























		<b>EQUIPMENT LIST</b>						REV	A	B		
								BY	HJ	HJ		
								CHK	TMK	TMK		
								DATE	14-May-14	1-Jun-14		
Sr. No.	Item No.	Description	Type of Equipment	Design Capacity / Duty	Equipment Size		Material of construction	Operating Conditions		Design Conditions		Remarks
					Dia ID	Length/height Tan/tan		Temperature °C	Pressure barg	Temperature °C	Pressure barg	
<b>INLET SEPARATION, CONDENSATE DEGASSING &amp; STORAGE SYSTEM</b>												
1	PR-9001 	Pig Receiver	Horizontal	Hold	Hold	Shell: CS+6mm CA 	32	56	-29 /85	70	Pig receiver on 12" line	
2	V-1001	Slug Catcher	Horizontal Vessel	200 m3 	4000 mm	20,000 mm Shell: CS+3mm CA + Glassflake Vinylester lining-500 micron DFT min.+ Sacrificial Anode CP; Internals: SS316L NACE MR0175/ISO 15156: YES	32	56	-29 /85	70		
3	V-1002	Inlet Liquid Separator	Horizontal Vessel	3300 BLPD	1500 mm	4500 mm Shell: CS+3mm CA + High Build Novalac Epoxy lining-500 micron DFT min.+ Sacrificial Anode CP; Internals: SS316L NACE MR0175/ISO 15156: YES	31	8.27	-29 /85	12		
4	V-4001	Condensate Flash Drum	Horizontal Vessel	350 BLPD 	1200 mm	6000 mm Shell: CS+6mm CA ; Internals: SS316L NACE MR0175/ISO 15156: YES	30	0.34	-29 / 85	FV / 5		
5	E-4001	Condensate Heater	Heat Exchanger BEM	17 kW 	203 mm	1500 mm Shell: CS + 3mm CA Tubes: 13% Cr. SS (A 268 TP410) Tubesheet: CS NACE MR0175/ISO 15156: YES	Tube: 14 Shell: 195	Tube: 1 Shell: 4	Tube: 0 / 215 Shell: 0 / 215	Tube: 5.5 Shell: 7	Only required for case 1 Winter. PSV to be set at 5 barg on tube side.	
6	P-4001 A/B	Condensate Transfer Pump	Centrifugal Pump	2.32 m3/hr 		Casing: CS Impeller: 12% Cr. NACE MR0175/ISO 15156: YES 	23	ΔP = 2 bar	VTA	VTA	To pump liquid to the storage tank	
7	T-4001	Condensate Storage Tank	Tank	500 bbl	4572 mm	4877 mm Shell: CS+3mm CA + (High Build Epoxy lining-300 micron DFT min. for bottom one meter height only); Internals: SS316L NACE MR0175/ISO 15156: YES	Amb	Atm	0 / 85	0.1		
8											P-5503 A/B moved to item 40, within produced water treatment package	
9	P-4002 A/B	Condensate Export Pump	Centrifugal Pump	2.32 m3/hr 		Casing: CS Impeller: 12% Cr. NACE MR0175/ISO 15156: YES 	Amb	ΔP = 3 bar (Hold)	VTA	VTA	Optional - dependent on battery limit pressure	

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Sr. No.	Item No.	Description	Type of Equipment	Design Capacity / Duty	Equipment Size		Material of construction	Operating Conditions		Design Conditions		Remarks
					Dia ID	Length/height Tan/tan		Temperature °C	Pressure barg	Temperature °C	Pressure barg	
<b>DEW POINT CONDITIONING UNIT</b>												
10	E-3001 A/B	Gas/Gas Heat Exchanger	Heat Exchanger NEN	886 kW	800 mm	8534 mm	Shell: LTCS + 3mm CA Tubes: LTCS Tubesheet: LTCS NACE MR0175/ISO 15156: YES	Tube: 58 °C Shell: 0 °C	Tube: 30.5barg Shell: 26.7barg	-45 / 85	70	2 heat exchangers in series.
11	V-3001	Cold Separator	Horizontal Vessel	39MMSCFD; 100bb/d liq	1500 mm	6000 mm	Shell: LTCS + 3mm CA Internals: SS316L NACE MR0175/ISO 15156: YES	0	26.7	-45 / 85	70	With boot, dia 0.3048m and length 1.0m
<b>GAS SWEETENING (EX TERRAN 165 GPM AMINE PACKAGE)</b>												
12	E-2001	Super chiller	Heat Exchanger	324 kW	790 mm	3048 mm T/T	Shell: CS + 6mm CA Tubes: SS 316L NACE MR0175/ISO 15156: YES	Shell: 32.1 Tube: 58.3	Shell: 54.6 Tube: 55.9	-29 / 85	70	
13	F-402	Inlet Gas Filter Coalescer	Filter Coalescer	40 MMSCFD	660 mm OD	2769 mm T/T	Shell: CS+6mm CA ; Internals: SS316L NACE MR0175/ISO 15156: YES	45	56	-29 / 120	90	Set pressure of PSV = 70 barg
14	T-501	Amine Contactor	Tower	40 MMSCFD	1372 mm	17170 mm T/T	Top Shell: CS+3mm CA ; Bottom Shell (below FEED inlet): CS + SS316L Weld Overlay Trays & Internals: SS316L NACE MR0175/ISO 15156: YES PWHT: YES	Top: 79 Bottom: 65	55	-29 / 100	90	Set pressure of PSV = 70 barg
15	V-403	Treated Gas Scrubber	Vertical Vessel	40 MMSCFD	1067 mm	3150 mm T/T	Shell: CS+3mm CA ; Internals: SS316L NACE MR0175/ISO 15156: YES PWHT: Yes	46	54 	-29 / 85	90	Set pressure of PSV = 70 barg
16	P-601 / 602	Amine Circulation Pump	Pump	37.5 m³/h (165 GPM)			Casing: CS Impeller: SS316L  NACE MR0175/ISO 15156: YES	58	ΔP = 54 bar	VTA	VTA	
17	A-301	Amine Cooler	Air Cooler	1135 kW	VTA	VTA	Header: CS+3mm CA ; Tubes: CS NACE MR0175/ISO 15156: YES PWHT: Yes	87	4.2	-29 / 120	10	
18	T-502	Amine Still	Tower		1067 mm	18390 mm T/T	Top Shell: SS316L ; Bottom Shell : CS + 3mm CA; Trays & Internals: SS316L NACE MR0175/ISO 15156: YES PWHT: YES (for CS welds)	92	0.5	-29 / 150	FV / 3.5	
19	V-407	Amine Still Reflux Accumulator	Horizontal Vessel		914 mm	2540 mm T/T	Shell: SS316L ; Internals: SS316L NACE MR0175/ISO 15156: YES	58	0.5	-29 / 85	FV / 3.5	
20	E-203	Amine Reboiler	Heat Exchanger	3227 kW	1016 mm	4877 mm	Shell: CS+3mm CA ; Tubes: SS316L NACE MR0175/ISO 15156: YES PWHT: Yes for Shell welds	Shell: 195 Cold: 125	Shell: 4.0 Tube: 1.0	-29 / 215	Shell: 10 Tube: FV / 3.5	
21	V-404	Amine Flash Tank	Horizontal Vessel		1067 mm	7315 mm	Shell: CS+3mm CA+Amine Cured Epoxy lining-300 micron DFT min.; Internals: SS316L NACE MR0175/ISO 15156: YES PWHT: Yes	66	4.2	-29 / 85	10	

