	BILL OF MATERIAL (Main Supply + O&M Spares)	Annexure -[04] of PY51354
	Fire Detection & Alarm System	Rev 01
	Project: 2 x 490 MW FPS system - NTPC Dadri (FGD Package)	

NOTES ::

1	<p>The number of loops in the Fire Alarm panel shall be selected on the following philosophy:</p> <p>a) All the addressable devices indicated in the BOQ shall be connected to the Fire Alarm Panel.</p> <p>b) 20% of loop capacity shall be left free for addition of devices in future.</p> <p>c) In addition to the above, 2 number spare loops in each fire alarm panel shall be provided.</p> <p>d) Loop distance coverage shall be as per OEM recommendation.</p> <p>Refer Annexure - 12 for area wise breakup of detectors/devices.</p> <p>Based on above requirements and as per cl. no 9 of technical specification PY51354, bidder to decide the number of fire alarm panels and number of loops required to cover the present scope of work.</p>
2	Provision for additional loop card shall be made in Fire Alarm Panel. Fire Alarm Panel shall be designed keeping in view of this additional loop card including its loading also. However, the supply of this additional loop card is not in bidder's scope.
3	Modules shall be provided to monitor four inputs (pressure switches, LHS cable and two limit switches) and control one output (SOV) on each deluge valve.
4	Bidder to note that all addressable devices/OEM items shall be loop powered. In case loop powered devices are not available in the make offered, bidder shall consider the necessary modules along with the devices and quote accordingly. Hence in such cases the modules shall be included in the offered BOQ.
5	NIL
6	Each detector in a loop shall have short circuit isolator suitable for style-7 wiring as per NFPA-72.
7	All erection hardware including back box, lugs, glands, clamps, structural steel, anchor fastner etc. for the FDA items shall be considered in the offer and shall be as per installation drawings which shall be furnished by bidder during detail engineering.
8	Bidder to confirm that entire FDA System shall be subject to approval by TAC accredited agency to qualify maximum premium discount. Responsibility to get approval from TAC Accredited agencies shall rest on BHEL. However all necessary documentation for obtaining such approvals are in bidder's scope
9	NIL
10	Bidder shall supply 07 kms of 2C x 1.5sq.mm TWISTED, SHIELDED, PVC CU FRLS ARMOURED CABLE and 03 kms of 2C x 2.5sq.mm TWISTED, SHIELDED, PVC CU FRLS ARMOURED CABLE. Accordingly bidder to take care of all the terminations. Erection hardware like cable tags, saddles, saddle bars, etc for 10 kms of the above cable be considered.
11	NIL
12	Software Licenses shall be valid for lifetime.
13	NIL
14	In case of 3 phase 415 V power supply is provided for fire alarm panel, bidder to consider a transformer of sufficient rating required for each fire alarm panel.

15	<p>Latest version OWS shall be supplied by bidder. Minimum requirements shall be:-</p> <p>4GB Ram</p> <p>500 GB Hard Disk</p> <p>1 Serial Com Interface</p> <p>2 USB Ports</p> <p>24" LED Monitor</p> <p>Keyboard</p> <p>Optical Mouse</p> <p>Optical Disk Drive</p> <p>Color Laserjet Printer (A4 & A3 Size, 128 MB Memory)</p> <p>Latest Softwares (Windows, MS Office, Antivirus, and other required softwares pertaining to Fire Detection & Alarm System)</p> <p>Table with revolving chair</p>
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Annexure -[04] of PY51354

