 years after obsolescence
4. If bidder is quoting with Client/server architecture, they should provide redundant servers kept on separate consoles.

BY CLIENT

BY CONTRACTOR

132kV EHV SWITCHYARD

SS-01

GRID INCOMER-1

GRID INCOMER-2

BUS A

132kV, ****A
50Hz--kA-3s

BUS B

132/11.5kV
MVA/MVA
ONAN/ONAF
OLTC

GTG/STG UNIT

**MVA,0.8PF
11kV, 50 Hz

11000V/110V
√3

EDG UNIT

2.5MW,0.8PF
11kV, 50 Hz

11kV, ***A,
50Hz 40kA-3s

AMF PANEL

SPARE

*** / ***MVA
11/11.5KV
ONAN/ONAF

MAIN CPP SUBSTATION(SS-02)

11kV SW. BOARD

INCOMER-2A

INCOMER-2B

INCOMER-1A

INCOMER-1B

DG INCOMER

11kV, ****A , 50Hz - 3Ph/3W
NON-ESSENTIAL BUS -2A

11kV, ****A , 50Hz - 3Ph/3W
NON-ESSENTIAL BUS -2B

11kV, ****A , 50Hz - 3Ph/3W
ESSENTIAL BUS -1A

11kV, ****A , 50Hz - 3Ph/3W
ESSENTIAL BUS -1B

11kV, ****A , 50Hz - 3Ph/3W

BC-1

BC-2

BC-3

BC-4

BC-5

SPARE

FEEDER OWNER

K L M N O P Z X Q R S T U V W Y A D E F G I J

EPMCC

11/0.433kV
****kVA

****A
3Ph/4W

Auto/Manual
Change Over

EMERGENCY BUS-A

EMERGENCY BUS Bus B

EMERGENCY BUS-C

415V 50kA - 1s,
****A , 50Hz - 3Ph/4W

3.3kV SW. BD.

11/3.45kV
****kVA

NORMAL BUS-A

NORMAL BUS-B

3.3kV 26.24kA - 3s,
****A , 50Hz - 3Ph/3W

PMCC

TR-04A
11/0.433kV
***kVA

TR-04B
11/0.433kV
***kVA

EMERGENCY
3.3kV SW. BD.

FOR TENDER PURPOSE ONLY

REV	DATE	DESCRIPTION	PPD.	CKD.	APPD.
1	09.02.2026	FOR TENDER PURPOSE ONLY	BG	RKP	KS
0	18.11.2025	FOR TENDER PURPOSE ONLY	BG	RKP	KS

CLIENT:
ASSAM VALLY FERTILISERS & CHEMICALS CORPORATION LIMITED
Namrup, Assam, India

CLIENT DOCUMENT NO.

PROJECT:
AMMONIA AND UREA PLANT, NAMRUP

PROJ.NO.	PLANT	SECTION	DEPT.
PC-230	7411	0985	ELET.

TITLE:
KEY SINGLE LINE DIAGRAM

DWG.NO.:

