Maldives Clean Environment Project
Ministry of Environment
Republic of Maldives

TERMS OF REFERENCE

Dismantling, Transferring and Installation of an Incinerator from K. Thilafushi to HDh. Kulhudhuffushi

1. Introduction

The Ministry of Environment (ME) is currently designing to establish a solid waste management system in HDh. Kulhudhuffushi. In order to establish the system, the Ministry has included an incineration facility in its plan for Kulhudhuffushi. Therefore, ME has decided to dismantle, transfer and installation of one unit from the incineration facility in K. Thilafushi to Kulhudhuffushi.

The ME has procured and installed an incineration facility that includes 5 individual incinerators of Inciner 8-700 model with a capacity of 4 tons/d each at K. Thilafushi. Since a larger waste management facility is being planned and designed for Thilafushi by ME, the installed facility mentioned above is expected to be redundant. However, those individual incinerators can be utilized in other islands with lower waste generation.

Therefore, ME seeks a contractor to dismantle, transfer and installation of an incinerator from K. Thilafushi to HDh. Kulhudhuffushi and invites bids. The contractor is expected to carry out the following works.

2. Mechanical Works

A. Dismantling at K. Thilafushi.

1. One incinerator from 5 of existing incinerator has to be dismantled and transport and re install at the new island and re commissioning has to be done as per the standard commissioning procedures.
2. Control cabling and power cabling has to be isolated including Programmable Logic Controller (PLC) communication cables of each panel board.
3. Ethernet cables from each remote monitoring system has to be program as per the PLC software before then de terminated.
4. Once the control /power/communication cables de terminated from the panel and the instruments, each sensors and instruments have to be dismantled.
5. Once the instruments and sensors dismantle from the incinerators, main incinerator and secondary combustion chamber and the venturi scrubber, chimney has to be dismantled.
6. PLC of the rest of the 4 incinerators has to be re programmed to run individually since the 5th incinerator is taken out.

7. Dismantling of burners, sensors, instruments has to be done only by an professional engineer who has experience in thermal engineering.
8. Re programming of existing 4 incinerators has to be done by authorised programmer as per the requirement by the supplier.

B. Logistics

1. For the dismantling and handling has to be done only by a crane above 25ton capacity.
2. Handling of incinerator and chimney by using and wheel loaders and excavators are not allowed.
3. Inland transportation has to be done only by trailer.

C. Installation at HDh. Kuludhufushi.

1. Installation main incinerator, secondary combustion chamber, chimney and the venturi by using a crane.
2. Installation of burners, sensors, instruments as per the electrical diagram.
3. Laying of new cabling as per the electrical diagram.
4. Re program whole operation as per the new data.
5. Re commissionig the machine with the PLC as per the commissioning procedures given by the supplier.
6. Re commission the remote monitoring system and connecting to the main server of the INCINER8 and update the software.
7. Once the PLC is programmed and update with new software, new operation password has to be made for different working levels, which should be only done by an authorised electrical engineer with a programer.
8. Complete new diesel and water piping circuit has to be done at the new site baed on the new layout.

D. Expertise and Knowledge

1. The engineer who is handling the whole work has to be qualified in the field of thermal engineering with the knowledge of incinerators, electronics, automation and PLC programming,
2. Should be able to work with the OMRON and SIEMENS PLC with remote monitoring applications.
3. Engineer should be sound with the knowledge of diesel burner tuning and programming for better emission standards.
4. To carry out the whole commissioning process there should be an electrical engineer and PLC programmer who already have knowledge about the incinerator process and the burners.

3 Civil Works and Shed works

Incinerator will be placed in a rain and water proofed shed. The shed will be constructed by the contractor as per the design and drawings provided by ME.

Regarding the civil works the required space is minimum 40 feet x 40 feet incinerator building and maximum as shown in the attached concept drawing. The building needs a special high span truss with steel beams and there should not be any column between the span of the building. This requirement is set to allow for wheel loader access to inside the building (shed) for loading waste into the incinerator. **The design and load calculation report of the steel structure should be submitted to Ministry of Environment for approval**. Final approved drawing ministry should by a stamped by a Structrural Engineer registered in Maldives. Therefore, the price for civil works should include.

1. Concrete plinth works
2. Floor concrete
3. Steel shed with roof
4. Side cladding for 3 sides
5. Louvers or mechanical exhausts for ventilation
6. Brick boundary wall
7. Required down pipes and gutters
8. Materials, consumables, labour,
9. Required roofing lights and power outlet sockets.

4. Bid Price

Bid price shall include both for mechanical and civil works. For the mechanical works CVs of technical experts mentioned in 2D (Expertise and knowledge) should be given in the bid proposal.