Fire Detection & Alarm System

Rev 01

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S. No	Item Description	Quantity	UNITs	O&M SPARES DESCRIPTION	O&M SPARES QUANTITIES	REMARKS
1	Main Fire Alarm Panel [MFAP]	1	Set	-	-	Note - 1
(a)	Fuse	1	Lot	100% of population		
(b)	Power supply module	1	Lot	10% or 1 No. of each type & rating whichever is more		
(c)	Loop card module	1	Lot	10% or 1 No. of each type, whichever is more		
(d)	LCD display of each type unit of panel	1	Lot	-	1 Nos	
(e)	Interface unit / module for non - addressable devices	1	Lot	10% or 1 No. of each type, whichever is more		
(f)	Auxiliary / output relay module	1	Lot	10% or 1 No. of each type, whichever is more		
(f)	Fire screen / alarm buzzer	1	Lot	1 No. of each type		
(h)	Any other items required for completeness of fire alarm panel to work satisfactorily	1	Lot	-	-	
2	Repeater Panel	1	No's	-	-	
3	Cabinet for Floor Mounting of Fire Alarm Panel	1	Set	-	-	Note - 1
4	Transformer	1	Set	-	-	Note - 14
5	24" TFT-LCD Operator work station [OWS] with all sets of licensed Softwares + 1 No Laser Printer (Colour) suitable for A4 & A3 size paper + Furniture like table & chair as required for above work station & printer	1	Set	-	-	Note - 15
(a)	Cartridge for printer	1	Lot	-	2 Nos	
6	Multisensor Detectors with detector base and junction / back box	250	No's	-	5	
7	Heat Detectors with detector base and junction / back box	6	No's	-	-	
8	Beam Detectors with detector base and junction / back box	6	No's	-	-	
9	Duct Mounted Smoke Detectorwith base and junction / back box	2	No's	-	-	
10	Digital LHS Cable for Cable Galleries	2000	Mts	-	100	Note - 3
11	Digital LHS Cable for Conveyors	3000	Mts	-	150	Note - 3
12	JB's for LHS Cable Joint (LHS Cable Connectors)	10	No's	-	-	
13	Modules with back box for 3 nos of deluge valves (1 HVWS + 2 MVWS) Located near FGD Control Room	1	Lot	-	-	Note - 3
14	Monitor Module for LHS Cable	5	No's	-	-	
15	Manual Call Points with mounting back box (Indoor)	20	No's	-	2	
16	Manual call points with mounting back box (Outdoor)	20	No's	-	2	
17	Hooter with mounting back box (Bidder to include monitor module in case of non loop powered)	20	No's	-	-	Note - 4
18	Control modules with back box for tripping of AHU and dampers	10	No's	-	-	
19	NIL	-	-	-	-	
20	Control modules with back box for Customer Use	10	No's	-	-	
21	Response Indicators	10	No's	-	2	
22	Self Illuminating Exit Sign	20	No's	-	-	
23	UPS for PC & Printer	1	No's	-	-	
24	2 x 1.5 Sqmm Control Cable (armored)	7000	Mts	-	-	Note - 10
25	2 x 2.5 Sqmm Power Cable (armored)	3000	Mts	-	-	Note - 10

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S. No	Item Description	Quantity	UNITs	O&M SPARES DESCRIPTION	O&M SPARES QUANTITIES	REMARKS	
26	Fiber Optic Cable	1000	Mts	-	-	for networking of fire alarm panels	
27	Replacement Glass for Break Glass Unit MCP	0	No's	-	10	The same is not required if proposed MCP is not Break Glass type.	
28	Erection Material for Above FDA Items						
(a)	Screw with Rawl Plug	1	Lot	-	-	Note - 7	
(b)	Back Box	1	Lot	-	-	Note - 7	
(c)	Nut Bolt Washer Assembly	1	Lot	-	-	Note - 7	
(d)	Flange for probe detectors	1	Lot	-	-	Note - 7	
(e)	Pipe Clip	1	Lot	-	-	Note - 7	
(f)	GI 'U' Bolt	1	Lot	-	-	Note - 7	
(g)	Saddle Spacer	1	Lot	-	-	Note - 7	
(h)	Nut Bolt Assembly	1	Lot	-	-	Note - 7	
(i)	Anchor Fastner	1	Lot	-	-	Note - 7	
(j)	Hook type Anchor Fastner	1	Lot	-	-	Note - 7	
(k)	Chain	1	Lot	-	-	Note - 7	
(l)	Structure steel	1	Lot	-	-	Note - 7	
(m)	J-Bolt	1	Lot	-	-	Note - 7	
(n)	Cable Saddles (for 1.5 sqmm & 2.5 sqmm cables)	1	Lot	-	-	Note - 7	
(o)	Cable Lugs (for 1.5 sqmm & 2.5 sqmm cables)	1	Lot	-	-	Note - 7	
(p)	Cable Glands (for 1.5 sqmm & 2.5 sqmm cables)	1	Lot	-	-	Note - 7	
(q)	Base Frame for Fire Alarm Panel	1	Lot	-	-	Note - 7	
(r)	Erection Hardware for 10 kms of FDA cables as mentioned above	1	Lot	-	-	Note - 10	
(s)	Any other Erection / Commissioning material required for completeness of system	1	Lot	-	-	Note - 7	