REV. 1

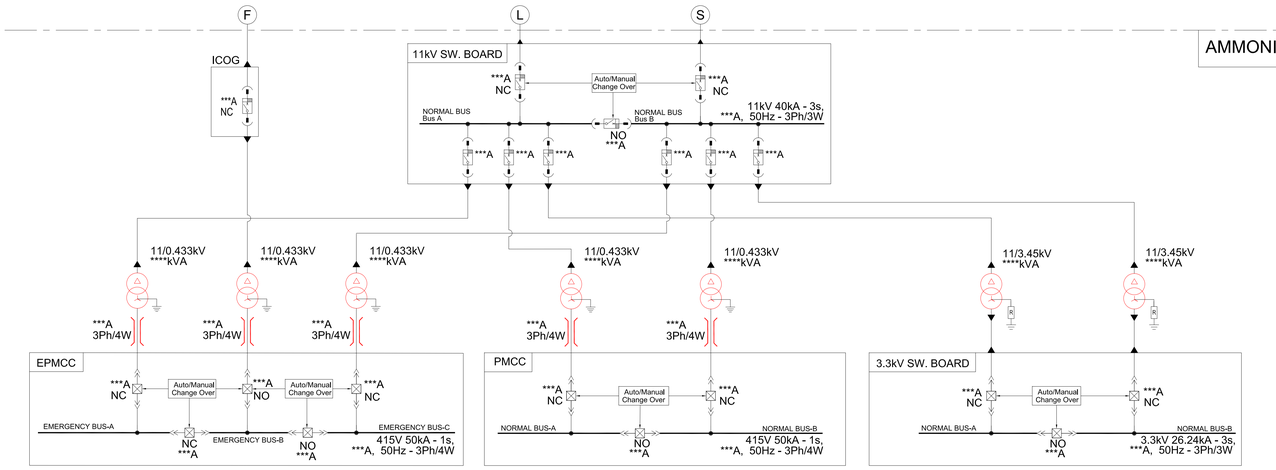
SCALE: NTS

DWG. SIZE. A0-SHEET

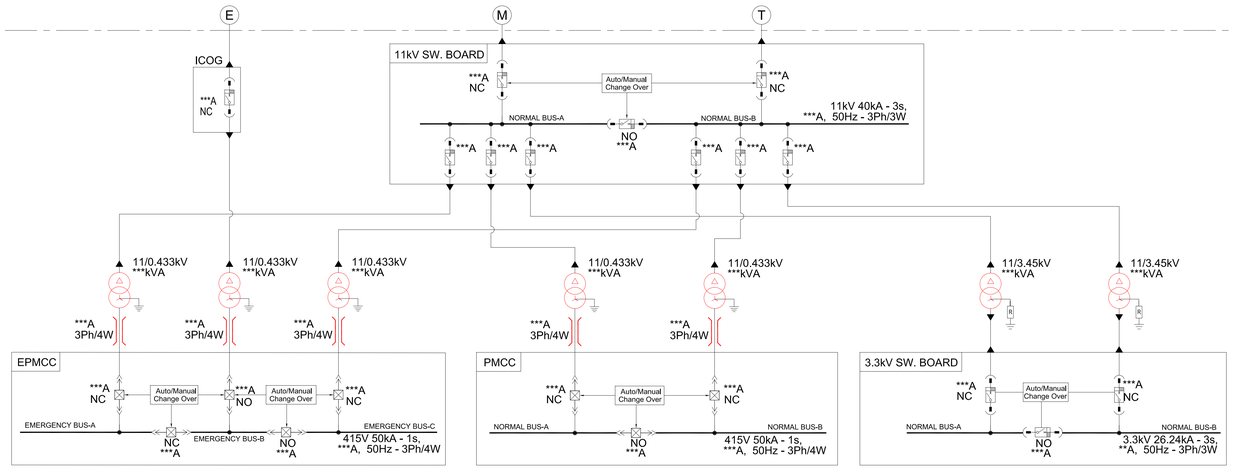
SHEET: 01 OF 03

PROJECTS & DEVELOPMENT INDIA LTD.-NOIDA

AMMONIA SUBSTATION SS-03



UREA SUBSTATION SS-04



NOTES:-

1. SLD IS INDICATIVE AND INTENDED TO INDICATE POWER DISTRIBUTION PHILOSOPHY. ACTUAL SLD, BASED ON DETAILED ENGINEERING, SHALL BE DEVELOPED BY CONTRACTOR COMPLYING TO DESIGN BASIS AND OTHER TENDER DOCUMENTS & SUBJECT TO APPROVAL OF AVFCCL/PDIL.
2. NO. OF GTG & EDG INDICATED HEREIN ARE TENTATIVE AND SHALL BE FINALIZED DURING DETAIL ENGINEERING COMPLYING TO DESIGN BASIS AND OTHER TENDER DOCUMENTS AND SHALL BE SUBJECT TO APPROVAL OF AVFCCL/PDIL.
3. FAULT LEVEL INDICATED AGAINST EACH SWITCHBOARD ARE MINIMUM ONLY, HIGHER RATING IF REQUIRED DURING DETAIL ENGINEERING SHALL BE PROVIDED BY CONTRACTOR BASED ON SYSTEM STUDY.
4. THE DETAILS REGARDING OUTGOING FEEDERS OF 11kV,3.3KV, 415V SWITCHBOARD, QUANTITIES OF VARIOUS ELECTRICAL EQUIPMENT SUCH AS DISTRIBUTION TRANSFORMER, PMCCs, EPMCC, MCCs, ASPB, DC SYSTEM, UPS SYSTEM, LDBs ETC. AND THEIR RATING, RELAY & METER TO BE PROVIDED FOR EACH FEEDERS ETC. SHALL BE INDICATED IN DETAIL SLDs OF INDIVIDUAL UNITS / SUBSTATION COMPLYING TO DESIGN BASIS AND OTHER TENDER DOCUMENTS.
5. IMPEDANCE VALUES OF THE POWER & DISTRIBUTION TRANSFORMERS AND ALL EQUIPMENT SHORT CIRCUIT RATINGS (MINIMUM INDICATED) SHALL BE DECIDED DURING DETAILED ENGINEERING BASED ON SYSTEM STUDY BY CONTRACTOR, WHICH SHALL BE SUBJECT TO APPROVAL OF AVFCCL/PDIL.
6. POWER TRANSFORMERS HAVING SECONDARY VOLTAGE 11KV & ABOVE SHALL BE PROVIDED WITH OLTC.
7. CONTRACTOR SHALL PROVIDE OWNER FEEDERS IN CONTRACTOR SWITCHBOARDS AS PER TENDER DOCUMENTS.
8. LOAD OF IA-PA & N2 TO BE FED FROM NEARBY SUBSTATION.
9. FOR METERING PURPOSE ABT SUMMATION METER SHALL BE PROVIDED IN 132kV SWITCHYARD.
10. GTG AUXILIARY SWITCHBOARD SHALL BE PROVIDED SEPARATELY.
11. 11kV, 3.3kV & 0.415kV EPMCC SHALL HAVE 03 NOS. INCOMERS (02 NOS. NORMAL & 01 NO. EMERGENCY).
12. EACH SUBSTATION SHALL BE PROVIDED WITH REQUIRED NOS. OF HV (NORMAL AND EMERGENCY) AND LV (NORMAL AND EMERGENCY) BASED ON THE LOAD. FOR DETAILED SPECIFICATIONS PLEASE REFER DESIGN PHILOSOPHY-ELECTRICAL AND IT'S ATTACHMENTS
13. COMMON SYNCHRONIZATION PANEL(CSP) SHALL BE PROVIDED FOR SYNCHRONIZATION OF ALL POWER SOURCES
14. EMERGENCY TRANSFORMERS VECTOR GROUP SHALL BE DECIDED CONSIDERING PARALLELING OF THE SYSTEM DURING POWER RESTORATION THROUGH DG. DURING POWER RESTORATION, ONCE GRID OR GTG MADE AVAILABLE, IT SHALL BE SYNCHRONIZED FIRST WITH DG AT 11 KV & THEN AT OTHER VOLTAGE LEVELS.