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







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DATE	14-May-14	1-Jun-14	







Sr. No.	Item No.	Description	Type of Equipment	Design Capacity / Duty	Equipment Size		Material of construction	Operating Conditions		Design Conditions		Remarks
					Dia ID	Length/height Tan/tan		Temperature °C	Pressure barg	Temperature °C	Pressure barg	
					22	F-411		Lean Amine Charcoal Filter	Filter	4.76 m3/hr 	915 mm	
23	E-202	Amine / amine exchanger	Plate Heat Exchanger		519 sq. ft Surface area		Box: CS+3mm CA Plates: SS316L NACE MR0175/ISO 15156: YES	Rich: 66 Lean: 126	Rich: 4.1 Lean: 4.8	-29 / 150	10	
24	F-410	Lean Amine Filter	Filter	39.3 m3/hr 	610 mm OD	1270 mm	MOC: CS+3mm CA PWHT: Yes NACE MR0175/ISO 15156: YES	58	3.4	-29 / 85	10	
25	P-604 / 605	Amine Booster Pump	Pump	39.3 m3/hr 			Casing: CS Impeller: SS316L  NACE MR0175/ISO 15156: YES	126	ΔP = 3 bar	-29 / 150	10	
26	P-607 / 608	Amine Still Reflux Pump	Pump	2 m3/hr 			Casing: SS316L Impeller: SS316L  NACE MR0175/ISO 15156: YES	58	ΔP = 2 bar	-29 / 85	3.5	
27	A-302	Amine Still Reflux Condenser	Air Cooler	1255 kW			Header: SS316L Tubes: SS316L NACE MR0175/ISO 15156: YES	108	0.5	-29 / 150	FV / 3.5	
28	A-303	Treated Gas Cooler	Air Cooler	390 kW			Header: CS+3mm CA Tubes: CS	73	55	-29 / 120	90	
<b>HOT OIL SYSTEM</b>												
29	V-2502	Hot Oil Expansion Tank	Vessel		1700 mm	6000 mm T/T	CS + 3mm CA	135	1	-29 / 215	7	
30	M-2501	Hot Oil Heater Package	Package	4.75 MW 			Manufacturer Standard Materials			-29 / 215	10	
<b>EG REGENERATION PACKAGE - 2 GPM UNIT</b>												
31	V-1424	EG Reboiler	Vessel	228 kW	610 mm	4674 mm T/T	Shell: CS+3mm CA Tubes: CS	131.6	0.1	-29 / 150	10	
32	E-1522	EG Reflux Condenser	Coil				Shell: CS+3mm CA Tubes: CS	-1.5	4.5	-29 / 150	10	
33	E-1225	EG Reboiler Bundle	U-tube bundle				Shell: CS+3mm CA Tubes: CS	195	4	-29 / 215	10	
34	T-1522	EG Still Column	Column		324 mm OD	1220 mm TOS/FOF	Shell: CS+3mm CA Internals: SS304L	131.6	0.1	-29 / 150	10	
35	E-1226	Glycol Exchanger	Plate Heat Exchanger	22.5 kW 			Frame: CS+3mm CA Plates: SS316L	Rich: 10 Lean: 132	Rich: 3.8 Lean: 0.1	-29 / 150	10	
36	F-1430	EG Charcoal Filter	Filter		457 mm OD	2439 mm T/T	Shell: CS+3mm CA Internals: SS304L	39.1	1.1	-29 / 120	10	
37	F-1431	EG Sock Filter	Filter		168 mm	1143 mm	Shell: CS+3mm CA Internals: SS304L	39.1	0.7	-29 / 120	10	
38	V-1429	EG Flash Drum	Vessel		457 mm OD	2083 mm T/T	Shell: CS+3mm CA Internals: SS304L	39.1	3.4	-29 / 120	10	
39	P-1621/1622	EG Pumps	Pump	0.5 m3/hr 			Case: CS Impeller: 12% Cr.	32.2	ΔP = 56 bar	-29 / 120	70	

