PART 1 - GENERAL

1.1 DESCRIPTION OF EXISTING EMCS

.1 Existing EMCS is an interface between users and the network of digital controllers of the system.

.2 The existing EMCS consists of:

.1 A central control and management station located in the heating plant.

.2 Material and/or programs for communication via an Ethernet network.

1.2 DESCRIPTION OF NEW MANAGEMENT AND CONTROL STATION

.1 General:

.1 The communication link between the main central operation station and the secondary stations shall be Ethernet using BACNet, TCP/IP Protocol.

.2 All necessary components and accessories, such as Hub, programs, etc., to make installation functional are to be supplied and installed by this Contractor.

1.3 OPERATION IN BACK-UP MODE

.1 Failure of the main OWS:

.1 The DDC system shall be able to operate normally in case of failure of the main central OWS (Autonomous Digital Controllers).

.2 The operator by means of a secondary OWS shall be able to perform all the operations usually dedicated to the main OWS, operator being privileged.

1.4 SOFTWARE

.1 General:

.1 Each digital controller to be programmed to suit local DDC loops and also have the capacity to receive future and current programs. Software programs implemented in controllers so as to be fully operational in the back-up mode. OWS to read and apply normal operating control programmation and also operation in back-up mode.

.2 Central control and management station shall print an hourly report confirming good operation of systems and peripherals. Normal operation of a system to be printed and has to be considered as a non-response to an interrogation. Start and stop program including hourly schedules, events programs, optimum starts, utilization cycles and unloading shall be treated in a priority basis. Priorities could be entered in the process by means of the keyboard of the station. Terminal shall permit the operation to establish required sequences and priorities.

.3 The time schedules on sensible use of energy shall not start or stop equipment which has been started or stopped by fire protection systems.

.4 All input and output values to the central station shall be decimal; operation does not have to be familiar with binary octal arithmetic's, binary code decimals and will not have to refer to reference tables.

.5 System shall include a direct treatment central file generator program capable of introducing all what is necessary in the database, dedicate application programs, points and group of data, add, delete or modify data points, affect alarm parameters and peripheral programs. All assignments to be made by means of terminal keyboard. Systems requiring remote or manufacturer's programming are not acceptable. All programs supplied in this document and intended to be entered shall be typed on the keyboard and be read in the screen. Modification made to a program or set of application programs also the addition or removal of points shall not affect the treatment of data. Alarms to be displayed and control programs executed during data entry.

.6 Operator has to have access to the system through a personal ID code and a password. Each operator has to be given on ID code to 16 characters long, alphanumerical. Operators have to be allowed to change their own password provided that the other password does not correspond to somebody else's password. System shall have to be quit manually from a pull-down menu of if the mouse or keyboard has not been in use for a given period of time, it shout take place automatically. Can least 0 to 100 minutes for eau operator or can be put off by operator. All operators to have right of access at their lever cup.

.2 Alarms Treatment:

.1 Point alarms to be clarified as critical or non-critical.

.2 Critical alarms shall be displayed in a dialog box in color on the screen. Display to show at least: Hour and date the alarm condition happened, indicate the alarm state. Furthermore, critical alarms to be sent to the EMCS management system.

.3 Alarms have to be directed to alarm printer selected by user (segregation of alarms).

.4 A button to be provided to quiet down alarm. Virtual button to be located in dialog box. Quiet down can also be made by on authorized operator.

.5 The non-critical alarms to be directed to the printer and the hard disk of the central OWS in chronological order.

.6 The system to display on the color screen all unreleased alarms in order to warm the operator of such situations.

.7 A discrete message indicating the measures to be taken for each point identifiable by the operator, of at least 480 characters, from a dialog box.

.3 Printing of Trend Data:

.1 Physical trend reports shall include up to 8 points selected by user and indicate the activity in real time of associated points. These information's to be printed in numerical form, bar diagrams, curves, pie charts, etc., as selected by operator. Graphic shall permit use of a different color for each point. As the values of new points are sampled, they have to be treated, and dynamically added to the graphic being built. Sampling interval to be adjustable from 5 seconds to 60 minutes.

.2 Standard reports are printed as the management printer. An intercept order can be given by the operator to stop printing.

.3 User to be able to give a command that will archive the value of each point designated. The archived reference marks shall include the stat of the point, the key-name of the point and also the date and hour of the state change. The reports regarding reference marks for commands shall be printed as required by operator.

.4 Provide capability of producing personalized reports so that user can make original report formats including test, point identification and values. Personalized reports can be started by a programmed schedule as manually upon request.

.4 History Survey:

.1 Menu on the upper part of the screen permits to choose historic reports generated by archived data collected, such as:

.1 Alarm historic: Alarms are archived on hard disks data display or printing can be limited to critical alarms only. Data on archived alarms shall include the jour, the date, name of the point, type of alarm, value or state, alarm message, name of the operator, and hour of release.

.2 Operator's activities: All operator's activities have to be archived. Display or printing shall indicate the date of production. Display/impression of activities shall include date and hour of activity and also the nature of it (connection to the system, tentative to connect, modified point value including name of point).

.3 Historic of alarms from a digital controller: The historic of alarms biffed in the memory of a controller has to be displayable including the name of the point, hour and date, alarm state, value or state, and alarm message. The points of each controller in alarm state can be displayed or printed, including data pertaining to historic of the point.

.5 Management of Digital System:

.1 The OWS of the control center shall contain utilities for the management of the network of digital controllers.

.2 Each digital controller to have a key name that can be identified by the user.

.3 All digital controllers shall be telesoftwared to and from the hard disk of the central OWS for emergency spare archiving possibilities.

.4 Provide a program to supervise diagnostics of the equipment connected to the communication bus and having the capacity for the operator to control equipment to "On/Off" positions.

.6 Dynamic Graphics Management:

.1 Program permits modification and/or integrate color graphics and also assign or integrate points (real or pseudo) to each graphic.

.2 Graphic display to be created by the use of central OWS.

.3 It will not be necessary for the operator to put the station off communication or to interface archiving or alarm functions.

.4 Graphics shall be created by selecting through the mouse or keyboard, symbols and system profiles in a built-in library.

.5 Furthermore, it will be possible to create personalized symbols, system profiles, floor plans, and building plans end keep them in a bank for graphics.

.7 Other Functions:

.1 Supply utilities to be selected from a menu or the following desk accessories:

.1 Calculators: Arithmetic basis functions (addition, subtraction, multiplication, division, percentage, square root).

.2 Calendar: Electronic agenda with automatic appointments signalling.

.3 File: Electronic type.

.4 Control board: Control of normal PC basic operations: sped of flichering of prompter, rapidity of reaction of the mouse, color control of the screen, etc.

.5 Mate book: Archive notes in general.

.2 Furthermore, system shall include MS-Word program, program for graphic building, MS Excel. Basic system program shall include a functions of screen splitting into windows permitting the operator to supervised system in real time and use simultaneously programs of other sources.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 PROGRAMMING

.1 Program all the graphics, alarm, trend logs, etc., in the Orcaview control station.

END OF SECTION