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CLIENT:
ASSAM VALLY FERTILISERS & CHEMICALS CORPORATION LIMITED
Namrup, Assam, India

CLIENT DOCUMENT NO.

PROJECT:
AMMONIA AND UREA PLANT, NAMRUP

PROJ.NO.	PLANT	SECTION	DEPT.
PC-230	7411	0985	ELET.

TITLE:
KEY SINGLE LINE DIAGRAM

DWG.NO.: REV: 1

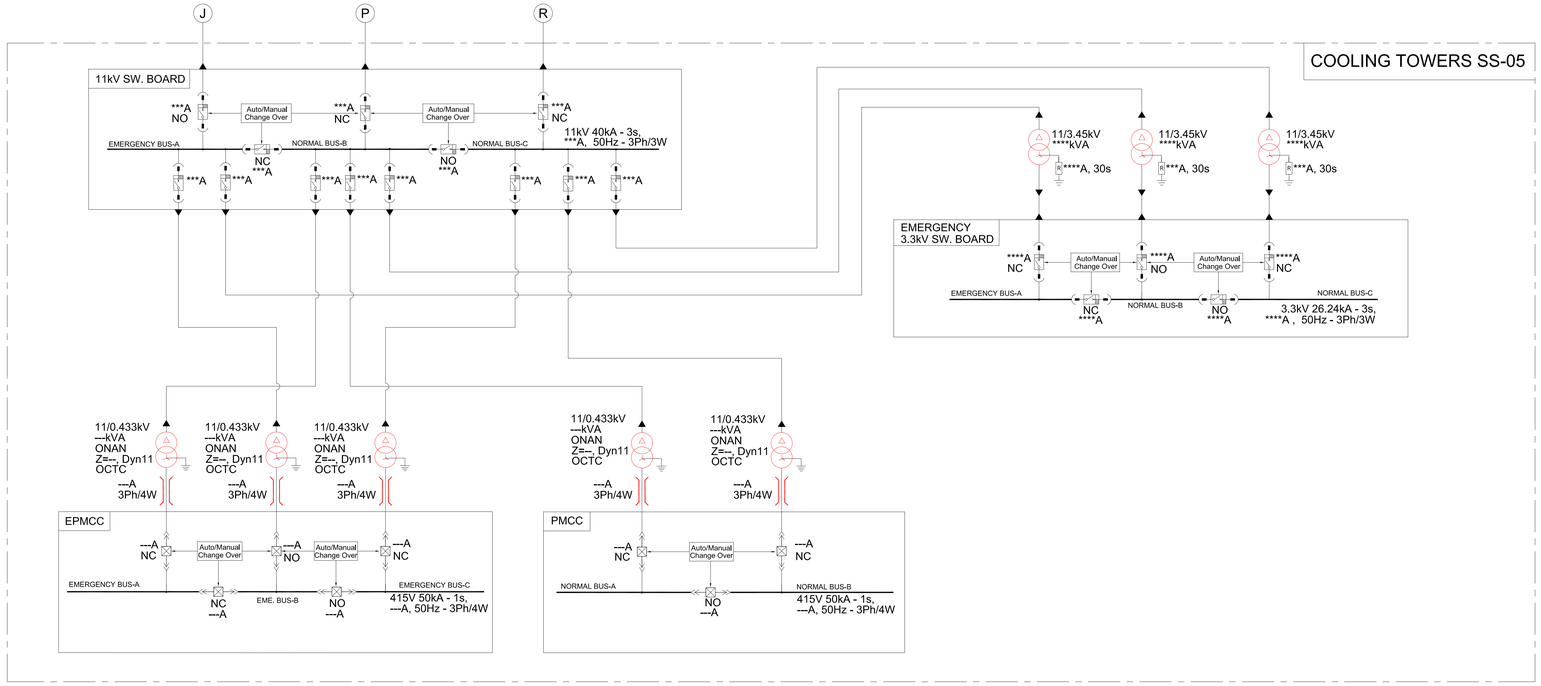
SCALE: NTS | DWG. SIZE. A0-SHEET | SHEET: 02 OF 03

