

**OIL INDIA LIMITED**

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**ANNEXURE-I**

**Tender No. : KID3123P07/04**  
**Tender Date : 27.10.2006**

Item No./ Mat. Code	Material Description	Quantity	UOM
10 0C000194	<p>TURNKEY DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF AUTOMATIC FIRE DETECTION AND ALARM SYSTEM AS PER IS-2189 FOR 9 NOS. PUMP STATIONS, LAYING ALONG THE PIPELINE OF 1009.6 KMS, STARTING FROM DULIAJAN, DIBRUGARH DIST. OF ASSAM UPTO DUMAR, KATI HAR DIST. OF BIHAR</p> <p>1.0 Out of 9 Pump Stations:</p> <p style="padding-left: 40px;">6 nos. are in ASSAM State          2 nos. are in WEST BENGAL State          1 no. is in BIHAR State</p> <p>2.0 PLAN AND DIMENSION OF THE AREA TO BE PROTECTED:</p> <p>2.1 Engine Room, Pump Room, Control Room and Generator Room are to be protected. Control room have office-cum-control room, where SCADA system, Control Panels, Computers, etc. are installed. The height of Pump, Engine &amp; Generator are Approx. 2.6 mtr to 3.0 mtr. from ground level. The Power of each Pump Unit is approximately 700 BHP, Engine-286 BHP. Generation Capacity at Each Pump Stations are as follows:</p> <p style="padding-left: 40px;">PS-01, 02 = NIL          PS-03, 04, 08 = 196 kw x 3 nos          PS-05 = 250 kw x 3 nos + 550 kw x 1 no. + 600 kw x 1 no.          PS-06, 07, 09 = 150 kw x 3 nos</p> <p>2.2 All Rooms are rectangular in shape. All rooms except Control room are approx. 2.5 mtr. open from ground level. Stair case for control room is from outside part of the Pump+Engine room Building. Plan of Pump St. - 01 (PS- 2, 3 &amp; 5 have similar plan with change in diamention as mentioned hereafter) AND Plan of Pump St. - 04 (PS- 6, 7, 8 &amp; 9 have similar plan with change in diamention as mentioned hereafter) are enclosed in Annexure-I.</p> <p>2.3 Engine Room, Pump Room and Control Room are the part of single building, where as Generator room has separate building parallel to the former building along it's length at a distance of approx. 20 meters from Engine side of the Building.</p> <p>2.4 Engine Rooms and Pump Rooms at all the Pump Stations are segregated by a wall along the length of the building. One corner of this building has been converted into Office rooms at ground floor and Control room on first floor.</p> <p>2.5 DIMENTIONS OF THE ROOMS: (Length x Breadth x Height in meters) x (Nos of Pump/Engine/Generator)</p>	1	NO

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i)	PS-01 : Pump Room = 29.10 x 07.62 x 7.50 x 6 Engine Room = 32.60 x 10.67 x 7.50 x 6 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = Not in Existance x --		
ii)	PS-02 : Pump Room = 21.35 x 07.62 x 7.50 x 5 Engine Room = 24.85 x 10.67 x 7.50 x 5 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = Not in Existance x --		
iii)	PS-03, 04: Pump Room = 44.80 x 07.62 x 7.50 x 9 Engine Room = 48.30 x 10.67 x 7.50 x 9 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = 23.50 x 13.00 x 7.50 x 3		
iv)	PS-05 : Pump Room = 43.78 x 07.62 x 7.50 x 8 Engine Room = 47.28 x 10.67 x 7.50 x 8 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = 23.50 x 13.00 x 7.50 x 5		
v)	PS-06 : Pump Room = 36.07 x 07.62 x 7.50 x 8 Engine Room = 39.57 x 10.67 x 7.50 x 8 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = 23.50 x 13.00 x 7.50 x 3		
vi)	PS-07,08 & 9 : Pump Room = 29.10 x 07.62 x 7.50 x 6 Engine Room = 32.60 x 10.67 x 7.50 x 6 Control Room = 11.00 x 03.50 x 4.50 x -- Generator Room = 23.50 x 13.00 x 7.50 x 3		
	2.6 The Party should consider $\pm 2\%$ approximation in dimension while calculating the requirement.		
	3.0 TECHNICAL REQUIREMENT:		
	3.1 GENERAL SPECIFICATION:		
	3.1.1 The automatic Fire Detection and alarm system must comprising of Automatic Detectors, Manual Call Points (Break Glass type with Hammer), Wall mounted Control Panel, indicating equipment, etc. The alarm system must be activated by automatic detection devices OR by manual operation of Manual Call Point OR manually from main Control Panel in case of failure of automatic system.		
	3.1.2 Major components of the system, to be UL listed, particularly Detection Devices, Control Panel, Signalling appliances. Detection of product of combustion and fire to be considered as per UL.		
	3.1.3 The fire detection and alarm system must reliably transmit the detection signal and translate this signal into a clear alarm indication.		
	3.1.4 The system must be reliable and must not get disturb by any other system, like "KIDDE" make fire detection and alarm system, installed in		