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					Dia ID	Length/height Tan/tan		Temperature °C	Pressure barg	Temperature °C	Pressure barg	
<b>PRODUCED WATER TREATMENT PACKAGE (M-5501)</b>												
40	P-5503 A/B	Recovered Oil Pump	PD Pump	0.5 m3/hr ( HOLD)			Casing: CS Impeller: 12% Cr. NACE MRO175/ISO 15156: YES	33	ΔP = 8.6 bar (Hold)	VTA	VTA	
41	V-001	Hydrocyclone	Vessel	150 bbl/d	152.4 mm OD	1143 mm T/T	Vessel : SA-106B Liners : 316 SS Tube Sheets : 316 SS		6.8	-29 / 85	10	
42	T-100	Revolift - VS			2438 mm Wide	2591 mm Height X 6096 mm Long	Tank : CS Coating : Devoe 253			-29 / 85	VTA	
43	V-100	GLR- Reactor					Tank : CS Coating : Devoe 253			-29 / 85	VTA	
44	P-100	GLR Reactor Pumps					Casing: CS Impeller: SS 316			-29 / 85	VTA	
45	V-5501	Collection Pit			7000 mm wide	8000 mm long X 3000 mm deep				N/A	N/A	
<b>AMINE, EG, AND WATER MAKE-UP SYSTEM</b>												
46	P-6203	Amine Make-up Pump										DELETED
47	P-6204	EG Make-up Pump										DELETED
48	T-6102	Potable Water Tank	Tank	11 m³			Shell: CS+3mm CA+Food grade Epoxy lining (300 micron DFT)+Sacrificial Anode CP Bottom Shell underside should be provided with External CP if the tank is on bare soil.	Ambient	Atm	0 / 85	0.1	
49	P-6102 A/B	Potable Water Pump	Pump	0.45 m³/hr			Casing: SS316L Impeller: SS316L	Ambient	ΔP = 3 bar			To compensate pressure drop in demin package and hydraulic in demin water tank.
50	M-6102	Demin Water Package	Package	0.3 m³/hr ( HOLD)			SS316L	Ambient				
51	V-6102	Demineralized Water Tank	Horizontal Vessel	10 m3	1900 mm	5000 mm	CS + 3mm CA	Ambient	Atm	0 / 85	3.5	Amine Preparation tank - DELETED
52	P-6104	Demin water transfer pump	Pump	0.45 m3/hr (HO)			Casing: SS316L Impeller: SS316L	Ambient	Pump ΔP = 3 bar			Pump to amine reflux drum for make-up
53	V-6103	Amine Sump/Prparation tank	Horizontal Vessel									DELETED
54	V-6104	EG Sump / Preparation Tank	Horizontal Vessel									DELETED
<b>FUEL GAS SYSTEM</b>												
55	V-6001	Fuel Gas Scrubber	Vertical Vessel	1.5 MMSCFD	500 mm	2150 mm	Shell: CS+3mm CA Internals: SS316L	41	6.9	85	10	Fuel Gas Heater not required as fuel gas taken from dew pointed gas
<b>FLARE SYSTEM</b>												
56	V-5001	Flare KO Drum	Horizontal Vessel		2000 mm	12000 mm	Shell: LTCS+3mm CA+HB Epoxy lining-300 micron DFT min.; Internals: SS316L NACE MRO175/ISO 15156: YES	60	0.7	-45 / 85	7	
57	P-5001 A/B	Flare KO Drum Pump	Pump	20 m³/hr			Casing: CS Impeller: 12% Cr. NACE MRO175/ISO 15156: YES	60	ΔP = 1 bar (Hold)	-45 / 85	7	
58	M-5001	Flare Stack	Stack	60 MMSCFD (HOLD)			Stack: CS+3mm CA Flare TIP: SS310 NACE MRO175/ISO 15156: YES					Inlcuding 4 Propane bottles with rack

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<b>OPEN / CLOSE DRAIN SYSTEM</b>												
59	V-6501	Closed Drain Vessel	Vessel	15 m <sup>3</sup>	1600 mm	7500 mm	Shell: CS+3mm CA+HB Epoxy lining-300 micron DFT min.; Internals: SS316L NACE MR0175/ISO 15156: YES	Atm	0.1	-29 / 85	3.5	
60	P-6501 	Closed Drain Pump	Pump	20 m <sup>3</sup> /hr			Casing: CS Impeller: 12% Cr. NACE MR0175/ISO 15156: YES 		ΔP = 9 bar	-29 / 85	12	
61	V-6601	Open Drain Pit	Pit	16 m <sup>3</sup>	4m L X 2m W	2m Depth	Concrete with HDPE liner	Atm	Ambient	N/A	N/A	With overflow weir for skimmed oil
<b>INCINERATOR PACKAGE</b>												
62	M-5002	Incinerator Package	Package				Manufacturer Standard Materials SS316L NACE MR0175/ISO 15156: YES	26 to 100	Atm	-29 / 120	3.5	
63	V-5002	Incinerator KOD	Vertical vessel		800 mm	2300 mm	SS316L NACE MR0175/ISO 15156: YES	26 to 100	Atm	-29 / 120	3.5	
64	P-5002 A/B	KOD liquid transfer pump	Pump	1.3 GPM			Casing: 12% Cr Impeller: 12% Cr. NACE MR0175/ISO 15156: YES 		ΔP = 9 bar	-29 / 120	12	
<b>INSTRUMENT AIR</b>												
65	M-6201 A/B	Instrument air package	Package	250 SCFM			Manufacturer Standard Materials	Ambient	Disc = 10 barg	-29 / 85	15	Includes compressor and dryer
66	V-6201	Instrument air receiver	Vessel		2500 mm	6500 mm	Shell: CS+3mm CA	Ambient	10	85	15	
<b>Sour water stripper Package</b>												
67	E-7001	Sour water Cross exchanger	Plate Heat Exchanger	68.2 kW 			Box: CS+3mm CA Plates: 13% Cr.SS NACE MR0175/ISO 15156: YES	Hot: 118 Cold: 31	Hot: 0.8 Cold: 3	150	5	
68	T-7001	Sour water stripper	Column		457 mm	3500 mm	Shell: CS + 6 mm CA Internals: Non-metallic/22%Cr.DSS NACE MR0175/ISO 15156: YES PWHT - Yes	99	1.2	150	FV / 5	The column is mounted on the reboiler, the vapor nozzle is equal to the diameter of the column.
69	E-7002	Stripper reboiler	Heat Exchanger		483 mm (Bundle ) / 762 mm(Kettle)	6200 mm	Shell: CS + 3 mm CA Tubes: 13% Cr.SS NACE MR0175/ISO 15156: YES	Shell: 125 Tube: 195	Shell: 1 Tube: 4	215	Shell: FV / 5 Tube: 7	
70	P-7001 A/B	Sour water stripper feed pump	Pump	1.14 m <sup>3</sup> /hr 			Casing: 12% Cr Impeller: 12% Cr. NACE MR0175/ISO 15156: YES 	Amb	ΔP = 2 bar			
<b>CHEMICAL INJECTION SYSTEM</b>												
71	M-6901	Anti-Foam Storage Tank	Cubic plate tank	1 m <sup>3</sup>	1000 mm W X 1000 mm L	1000 mm H	MOC: SS 304L					Supplied as a package with tank off-skid
72		Anti-Foam Injection Pump	Pneumatic Pump	0.5 m <sup>3</sup> /hr 				MOC: SS 304L				
73	M-6903	Emulsion Breaker Storage Tank	Cubic plate tank	1 m <sup>3</sup>	1000 mm W X 1000 mm L	1000 mm H	MOC: SS 304L					Supplied as a package with tank off-skid
74		Emulsion Breaker Injection Pump	Pneumatic Pump	0.5 m <sup>3</sup> /hr 				MOC: SS 304L				