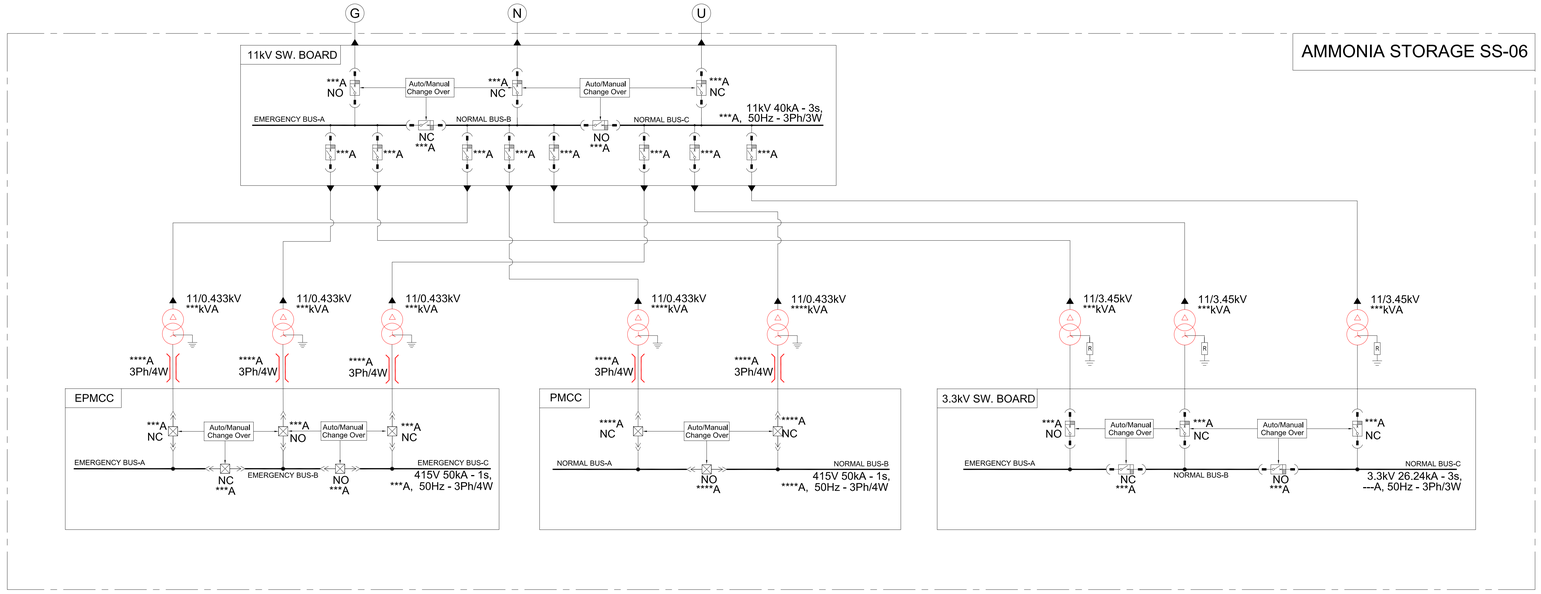
PROJECTS & DEVELOPMENT INDIA LTD.-NOIDA

LEGEND:

- 71, 63AX, 63TX, 26AX WT, 26TX WT, 26AX OT, 26TX OT — TRANSFORMER AUXILIARY RELAY
- 2 — TIME DELAY RELAY
- 25 — SYNCHRO CHECK RELAY
- 27 — UNDER VOLTAGE RELAY
- 32 — DIRECTIONAL POWER RELAY
- 40 — LOSS OF EXCITATION
- 46 — NEGATIVE SEQUENCE RELAY
- 49 — THERMAL RELAY
- 50 — INST. OVERCURRENT RELAY
- 50N — INST. EARTHFAULT RELAY
- 50L/R — LOCKED ROTOR RELAY
- 51 — IDMT OVERCURRENT RELAY
- 51G — STANDBY EARTH FAULT RELAY
- 51N — IDMT EARTH FAULT RELAY
- 59 — OVER VOLTAGE RELAY
- 47 — PHASE SEQUENCE VOLTAGE RELAY
- THERMAL OVERLOAD RELAY
- 59N — VOLTAGE UNBALANCE RELAY
- 64R — RESTRICTED EARTH FAULT RELAY
- 81 — FREQUENCY RELAY
- 86 — LOCK OUT RELAY
- 86P — LOCK OUT RELAY FOR PROCESS TRIP
- 95 — TRIP CIRCUIT SUPERVISION RELAY
- 63 A&T — BUCHHOLZ ALARM & TRIP
- 26 OA&T — OIL TEMP. ALARM & TRIP
- 26 WA&T — WINDING TEMP. ALARM & TRIP
- 71 — MAGNETIC OIL LEVAL GAUGE
- EI — ELECTRICAL INTERLOCK
- ALSR — AUTOMATIC LOAD SHARING RELAY
- MFM — MULTI FUNCTION METER
- ELR — EARTH LEAKAGE RELAY
- TVM — TRI VECTOR METER
- APFCR — AUTOMATIC POWER FACTOR CORRECTION RELAY (14 STAGE)
- KWH — KILOWATT HOUR METER
- CAPACITOR BANK, 3 PHASE WITH DISCHARGE RESISTORS
- CABLE GLAND TERMINATION
- LOAD BREAK SWITCH

- INDICATION LAMP
  - R - RED FOR CLOSED INDICATION (ON)
  - G - GREEN FOR OPEN INDICATION (OFF)
  - A - AMBER FOR TRIP INDICATION
  - B - BLUE FOR SPRING CHARGED INDICATION
  - W - WHITE FOR TRIP CIRCUIT HEALTHY INDICATION
- FUSE
- SWITCH
- SWITCH FUSE UNIT
- CONTACTOR
- ISOLATOR
- MINIATURE CIRCUIT BREAKER
- MOULDED CASE CIRCUIT BREAKER (MP BASED)
- RESIDUAL CASE CIRCUIT BREAKER
- SF6 CIRCUIT BREAKER
- AIR CIRCUIT BREAKER
- VACCUM CIRCUIT BREAKER
- POWER CONTACTOR (CAPACITOR DUTY)
- A M / OFF — AUTO-MANUAL SELECTOR SWITCH
- START AND STOP PUSH BUTTON
- EMERGENCY TRIP PUSH BUTTON
- TWO WINDING TRANSFORMER
- CURRENT TRANSFORMER
- CBCT
- SURGE ARRESTOR
- LCS WITH AMMETER
- M — MOTOR
- D.G. SET
- ASS — AMMETER SELECTOR SWITCH
- VSS — VOLTMETER SELECTOR SWITCH
- KW — KILOWATT METER
- HZ — FREQUENCY METER
- KWH — KILOWATT HOUR METER
- PF — POWER FACTOR METER





FOR TENDER PURPOSE ONLY

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1	09.02.2026	FOR TENDER PURPOSE ONLY	BG	RKP	KS
0	18.11.2025	FOR TENDER PURPOSE ONLY	BG	RKP	KS

CLIENT:
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Namrup, Assam, India

CLIENT DOCUMENT NO.