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	<p>1960s, which will be kept as it is, as the system is still in working condition.</p> <p>3.1.5 The system should not get inoperative partially or totally by the fire or the phenomenon to which it is designed to detect.</p> <p>3.1.6 The component used in the system must be compatible with each other.</p> <p>3.1.7 Design to incorporate facilities to check the operational efficiency of the complete system at a regular intervals.</p> <p>3.2 POWER SUPPLY:</p> <p>3.2.1 The control Panel must have a solid state, high speed switching power supply with 24 V DC output capable of responding instantly to voltage and current surges on the input and output sides to protect the system from multifunction and damage. A supervised battery charging circuit (with battery charging facility) and ground fault sensing circuitry to be an integral part of the Power supply. battery Power Supply shall be "On-line" such that Batteries will supply power to the system in the event of AC power loss without a power transfer relay.</p> <p>3.2.2 The control panel to house it's own sealed gel type maintenance free stand-by Battery. Batteries shall be sized to provide a minimum 24 hours stand-by power plus five minutes of alarm operation, but in no case shall be less than 8 AH capacity. Batteries shall be supervised and provide a trouble signal upon disconnect, open or shorted cell. A seperate battery Cenclosure shall be provided if battery calculations indicate the need for battery capacity in excess of that stored in the control panel, a seperate battery enclosure shall be manufactured by the control panel manufacturer and shall be of similar in appearance to that of Control Panel Enclosure.</p> <p>3.3 CONTROL PANEL:</p> <p>3.3.1 Supplier must supply TAC approval for the fire alarm Control Panel</p> <p>3.3.2 A wall mounted Control Panel to be located beneath the stair case of the Control Room. The control panels are to be housed in steel enclosures and are to be finished in hardwearing epoxy paint and to be designed to a high degree of standard. The provision for front door locking of the Control Panel with transperent window to see functions from outside to be incorporated.</p> <p>3.3.3 The Control Panel to be painted in fire red colour.</p> <p>3.3.4 The control Panel shall be operated on the cross- zone concept. Different rooms are to be divided into sectors and all the sectors are to be connected to a wall mounted control panel. Each room shall be consider as a seperate Sector. It should be incorporated with the digital display of each affected area with simultaneos blinking of "FIRE" word.</p> <p>3.3.5 The system should immediately and clearly supervise any fault</p>		

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	<p>that might jeopardise the correct performance of the system and fulfil it's function without errors or omissions. The Control Panel in addition to it's yellow system trouble (Automatic fault identification with distinct signal) LED shall further break down a trouble condition with use of diagnostic LEDs. These LEDs shall indicate the following trouble in the system:</p> <ul style="list-style-type: none"> <li>i) A.C. Power loss</li> <li>ii) Battery fault Open or shorted cell, disconnect.</li> <li>iii) Component failure</li> <li>iv) Wiring problem</li> <li>v) Microprocessor failure-flashing indicator</li> <li>vi) Ground fault</li> <li>vii) Detection Circuit-open circuit (Seperate LED for each detection circuit)</li> <li>viii) Audible signalling circuit- reverse polarity, open or short circuit (Seperate LEDs for each audible circuit), etc.</li> </ul> <p>3.3.6 The system should have the facility to trigger the Hooter/Alarm, already in existance at all the Pump Stations.</p> <p>3.3.7 Provision should be provided to introduce 2 spare zone cards on control panel to introduce fire suppression system for Control room in future.</p> <p>3.3.8 As in next year we are going for automatic flooding system for Control Room situated at first floor of Generator room at Pump Station 3 &amp; 5, extra provision for alarm of fire detection from the Control Panel (which will be installed for automatic suppression system), to be incorporated for these Stations.</p> <p>3.3.9 Provision for shutdown/trip in the Control Panel shall be provided.</p> <p>3.3.10 To de-energize the automatic features of the system, the provision should be incorporated to inhibit the whole system during maintenance/servicing of the system.</p> <p>3.4 SIGNALLING APPLIANES:</p> <p>3.4.1 Audio &amp; Visual Alarm at the Panel to be incorporated.</p> <p>3.4.2 Dual tone Electronic Hooter, single tone when any detector detects the fire and dual tone when cross zoning takes place.</p> <p>3.4.3 A parallel small sounder, loud enough to alert control room personnels, should be provided in the Control room well within audible range of the Control Room, as the room is closed due to Airconditioner.</p> <p>3.5 DETECTORS:</p> <p>3.5.1 The detector should have an explosion proof body engineered to withstand temerature and humidity extreme.</p> <p>3.5.2 Rate of rise-cum-fixed temperature detectors may be consider</p>		