		<b>EQUIPMENT LIST</b>						REV	A	B		
								BY	HJ	HJ		
								CHK	TMK	TMK		
								DATE	14-May-14	1-Jun-14		
Sr. No.	Item No.	Description	Type of Equipment	Design Capacity / Duty	Equipment Size		Material of construction	Operating Conditions		Design Conditions		Remarks
					Dia ID	Length/height Tan/tan		Temperature °C	Pressure barg	Temperature °C	Pressure barg	
75	M-6904	Reverse Emulsion Breaker Storage Tank	Cubic plate tank	1 m³	1000 mm W X 1000 mm L	1000 mm H	MOC: SS 304L					Supplied as a package with tank off-skid
76		Reverse Emulsion Breaker Injection Pump	Pneumatic Pump	0.5 m³/hr 			MOC: SS 304L					
<b>NITROGEN SUPPLY</b>												
77	M-6301	Nitrogen Bottle Rack					MOC: CS					2 X 8 Standard cylinder manifold
<b>DIESEL STORAGE AND LOADING</b>												
78	M-6701	Diesel Gen Set + Day Tank 					MOC: CS					
<b>FIRE WATER SYSTEM (OPTIONAL)</b>												
79	T-6401	Fire Water Tank	Tank	10000 m³ 			Shell: CS+3mm CA+Epoxy lining (300 micron DFT)					
80	P-6403	Fire Water Jockey Pump	Pump	57 m³/hr			Casing: 12% Cr Impeller: 12% Cr. 					
81	P-6401	Fire Water Main Pump (motor)	Pump	455 m³/hr			Casing: 12% Cr Impeller: 12% Cr. 					
82	P-6402	Fire Water Main Pump (diesel)	Pump	455 m³/hr			Casing: 12% Cr Impeller: 12% Cr. 					

**Electrical Load List - Load Summary**

Maximum of normal running plant load : 1277.80 kW ; 783.82 kVAR ; 1499.04 kVA  
(Est. x%E + y%F)

Peak Load : 1328.41 kW ; 815.61 kVAR ; 1558.81 kVA  
(Est. x%E + y%F + z%G)

TOTAL CONSUMED LOADS				
SWITCH BOARDS	Status Rating	CONTINUOUS	INTERMITTENT	STANDBY
		LSG-001	kW	605.38
LSG-002	429.45	0.00		251.97
LSG-001	kVAR	359.42	37.18	103.91
LSG-002		275.17	0.00	161.01
LSG-001	kVA	704.04	70.59	199.11
LSG-002		510.04	0.00	299.02

Total Load in LSG-001 (415V)	635.38 kW	378.01 kVAR	739.32 kVA
Total Load in LSG-002 (415V)	429.45 kW	275.17 kVAR	510.04 kVA
Spare Capacity (20%) - Note - 4	212.97 kW	130.64 kVAR	249.87 kVA

**NOTES & LEGENDS:**

Service classification

C= Continuous  
I= Intermittent  
S= Standby

Feeder Types

DOL= Direct on line starter  
VFD= Variable Frequency Drive  
SS= Soft starters  
F= Power Feeder

**A Absorbed loads:**

- for pumps, shaft load on duty point.  
- for instrumentation, computers, communication, air conditioning, the required load during full operation of plant.

Consumed loads:

**E** - "Continuous"; all loads that may continuously be required for normal operation, including lighting and workshop.  
**F** - "Intermittent & spares"; the loads required for intermediate pumping, storage, loading and all electrical spares of electrically driven units.  
**G** - "Standby"; loads required in emergencies only, such as fire-water pumps or those of normally not running electrically driven units stand-by for normally running steam-driven ones (e.g. charge pumps, boiler feed pumps).

1) When information are not available, the following values are used for motor loads:

a) For Motor Loads:

Load Rating (kW)	Load Factor	Efficiency	Power Factor
<= 15	0.7	0.85	0.73
> 15 - <= 45	0.75	0.91	0.78
> 45 - < 150	0.83	0.93	0.82
>= 150	0.85	0.94	0.91

b) For (non-motor) static loads, package loads efficiency and power factor are assumed.

2) x% = 1.0 ; y% = 0.3 or the largest intermittent whichever is higher ; z% = 0.1 .

3) Coincidence factors x, y and z shall be defined for each separate case, subject to company's approval.

4) 20% spare capacity as future margin have been considered for the electrical equipment (Transformers, Emergency Generator and UPS ratings) sizing & selection .

5) 3MW power supply shall be provided by SEWA, Which required to feed present connected loads and future inlet gas compression facility loads.

HOLD:

1. Condensate Export Pump Rating

**Electrical Load List - 415V Normal LV Switchboard (LSG-001)**

Sl. No	Equipment No:	Switch board	Feeder number	Feeder type	Service	Description	Absorbed Load	Equipment rating	Load factor [A] /	Efficiency at Load	Power Factor at	kW = [A]/[D] CONSUMED LOAD KVAR = kW*Tan θ						Bus Section	Remarks	Rev.			
							(kW)	(kW)	[B]	Factor [C]	Load Factor [C]	Continuous [E]	Intermittent [F]	Standby [G]	[kW]	[kVAR]	[kW]				[kVAR]	[kW]	[kVAR]
							[A]	[B]	[C]	[D]	COS θ	[kW]	[kVAR]	[kW]	[kVAR]	[kW]	[kVAR]						
1	AM-303A	LSG-001		DOL	C	Treated Gas Cooler A	11.64	15.00	0.78	0.92	0.85	12.68	7.86					Vendor - Jord	0				
2	AM-303B	LSG-001		DOL	C	Treated Gas Cooler B	11.64	15.00	0.78	0.92	0.85	12.68	7.86					Vendor - Jord	0				
3	AM-301A	LSG-001		DOL	C	Amine Cooler A	16.72	22.00	0.76	0.93	0.86	18.06	10.71					Vendor - Jord	0				
4	AM-301B	LSG-001		DOL	C	Amine Cooler B	16.72	22.00	0.76	0.93	0.86	18.06	10.71					Vendor - Jord	0				
5	AM-302A	LSG-001		DOL	C	Amine Still Reflux Condenser A	14.22	18.50	0.77	0.92	0.86	15.42	9.15					Vendor - Jord	0				
6	AM-302B	LSG-001		DOL	C	Amine Still Reflux Condenser B	14.22	18.50	0.77	0.92	0.86	15.42	9.15					Vendor - Jord	0				
7	PM-4001A	LSG-001		DOL	C	Condensate Transfer Pump A	5.25	7.50	0.70	0.85	0.73	6.18	5.78					Vendor - Pumpworks	0				
8	PM-4001B	LSG-001		DOL	S	Condensate Transfer Pump B	5.25	7.50	0.70	0.85	0.73					6.18	5.78	Vendor - Pumpworks	0				
9	PM-4002A	LSG-001		DOL	C	Condensate Export Pump A	7.70	11.00	0.70	0.85	0.73	9.06	8.48					HOLD BY CLIENT	0				
10	PM-4002B	LSG-001		DOL	S	Condensate Export Pump B	7.70	11.00	0.70	0.85	0.73					9.06	8.48	HOLD BY CLIENT	0				
11	PM-604	LSG-001		DOL	C	Amine Booster Pump A	10.50	15.00	0.70	0.85	0.73	12.35	11.57					Vendor - Pumpworks	0				
12	PM-605	LSG-001		DOL	S	Amine Booster Pump B	10.50	15.00	0.70	0.85	0.73					12.35	11.57	Vendor - Pumpworks	0				
13	PM-607	LSG-001		DOL	C	Amine Still Reflux Pump A	5.25	7.50	0.70	0.85	0.73	6.18	5.78					Vendor - Pumpworks	0				
14	PM-608	LSG-001		DOL	S	Amine Still Reflux Pump B	5.25	7.50	0.70	0.85	0.73					6.18	5.78	Vendor - Pumpworks	0				
15	PM-601	LSG-001		DOL	C	Amine Circulation Pump A	93.50	110.00	0.85	0.95	0.90	98.42	47.67					Vendor - Sundyne	0				
16	PM-601A	LSG-001		DOL	C	Auxiliary Lube Oil Pump A (Amine)	0.39	0.55	0.70	0.70	0.60	0.55	0.74					Vendor - Sundyne	0				
17	AM-601	LSG-001		DOL	C	Auxiliary Air Cooler Fan A (Amine)	0.53	0.75	0.70	0.85	0.75	0.62	0.55					Vendor - Sundyne	0				
18	PM-602	LSG-001		DOL	C	Amine Circulation Pump B	93.50	110.00	0.85	0.95	0.90	98.42	47.67					Vendor - Sundyne	0				
19	PM-601B	LSG-001		DOL	C	Auxiliary Lube Oil Pump B (Amine)	0.39	0.55	0.70	0.70	0.60	0.55	0.74					Vendor - Sundyne	0				
20	AM-602	LSG-001		DOL	C	Auxiliary Air Cooler Fan B (Amine)	0.53	0.75	0.70	0.85	0.75	0.62	0.55					Vendor - Sundyne	0				
21	PM-603	LSG-001		DOL	S	Amine Circulation Pump C	93.50	110.00	0.85	0.95	0.90					98.42	47.67	Vendor - Sundyne	0				
22	PM-601C	LSG-001		DOL	S	Auxiliary Lube Oil Pump C (Amine)	0.39	0.55	0.70	0.70	0.60					0.55	0.74	Vendor - Sundyne	0				
23	AM-603	LSG-001		DOL	S	Auxiliary Air Cooler Fan C (Amine)	0.53	0.75	0.70	0.85	0.75					0.62	0.55	Vendor - Sundyne	0				
24	PM-1621	LSG-001		DOL	C	EG Pump A	2.94	7.50	0.39	0.89	0.88	3.32	1.79					Vendor - PULSAFEEDER	0				
25	PM-1622	LSG-001		DOL	S	EG Pump B	2.94	7.50	0.39	0.89	0.88					3.32	1.79	Vendor - PULSAFEEDER	0				
26	PM-7001A	LSG-001		DOL	C	Sour Water Stripper Feed Pump A	2.69	4.00	0.67	0.85	0.73	3.16	2.96					Vendor - Pumpworks	0				
27	PM-7001B	LSG-001		DOL	S	Sour Water Stripper Feed Pump B	2.69	4.00	0.67	0.85	0.73					3.16	2.96	Vendor - Pumpworks	0				
28	PM-6104	LSG-001		DOL	C	DEMIN Water Transfer Pump	1.76	2.20	0.80	0.85	0.83	2.08	1.41					Vendor - Standard Technical	0				
29	PM-2501A/B - CP	LSG-001		F	C	Hot Oil Heater - Pump Motor Starter Panel	42.00	42.00	1.00	1.00	0.85	42.00	26.03					Vendor - Heatec	0				