PROJECT:
AMMONIA AND UREA PLANT, NAMRUP

PROJ.NO.	PLANT	SECTION	DEPT.
PC-230	7411	0985	ELET.

TITLE:
KEY SINGLE LINE DIAGRAM

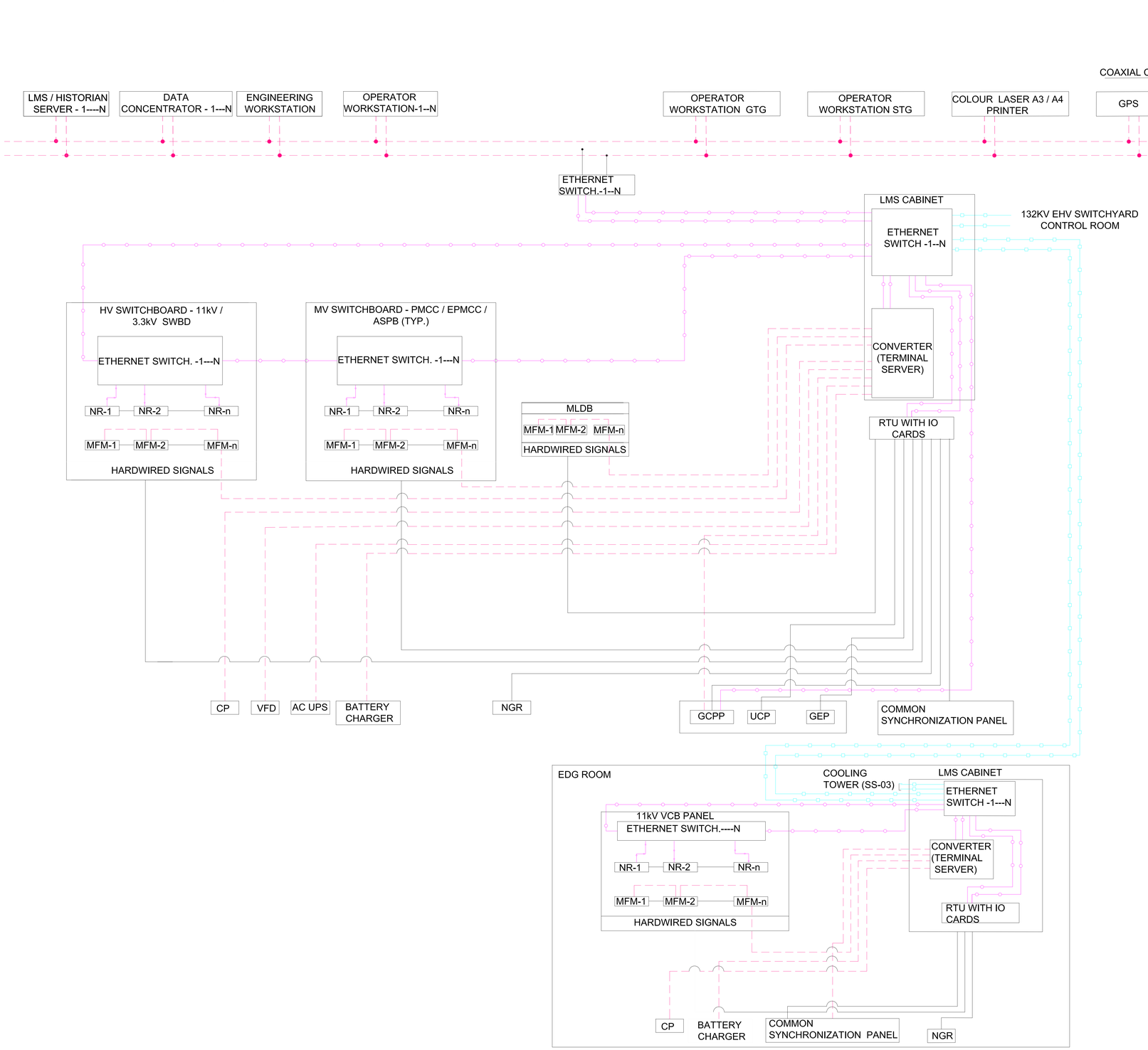
DWG.NO.: REV. 1

SCALE: NTS | DWG. SIZE. A0-SHEET

SHEET: 03 OF 03

PROJECTS & DEVELOPMENT INDIA LTD.-NOIDA

MAIN CPP SUBSTATION (SS-02)