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	<p>for the Pump, Engine and Generator room area. Possibility of combination of UV flame detectors wired in parallel with heat sensors for back-up to the UV detectors in cross zoning should suggest. UV system should not be affected by UV component of solar radiation.</p> <p>3.5.3 For Control room, Smoke Detectors, both Optical + Ionisation type should be consider on cross zoning principle.</p> <p>3.6 PIPING:</p> <p>3.6.1 Piping to house different cards/cabels shall not be of Non-mettallic or cast iron so that it's integrity under fire condition can be predicted with reliability.</p> <p>3.6.2 All the pipings shall be painted in fire red colour.</p> <p>4.0 SPARES:</p> <p>4.1 Sufficient nos. of spares to be provided. Two nos of Detectors of each type against each Pump Station shall be provided. List of spares with price list shall be mentioned clearly mentioning whether the same will be readily available or not.</p> <p>5.0 GENERAL:</p> <p>5.1 Bidder's technical man may visit (with prior permission) any one of the Pump station before sending their offer to design the system more precisely. The visiting cost to be borne by the bidder.</p> <p>5.2 SYSTEM DRAWINGS: The bidder to specifically prepare plan which are to indicate scale with lettering not smaller than one-eighth inch easily reproducible. These plan must indicate piping, location, type and quantity of detectors, system comonents, control panel, zone, detector indicator, alarm system, etc. Electrical system schematics and diagrams required to be provided, including a description of all interlock functions. Relevant leaflets/literature &amp; catalauge, Data sheets and make with proper certificate of all the equipment used in the system shall be provided.</p> <p>5.3 Cards, relay, Hooter, Detectors, etc. must be of reputed manufaturer. Wherever the Codes OR certificates for equipments are available, it should be provided along with the offer.</p> <p>5.4 Two sets of User/Service/testing manual against each Pump Station to be provided.</p> <p>5.5 The bidder must clearly mention about:</p> <p>i) Time required for supply of materials, installation and commissioning.</p> <p>ii) Warranty period of the system</p>		

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	<p>5.6 The successful bidder will have to arrange for:</p> <ul style="list-style-type: none"> <li>i) Delivery of the material at the respective site.</li> <li>ii) Transportation and accomodation of their personnel during the installation &amp; Commissioning works.</li> <li>iii) All the material required for installation.</li> <li>iv) All Civil work connected with installation.</li> <li>v) Required no of A.C. Cable for connecting power supply to control panel. A.C. power supply shall be available in the rooms.</li> </ul> <p>6.0 TERMS AND CONDITIONS:</p> <p>6.1 INSTALLATION: All the work to be completed with a high degree of workmanship and in compliance with current relevant standards. All opening are to be sealed at the time of system installation to prevent leakages and maintain integrity to the construction.</p> <p>6.2 PACKING: The material to be packed securely to avoid any damage in transit. If any damage occured, it will be the sole responsibility of the supplier to replenish the same with new one.</p> <p>6.3 WARRANTY: System to be warranted for parts and labour for not less than a period of 18 (Eighteen) Months from the date of installation and commissioning of the system. The contractor to specify the maintenance to be performed during the warranty period to maintain warrantee conditions.</p> <p>6.4 INSPECTION &amp; TESTING: The inspection and the testing of the material will be carried out by Company's Engineer at supplier's work before despatch of the material. Minimum 15 days prior notice will have to be given by the supplier for deputing Company's Engineer. Final accepaptnce of the material will be subjected to approval at the site. Factory acceptance testing shall not relieve the supplier of the responsibility to demonstrate the performance of installed system at the site. During commissioning, Company's Engineer will be present at the site. Installed job also will be subjected to be inspected by Company's Engineer.</p> <p>6.5 SYSTEM CHECKOUTS, TRAINING AND ACCEPTANCE: After completion of the installation, the successful bidder shall have to familiarise our personnel with system components, system functions and recommended procedures. At this time, a functional test of the system shall be demonstrated. They will have to provide complete operation and maintainance manual as well as written summary of any functional tests conducted. They must be capable of conducting annual inspection and be equipped to recondition to complete system whenever required. Duration of training, on the Site training and material covered and training aids available must be mentioned in the offer.</p> <p>6.6 Bidders are free to suggest additional facility, if any, that can be incorporated.</p> <p>6.7 The bidders must have at least 5 years experiance in such type of job execution. Documentary proof viz. copy of purchase order in this regard must</p>		

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	<p>be provided along with the offer failing which offer will be liable for rejection.</p> <p>6.8 The value of purchase order successfully executed by you within last 5 years for similar kind of job should not be less than Rs. 30 lakhs.</p>		

**Special Notes** : 1. The bidder must submit technical literature / catalogue of the offered product in duplicate along with the offer, failing which offer may be liable for rejection.

2. Materials must be guaranteed for fabrication, workmanship and performance for a period of 18 months from the date of despatch or 12 months from the date of commissioning whichever is earlier and relevant guarantee certificates have to be provided along with the bill / despatch documents.

3. While quoting bidders must separately indicate the charges towards design, installation & commissioning, training etc. with applicable service tax.