**Electrical Load List - 415V Normal LV Switchboard (LSG-001)**

Sl. No	Equipment No:	Switch board	Feeder number	Feeder type	Service	Description	Absorbed Load (kW)	Equipment rating (kW)	Load factor [A] / [B]	Efficiency at Load Factor [C]	Power Factor at Load Factor [C]	kW = [A]/[D] CONSUMED LOAD kVAR = kW*Tan θ						Bus Section	Remarks	Rev.
							[A]	[B]	[C]	[D]	COS θ	Continuous [E]		Intermittent [F]		Standby [G]				
												[kW]	[kVAR]	[kW]	[kVAR]	[kW]	[kVAR]			
30	BM-2501C - CP	LSG-001		F	C	Hot Oil Heater - Blower Motor Starter Panel	30.00	30.00	1.00	1.00	0.85	30.00	18.59					Vendor - Heatec	0	
31	M-5002 - CP	LSG-001		F	C	Incinerator Package Motor Starter Panel	12.00	12.00	1.00	1.00	0.85	12.00	7.44					Vendor - ZEECO	0	
32	M-5501 - CP	LSG-001		F	C	Produced Water Treatment Package Control Panel	25.00	25.00	1.00	1.00	0.85	25.00	15.49					Vendor - Exterran Canada	0	
33	M-6102 - CP	LSG-001		F	C	DEMIN Water Package Control Panel	7.55	15.00	0.50	1.00	0.85	7.55	4.68					Vendor - AVERDA	0	
34	WER-JB-001/002	LSG-001		F	I	Power Junction Box (Welding Receptacles 1 & 2)	30.00	30.00	1.00	1.00	0.85			30.00	18.59				0	
35	WER-JB-003/004	LSG-001		F	I	Power Junction Box (Welding Receptacles 3 & 4)	30.00	30.00	1.00	1.00	0.85			30.00	18.59				0	
36	LDB-001	LSG-001		F	C	Normal Lighting Distribution Board - Plant	40.00	40.00	1.00	1.00	0.85	40.00	24.79						0	
37	LDB-002	LSG-001		F	C	Electrical Switchgear Building - AC, Lighting & Small Power (Normal)	35.00	35.00	1.00	1.00	0.85	35.00	21.69						0	
38	LDB-003	LSG-001		F	C	Control Room Building - AC, Lighting & Small Power (Normal)	25.00	25.00	1.00	1.00	0.85	25.00	15.49						0	
39	CP-001	LSG-001		F	C	Cathodic Protection	5.00	5.00	1.00	1.00	0.85	5.00	3.10						0	
40	UPS-001	LSG-001		F	S	110V AC UPS - Power Supply - 1 (Normal)	30.00	30.00	1.00	1.00	0.85					30.00	18.59		0	
41	ETDB-001	LSG-001		F	C	Heat Tracing Distribution Board	15.00	15.00	1.00	1.00	0.85	15.00	9.30						0	
42	LSG-002	LSG-001		F	-	Outgoing feeder to 415V Emergency LV Switchgear (LSG-002, Bus A)												Refer page 7 of 7 for the loads	0	
43	HVAC-001	LSG-001		F	C	HVAC for Electrical Switchgear Building-1	35.00	35.00	1.00	1.00	0.85	35.00	21.69						1	
<u>Max. of normal running plant load:</u>							635.38	kW	378.01	kVAR	739.32	kVA	X=	100	<b>TOTAL</b> 605.38   359.42   60.00   37.18   169.84   103.91 kVA=√(kW²+kVAR²)   704.04   70.59   199.11				<b>Electrical Load List - 415V Normal LV Switchboard (LSG-001)</b>	
(Est. x %E + y %F)											Y=	30								
<u>Peak load:</u>							652.36	kW	388.4	kVAR	759.23	kVA	Z=	10						
(Est. x %E + y %F + z %G)																				

**Electrical Load List - 415V Emergency LV Switchboard (LSG-002)**

Sl. No	Equipment No.:	Switch board	Feeder number	Feeder type	Service	Description	Absorbed Load (kW)	Equipment rating (kW)	Load factor [A] / [B]	Efficiency at Load Factor [C]	Power Factor at Load Factor [C]	kW = [A]/[D] CONSUMED LOAD KVAR = kW*Tan θ				Bus Section	Remarks	Rev.		
							[A]	[B]	[C]	[D]	COS θ	Continuous [E]		Intermittent [F]					Standby [G]	
												[kW]	[kVAR]	[kW]	[kVAR]				[kW]	[kVAR]
1	M-6201-CP	LSG-002		F	C	Instrument Air Package (Feeder Panel)	151.50	151.50	1.00	1.00	0.85	151.50	93.89					Vendor - Atlas Copco	0	
2	PM-5001A	LSG-002		DOL	C	HP Flare Knockout Pump A	2.16	4.00	0.54	0.85	0.73	2.54	2.38					Vendor - Pumpworks	0	
3	PM-5001B	LSG-002		DOL	S	HP Flare Knockout Pump B	2.16	4.00	0.54	0.85	0.73					2.54	2.38	Vendor - Pumpworks	0	
4	PM-6102A	LSG-002		DOL	C	Potable Water Pump A	1.76	2.20	0.80	0.85	0.83	2.08	1.41					Vendor - Standard Technical	0	
5	PM-6102B	LSG-002		DOL	S	Potable Water Pump B	1.76	2.20	0.80	0.85	0.83					2.08	1.41	Vendor - Standard Technical	0	
6	PM-5002A	LSG-002		DOL	C	Knock Out Liquid Transfer Pump A	10.50	15.00	0.70	0.85	0.73	12.35	11.57					Vendor - Pumpworks	0	
7	PM-5002B	LSG-002		DOL	S	Knock Out Liquid Transfer Pump B	10.50	15.00	0.70	0.85	0.73					12.35	11.57	Vendor - Pumpworks	0	
8	PM-6501	LSG-002		DOL	C	Closed Drain Pump	20.91	30.00	0.70	0.91	0.78	22.98	18.43					Vendor - Pumpworks	0	
9	EDB-001	LSG-002		F	C	Emergency Lighting Distribution Board - Plant	20.00	20.00	1.00	1.00	0.85	20.00	12.39						0	
10	EDB-002	LSG-002		F	C	Electrical Switchgear Building - Lighting & Small Power (Emergency)	5.00	5.00	1.00	1.00	0.85	5.00	3.10						0	
11	EDB-003	LSG-002		F	C	Control Room Building - Lighting & Small Power (Emergency)	5.00	5.00	1.00	1.00	0.85	5.00	3.10						0	
12	EDB-004	LSG-002		F	C	Admin Building DB (AC, Lighting & Small Power)	30.00	30.00	1.00	1.00	0.85	30.00	18.59						0	
13	EDB-005	LSG-002		F	C	Ware House/Maintenance Building DB (Lighting & Small Power)	21.00	21.00	1.00	1.00	0.85	21.00	13.01						0	
14	EDB-006	LSG-002		F	C	Guard House Building DB (AC, Lighting & Small Power)	5.00	5.00	1.00	1.00	0.85	5.00	3.10						0	
15	PDB-001	LSG-002		F	C	Power Distribution Board (Auxiliary Loads)	40.00	40.00	1.00	1.00	0.85	40.00	24.79						0	
16	UPS-001	LSG-002		F	C	110V AC UPS - Power Supply - 2 (Emergency)	30.00	30.00	1.00	1.00	0.85	30.00	18.59						0	
17	UPS-001	LSG-002		F	S	110V AC UPS (By Pass)	30.00	30.00	1.00	1.00	0.85					30.00	18.59		0	
18	UPS-002	LSG-002		F	C	110V DC UPS - Power Supply 1	12.00	12.00	1.00	1.00	0.85	12.00	7.44						0	
19	UPS-002	LSG-002		F	S	110V DC UPS - Power supply 2	12.00	12.00	1.00	1.00	0.85					12.00	7.44		0	