NOTE:-

1. LMS BLOCK DIAGRAM SHOWN HERE IS THE BASIC CONFIGURATION. DETAILED LMS ARCHITECTURAL SHALL BE PREPARED BY CONTRACTOR AS PER NIT SPECIFICATIONS.
2. LMS SHALL BE DESIGNED TO CARRY OUT THE FOLLOWING FUNCTIONS:
   - DATA ACQUISITION AND DISPLAY OF POWER GENERATION AND ENERGY BALANCE IN EVERY NETWORK CONFIGURATION
   - LOAD SHEDDING
   - LOAD SHARING (kW & kVAR)
   - NGR SWITCHING
   - AUTO SYNCHRONISING
   - CAPACITOR CONTROL
   - LARGEST MOTOR START INHIBIT
3. CENTRALIZED ONLINE ENERGY MANAGEMENT SYSTEM SHALL BE A PART OF LMS. THE SAME SHALL HAVE THE FOLLOWING FEATURES:
   - SLD OF ENTIRE ELECTRICAL SYSTEM.
   - MEASUREMENT, DISPLAY, RECORDING & DATA LOGGING OF ALL ELECTRICAL PARAMETERS OF MAIN ELECTRICAL EQUIPMENTS.
4. NUMERICAL RELAYS SHALL HAVE COMMUNICATION ON IEC - 61850 PROTOCOL IN STAR TOPOLOGY & MULTI FUNCTION METERS SHALL COMMUNICATE ON MODBUS RTU PROTOCOL IN DAISY CHAIN TOPOLOGY.
5. 100% REDUNDANCY SHALL BE PROVIDED FOR COMMUNICATION FROM NETWORK SWITCH TO CONTROLLER.
6. CONNECTION OF NUMERICAL RELAYS TO ETHERNET SWITCH & LOOPING OF MFMs INSIDE THE SWITCHBOARDS AND ETHERNET SWITCHES AS REQUIRED INSIDE SWITCHBOARDS SHALL BE IN THE SCOPE OF SWITCHBOARD VENDOR.
7. ALL CABLES RELEVANT TO TRANSFERRING DI / DO / AO / AI, MEASUREMENT & STATUS SIGNALS FROM INDIVIDUAL SWITCHBOARD TO RESPECTIVE SUBSTATION IO RACK AND ETHERNET CABLES BETWEEN THE SWITCHBOARDS SHALL BE PROVIDED BY CONTRACTOR.
8. LMS SHALL HAVE INTERFACING FACILITIES WITH DCS THROUGH SOFT LINK OVER DSA TO DISPLAY THE PARAMETERS OF LMS AT DCS FOR MONITORING.
9. SYSTEM SHALL BE DESIGNED SUCH THAT ANY BOARD TAKEN OUT FOR MAINTENANCE OR REMOVED SHALL NOT AFFECT COMMUNICATION WITH OTHER BOARDS.
10. 50% I/O COUNTS OF AMMONIA - UREA SUBSTATION IS CONSIDERED FOR OSBL USE. I/O RACKS FOR THE SAME SHALL BE INSTALLED IN MAIN OSBL SUBSTATION.
11. 20% SPARE I/O RACK SHALL BE CONSIDERED IN EACH SUBSTATION.
12. ANY OTHER HARDWARES & SOFTWARES REQUIRED FOR THE COMPLETENESS OF THE LMS EVEN IF NOT SPECIFIED IN THIS BLOCK DIAGRAM AND THE JSS FOR LMS SHALL BE IN THE SCOPE OF VENDOR.
13. FIBER OPTIC PATCH PANELS, INTERPOSING RELAY PANELS AS REQUIRED SHALL BE IN THE SCOPE OF LMS ENDOR.
14. INCOMERS AND BUS COUPLER OF ASPB BOARD SHALL INTERFACE WITH LMS (APPLICABLE ONLY TO ASPB WITH ACB INCOMER AND BUS COUPLER).
15. 1 NO HMI REQUIRED OF CPP CONSOLE IN CCR.
16. LMS ENGG. STATION & HISTORIAN SERVER SHALL BE INSTALLED IN ENGG. ROOM & NOT ALONG WITH OPERATOR STATIONS.

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REV	DATE	DESCRIPTION	PPD.	CKD.	APPD.
1	09.02.2026	FOR TENDER PURPOSE ONLY	ASHOK	RKP	KS
0	18.11.2025	FOR TENDER PURPOSE ONLY	ASHOK	RKP	KS

CLIENT:
ASSAM VALLY FERTILISERS & CHEMICALS CORPORATION LIMITED
Namrup, Assam, India

CLIENT DOCUMENT NO.

PROJECT:
AMMONIA AND UREA PLANT, NAMRUP

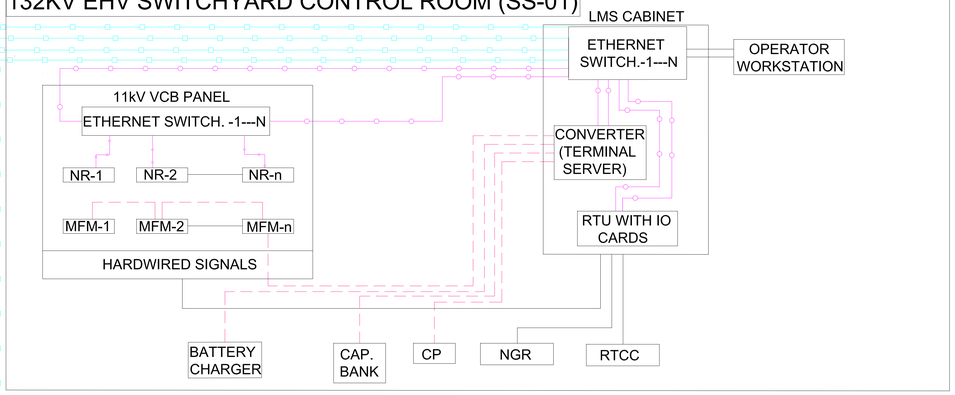
PROJ.NO.	PLANT	SECTION	DEPT.
PC-230	PNEL	1204	ELET.

