



OPS 32 SPECIFICATION

PART 1 - OVERVIEW

OPS SYSTEMS provides water and wastewater plants with an easy to use operations, reporting & analysis software. The OPS software program is the central storeroom for, lab data, SCADA, logbooks, & more. Reports and graphs are the outputs that provide analysis, prediction and process optimization. Strategic Data Management is the tool to achieve optimum water quality with minimum operating costs.

The software is pre-configured with regulatory and process variables. The application is a "user friendly" interface using either an MSAccess, Oracle or MS SQL database. OPS software is compatible running under Windows 95 to XP.

PART 2 – PRODUCTS

1. Interfaces
 - a. The program has available an unlimited number of user defined variables whose values may be defined as entered daily, hourly or 15 minute parameters, text parameters, or calculations. Variables can optionally be provided with regulatory or control limits and optional text or graphical operators (less than, less than or equal to, greater than and greater than or equal to) for use in reports. The software accepts <, >, and ND data qualifiers with numeric entries and up to seven additional user defined data qualifiers.
 - b. Data is stored in a standard database format (Microsoft Access, Oracle or MS SQL).
 - c. Calculations include standard operators (+,-,*,/), functions (abs, retrieve forward or backward any day; exponential and logs; reciprocal; round; if then else; averages and summations(moving; weekly; monthly, fiscal periods), and difference(with or without rollover).
 - d. Efficient data entry is achieved by entering one variable after another for a given day with a minimum keystrokes between entries. Variable name, units, entry range, and permit limits are displayed when entering data to increase data accuracy. Audible-visual prompt will activate when value is outside a specified range. Unlimited daily comments and comments can be attached to a sample value.
 - e. Provides easy to use BOD data entry whereby beginning and ending DO readings are entered and the BOD is automatically calculated and averaged with other bottles in the group. All BOD tests are automatically checked against the *STANDARD METHODS* criteria (or user defined criteria) and removed from the average if invalid.

- f. The program can store an unlimited number of user defined custom data entry forms or bench sheets with text and variables (one or more days) positioned as desired.
- g. The program can store user-defined reports, which may be recalled, calculated and printed for user defined time periods. Max, min, arithmetic mean and geometric mean, total, and standard deviation shall be available in standard reports.
- h. The Spread Report Generator (SRG) can meet the unique needs of each customer. The SRG displays a spreadsheet layout format that allows placement of daily values, summary statistics and general text. SRG provides formatting options including font and color changes, drag and drop capabilities, and border settings. Multiple paper sizes is supported including 8 ½" x 11", Legal, 11" x 17". The statistical capabilities include the report data range, weekly, monthly, quarterly, semi-annual, seasonal and annual data groupings with availability of averages, totals, geometric means, minimums, maximums, percent removal, surcharge, standard deviations, and violations (monthly, weekly, or daily). The report allows for ratio and percent removal calculations based on data summation.
- i. The program contains a complete statistical analysis capability including mean, variance, standard deviation, max and min, and confidence interval for any parameter in the Data Manager. Five different regression analysis routines define relationships between parameters for two-variable (linear, geometric, exponential, and third order polynomial curve fits) and multiple linear regression analysis. Results are presented graphically- time-series, pie charts, probability distribution and regression plots. The QC Analysis exception report to report outliers (Grubbs Test), points above or below control limits and a specified number of points which meet the following conditions: consecutive points outside the warning limits, consecutive points on one side of the mean, and consecutive points sloping in one direction.
- j. Time series or trend plots display up to four variables on one "Y-axis and a fifth variable on a second "Y" axis with dates on the "X" axis for user defined time period up to ten years.
- k. Two variable correlations using "best fit" linear, geometric, exponential and 3rd order curves and indication of goodness of fit can be calculated, listed to the screen and plotted at the users discretion. A time-offset feature is available to allow matching of influent and effluent variables.
- l. A multiple regression routine can calculate and list to the screen the correlation of one dependent variable, chosen by the user, versus up to seven independent variables, also chosen by the user. This routine also has the ability to provide a graphical output of a multiple regression analysis for a dependent variable as a function of up to three independent variables.
- m. Process modeling routines are available to change activated sludge parameters on the computer and, then, determine oxygen requirements, sludge production and clarifier capacity.
- n. All plotting modes include labeling for all axes parameter identification (legend), and Calendar time duration identification and also has available for user selection various plotting symbols, lines and colors.
- o. The software has the capability to export full color graph images for use with any other Windows application and to write standard Windows Metafile or Bitmap files and to output full color plots. The program allows up to 100 saved graphs to be outputted over a date range and printed with up to four graphs per page with a single action.
- p. The software provides up to 99 separate databases and has a look-up function from

one database to the other.

2. Interfaces

- a. Optional interface to SCADA HMI software is available for automatic collection of daily data from historical file. (This is not a DDE link).
- b. Optional interface is available to Palm PDA's.
- c. Optional interface is available to RACO Catalyst™
- d. Optional interface is available to YSI DO instruments

PART 3 - EXECUTION

- 1. Installation follows standard Windows conventions. Regulatory & process variables configured during program setup. Software includes standard regulatory report templates.
- 2. Training available either on-site or off-site by an OPS Systems Engineer. Training includes operator and advanced software training. Training also includes system startup for entering process variables and system configuration.
- 3. Support includes toll-free phone and email support. Systems updates (version updates) and user input.