**Electrical Load List - 415V Emergency LV Switchboard (LSG-002)**

Sl. No	Equipment No.:	Switch board	Feeder number	Feeder type	Service	Description	Absorbed Load (kW)	Equipment rating (kW)	Load factor [A] / [B]	Efficiency at Load Factor [C] [D]	Power Factor at Load Factor [C] [E]	kW = [A]/[D] CONSUMED LOAD KVAR = kW*Tan θ						Bus Section	Remarks	Rev.	
							[A]	[B]	[C]	[D]	COS θ	Continuous [E]		Intermittent [F]		Standby [G]					
												[kW]	[kVAR]	[kW]	[kVAR]	[kW]	[kVAR]				
20	LCP-6401	LSG-002		F	S	Electric Fire Water Pump Controller	90.00	90.00	1.00	1.00	0.85					90.00	55.78			0	
21	LCP-6402	LSG-002		F	S	Electric Fire Water Pump Controller	90.00	90.00	1.00	1.00	0.85					90.00	55.78			0	
22	LCP-6404	LSG-002		F	S	Jockey Fire Water Pump Controler	13.00	13.00	1.00	1.00	0.85					13.00	8.06			0	
23	6701-UCP-01	LSG-002		F	C	EDG Control Panel (DG Auxiliary supply)	10.00	10.00	1.00	1.00	0.85	10.00	6.20								0
24	HVAC-002	LSG-002		F	C	HVAC for Electrical Switchgear Building-2	35.00	35.00	1.00	1.00	0.85	35.00	21.69								1
25	HVAC-003	LSG-002		F	C	HVAC for Control Room Building	25.00	25.00	1.00	1.00	0.85	25.00	15.49								1
<b>Max. of normal running plant load:</b> (Est. x %E + y %F)							429.45 kW	275.17 kVAR	510.04 kVA	X=	100	<b>TOTAL</b>						<b>Electrical Load List - 415V Emergency LV Switchboard (LSG-002)</b>			
<b>Peak load:</b> (Est. x %E + y %F + z %G)							454.65 kW	291.27 kVAR	539.95 kVA	Y=	30										
										Z=	10									kVA= $\sqrt{(kW^2+kVAR^2)}$	

**Electrical Equipment List**

Sl. No	Equipment Location	Scope	Requisition Package	Equipment Tag No.	Material Grade			Unit of Measurement LM/S/EA	Qty	Project Reference Drawings	Project Reference Documents	Remarks	Rev.
					Material Description	System Voltage	Rating						
1	Indoor - Switchgear Building	Exterran	HV Switchgear	HSG-001	11kV, 3Phase, 3W, 50Hz, 630A, 25kA for 1sec, Free standing metal clad switchgear with copper insulated busbars, Vacuum circuit breakers with earth switch, draw out type feeder, with all metering and protections, IP31(min), bottom cable entry. The switchgear shall be provided with marshalling cabinet (for PCS and ESD) for interfaces with ICSS through hardwired connection.  The switchgear shall comply with IEC 62271 (all parts) and relevant IEC.	11 kV	630A	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0002	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0001 ZP-50-EL-TDS-0001		A
2	Outdoor - Adjacent to Switchgear Building	Exterran	Distribution Transformer	TRF-001 & TRF-002	Oil immersed, 11/0.433kV, +/-10%, 50Hz+/- 3%, 2.0MVA, Dyn11, Z=7%, IP41(min), Class A insulated, ONAN with conservator and radiator type or manufacturer standard complying to IEC 60076. Off load tap changer shall be provided with total 5 taps each with 2.5% for voltage variation.  Transformer shall have provision to upgrade ONAF rating.	11/0.433kV	2.0 MVA	EA	2Nos.	ZP-50-EL-56-0001 ZP-50-EL-56-0003	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0008 ZP-50-EL-TDS-0008		A
3	Outdoor - Near by Switchgear Building	Exterran	Emergency Diesel Generator Package	EDG-001	800kWe, 415V, 3Phase, 4W, 50Hz, 0.8pf Emergency Diesel Engine Generator Package with engine gauge panel, auxiliary panel and generator unit control panel. Ingress protection for package enclosure shall be IP55 (when not running) and AC synchronous generator enclosure shall be IP23 as a minimum.  The EDG shall be provided as per IEC standards.	415V	800kWe	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0004	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0006 ZP-50-EL-TDS-0006		A
4	Indoor - Switchgear Building	Exterran	Normal LV Switchboard	LSG-001	415V, 3Phase, 4W, 50Hz, 3200A, 50kA/1sec, Free standing metal glad Normal LV Switchboard with copper insulated busbars, draw out type feeders (ACB feeders, MCCB feeders, Motor starter and power feeders), with all metering and protections, Form 4A, IP31(min), and have double front (front and rear) access, front/rear cable termination access with bottom cable entry. The switchgear shall be provided with marshalling cabinet (PCS and ESD) for interfaces with ICSS through hardwired connection.  The switchgear shall comply with IEC 60439 (all parts) and relevant IEC.	415V	3200A	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0003	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0002 ZP-50-EL-TDS-0002		A
5	Indoor - Switchgear Building	Exterran	Emergency LV Switchboard	LSG-002	415V, 3Phase, 4W, 50Hz, 1600A, 50kA for 1sec, Free standing metal glad Emergency LV Switchboard with copper insulated busbars, draw out type feeders (ACB feeders, MCCB feeders, Motor starter and power feeders), with all metering and protections, Form 4A, IP31(min), and have double front (front and rear) access, front/rear cable termination access with bottom cable entry. The switchgear shall be provided with marshalling cabinet (PCS and ESD) for interfaces with ICSS through hardwired connection.  The switchgear shall comply with IEC 60439 (all parts) and relevant IEC.	415V	1600A	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0004			A
6	Indoor-Switchgear Building	Exterran	Normal Lighting Distribution Board - Plant	LDB-001	415/240V, 3Phase, 4W, 50Hz, 200A, 25kA for 1 sec., Metal enclosed, Wall/Floor mounted, IP32(min), Photocell controlled, Form 2B type Normal Lighting Distribution Board shall comprise of a four (4) pole, MCCB/on-load switch as Incoming feeder and two (2) pole MCB (curve B) as Outgoing feeders with bottom cable entry.  The DB shall comply with IEC 60439 (all parts) and relevant IEC.	415/240V	60kW	EA	1No.	ZP-50-EL-56-0001			A