TITLE:
LMS BLOCK DIAGRAM

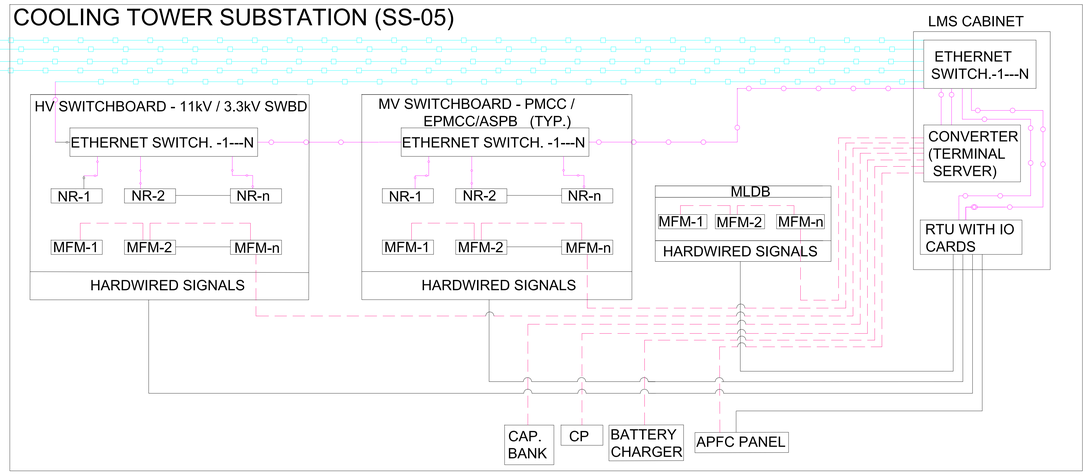
DWG.NO.: PC-230-PNEL-1204
REV: 1
SCALE: NTS
DWG. SIZE: A0-SHEET
SHEET: 01 OF 02

PROJECTS & DEVELOPMENT INDIA LTD.-NOIDA

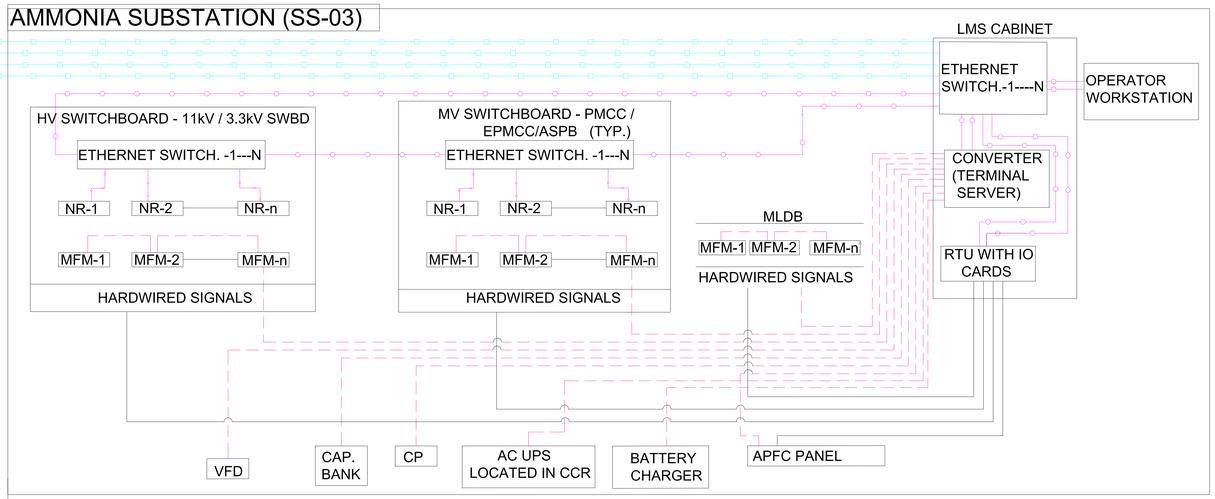
132KV EHV SWITCHYARD CONTROL ROOM (SS-01)



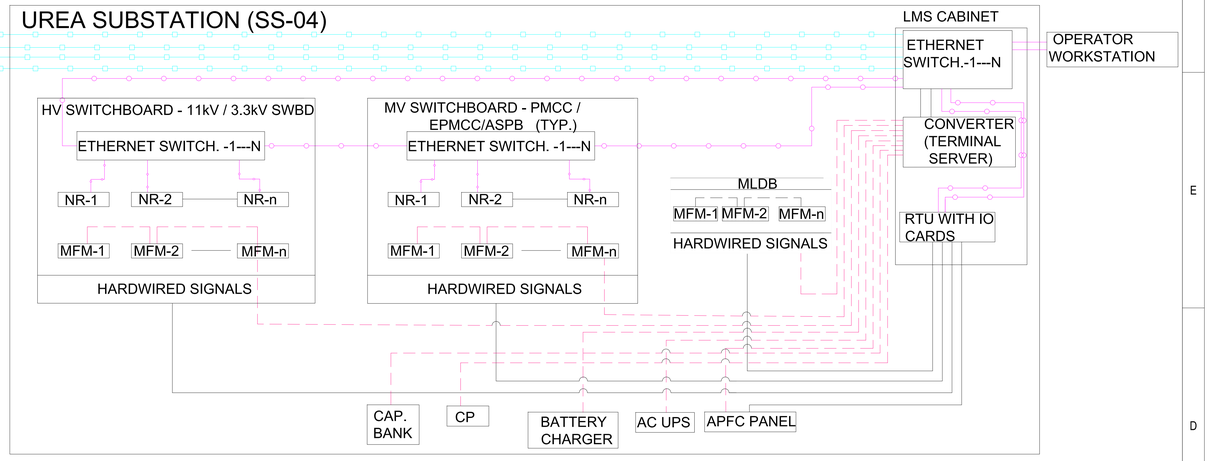
COOLING TOWER SUBSTATION (SS-05)