**Electrical Equipment List**

Sl. No	Equipment Location	Scope	Requisition Package	Equipment Tag No.	Material Grade			Unit of Measurement LM/S/EA	Qty	Project Reference Drawings	Project Reference Documents	Remarks	Rev.
					Material Description	System Voltage	Rating						
7	Indoor-Switchgear Building	Exterran	Emergency Lighting Distribution Board - Plant	EDB-001	415/240V, 3Phase, 4W, 50Hz, 100A, 25kA for 1 sec., Metal enclosed, Wall/Floor mounted, IP32(min), Photocell controlled, Form 2B type Emergency Lighting Distribution Board shall comprise of a four (4) pole, MCCB/on-load switch as Incoming feeder and two (2) pole MCB (curve B) as Outgoing feeders with bottom cable entry.  The DB shall comply with IEC 60439 (all parts) and relevant IEC.	415/240V	30kW	EA	1No.	ZP-50-EL-56-0001	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0003 ZP-50-EL-TDS-0003		A
8	Indoor - Switchgear Building	Exterran	Power Distribution Board	PDB-001	415/240V, 3Phase, 4W, 50Hz, 250A, 25kA for 1 sec., Metal enclosed, Wall/Floor mounted, IP32(min), Form 2B type Power Distribution Board shall comprise of a four (4) pole, MCCB/on-load switch as Incoming feeder and two (2) pole MCB (curve B) or two (2) pole MCB (curve B) plus ELCB (30 or 300mA) as Outgoing feeders with bottom cable entry.  The DB shall comply with IEC 60439 (all parts) and relevant IEC.	415/240V	80kW	EA	1No.	ZP-50-EL-56-0001			A
9	Indoor - Switchgear Building	Exterran	AC UPS system	UPS-001	50kVA, 110V AC UPS system (Redundant, 2 x 100% + By pass) shall be static type and shall as a minimum consist of a converter and inverter set. The system shall be microprocessor controlled and shall be complete with isolation transformers, static switches, manual by pass switch, stabilizers at by pass, isolating switches, control, monitoring and protection devices etc.  UPS shall be provided as per IEC standards.	110V AC	50kVA	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0005	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0004 ZP-50-EL-TDS-0004		A
10	Indoor - Switchgear Building, Battery Room	Exterran		Battery Bank BBK-0001A & BBK-0001B	AC UPS Battery bank shall be sealed lead acid maintenance free type, 2 x 50% (each rated 100% current and 50% time) batteries, Battery bank shall be designed for safety, security and communication systems loads (10kW) – 4 Hours and Process control system loads (30kW) – 2 Hours. Battery Bank shall be provided along with battery rack.	110V AC	-	EA	2Nos.			Battery sizing shall be by the vendor for given load profile.	A
11	Indoor - Switchgear Building, Battery Room	Exterran		Battery Breaker Box BBP-0001A & BBP-0001B	Battery breaker box for above battery banks, suitable for hazardous area (Ex'd') and for Zone 1, Gas Group IIC, and T3 temperature class.	110V AC	-	EA	2Nos.				A
12	Indoor - Switchgear Building	Exterran		UPS Distribution Board UDB-001	110AC, 1Phase, 2W, 50Hz, 500A, 25kA for 1 sec., Metal enclosed, integrated with UPS cabinets, Floor mounted, IP32(min), Form 2B type UPS Distribution Board shall comprise of a two (2) pole, MCCB as Incoming feeder and two (2) pole MCB as Outgoing feeders with bottom cable entry.  The DB shall comply with IEC 60439 (all parts) and relevant IEC.	110V AC	-	EA	1No.				A

**Electrical Equipment List**

Sl. No	Equipment Location	Scope	Requisition Package	Equipment Tag No.	Material Grade			Unit of Measurement LM/S/EA	Qty	Project Reference Drawings	Project Reference Documents	Remarks	Rev.
					Material Description	System Voltage	Rating						
13	Indoor - Switchgear Building	Exterran	DC UPS System	UPS-002	15kVA, 110V DC UPS system (Redundant, 2 x 100%) shall be static type and shall consist of a battery charger set. The system shall be microprocessor controlled and shall be complete with isolation transformers, diodes, isolating switches, control, monitoring and protection devices etc.  UPS shall be provided as per IEC standards.	110V DC	15kVA	EA	1No.	ZP-50-EL-56-0001 ZP-50-EL-56-0006	ZP-50-GEN-BOD-0001 ZP-50-EL-SPF-0005 ZP-50-EL-TDS-0005		A
14	Indoor - Switchgear Building, Battery Room	Exterran		Battery Bank BBK-0002A & BBK-0002B	DC UPS Battery bank shall be sealed lead acid maintenance free type, 2 x 50% (each rated 100% current and 50% time) batteries, Battery bank shall be designed for switchgears protection and control with 30min autonomy time. Battery Bank shall be provided along with battery rack.	110V DC	-	EA	2Nos.				A
15	Indoor - Switchgear Building, Battery Room	Exterran		Battery Breaker Box BBP-0002A & BBP-0002B	Battery breaker box for above battery banks, suitable for hazardous area (Ex'd') and for Zone 1, Gas Group IIC, and T3 temperature class.	110V DC	-	EA	2Nos.			Battery sizing shall be by the vendor for given autonomy time.	A
16	Indoor - Switchgear Building	Exterran		UPS Distribution Board UDB-002	110V DC, 2W, 160A, 10kA for 1 sec., Metal enclosed, integrated with UPS cabinets, Floor mounted, IP32(min), Form 2B type UPS Distribution Board shall comprise of a two (2) pole, MCCB as Incoming feeder and two (2) pole MCB as Outgoing feeders with bottom cable entry.  The DB shall comply with IEC 60439 (all parts) and relevant IEC.	110V DC	-	EA	1No.				A

**Notes:-**

- Generator control panel and Auxiliary panel shall be included/considered in generator package.
- Lighting & small power distribution boards (including AC) for buildings shall be by building vendor scope.
- UPS/Battery system requirements for Emergency diesel generator & Diesel fire water pump shall be included/considered in respective package vendor scope.

**HOLD :**

- Equipment Tag Numbers
- Equipment Loads and Ratings