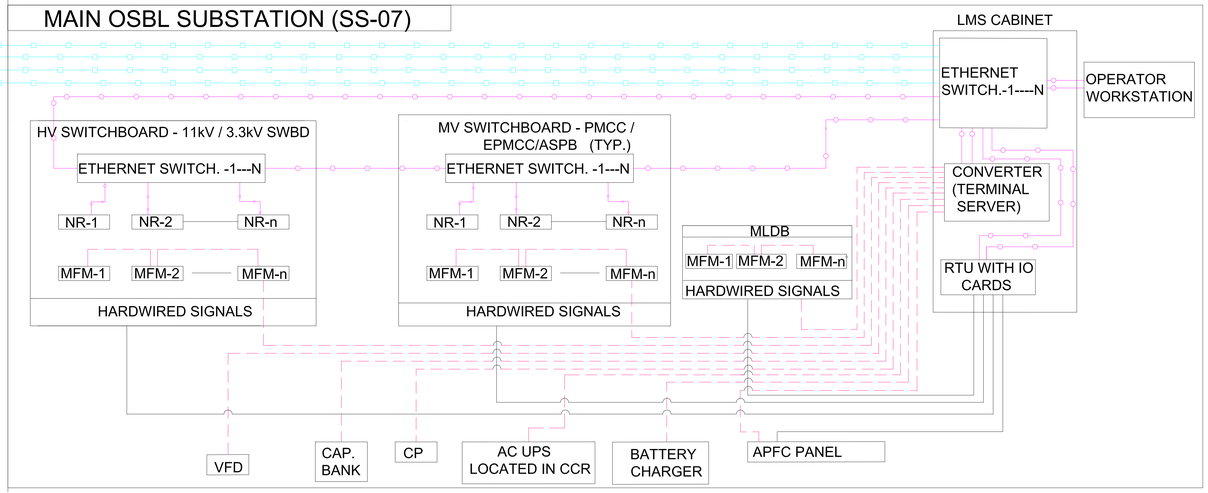
AMMONIA SUBSTATION (SS-03)



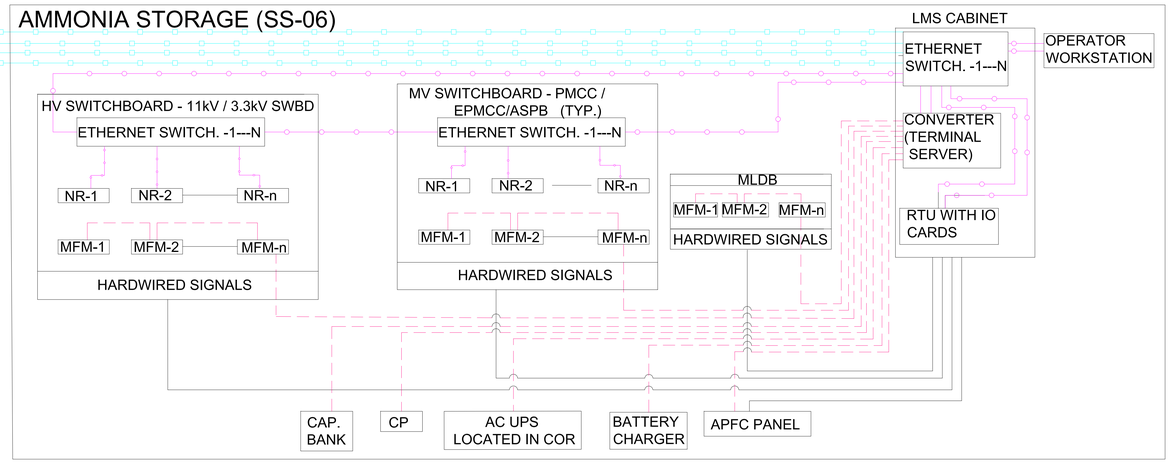
UREA SUBSTATION (SS-04)



MAIN OSBL SUBSTATION (SS-07)



AMMONIA STORAGE (SS-06)



	LEGENDS
	8F SINGLE MODE MULTI FIBER UNITUBE FIBER OPTIC CABLE
	IEC61850 COMMUNICATION CABLE (RJ45 UTP CAT6 CABLE)
	LAN CABLE (RJ45 UTP CAT6 CABLE))
	RS485 FOR MODBUS RTU
	HARDWIRED CABLE
	VGA PREFABRICATED CABLE

FOR TENDER PURPOSE ONLY

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AMMONIA AND UREA PLANT, NAMRUP

PROJ.NO.	PLANT	SECTION	DEPT.
PC-230	PNEL	1204	ELET.

TITLE:
LMS BLOCK DIAGRAM

DWG.NO.: PC-230-PNEL-1204
REV.: 1
SCALE: NTS
DWG. SIZE.: A0-SHEET
SHEET: 02 OF 02

PROJECTS & DEVELOPMENT INDIA LTD.-NOIDA