Profile® Software User's Guide

August 2012 **#950015B6**

1300 Meridian Street, Suite 3000
Huntsville, Alabama 35801
(256) 430-3366
www.adsenv.com

Publication Notice

Chapter 3 Installation Generator 3-1

Chapter 4 Quantity Coefficient Generator 4-1

Chapter 5 Communications 5-1

Chapter 6 Diagnostics 6-1

Chapter 10 Hydrograph Editor 10-1

Chapter 11 Tabular Editor 11-1

Chapter 12 Scattergraph Editor 12-1

Chapter 15 Balance Reporter 15-1

Chapter 16 Hydrograph Reporter 16-1

Chapter 17 Tabular Reporter 17-1

Chapter 18 Scattergraph Reporter 18-1

CHAPTER 1

Introduction

To learn about:	*See page:*

Introduction to the Profile Software

Profile® is a **Windows®**-based ADS® software tool for use in conjunction with ADS family of flow monitoring equipment to configure and activate ADS flow monitors and rain gauges; perform confirmations and device diagnostics; retrieve, manage, view, and edit sewer system flow data; and generate flow data reports. **Profile** combines the interface operations, navigation tools, and general functionality of a **Windows**-based software with the in-depth technical capabilities and collection system specific applications required to fully maximize flow data statistics from commercial and municipal sewage systems. **Profile** is a crucial component of an overall flow monitoring system.

Using Profile with a Flow Monitoring Project

The following illustration defines the steps of a typical flow monitoring project from beginning to end. The beginning of the process includes establishing your **Profile** database and the necessary parameters and variables to generate accurate flow quantities. The core of the project includes a *weekly data analysis routine* which is a series of tasks that should be performed each week during the flow monitoring study. A successful weekly routine results in edited, accurate flow monitor data and flow data reports. ADS recommends using this routine as a guide when processing flow data.

Project Startup

- Organize Database
- Set Communication Parameters
- Create Locations
- Create Installations
- Select and Edit Devices
- Edit Silt and Gain
- Activate Monitors
- Confirm Monitors
- Generate Quantity Coefficients

Weekly Routine

- Retrieve Data
- Review Logs
- Select Final Entities
- Edit Data
- Generate Final Entities
- Generate Balance Reports
- Generate Reports
- Perform System Maintenance

The project life cycle including project startup and the weekly routine

The first nine steps of the project life cycle are performed at the start of a project and are not a part of a weekly routine. They include the following tasks:

- **Organize Database** **Profile** displays database objects in a format similar to **Microsoft® Explorer** to allow you to logically organize flow monitor data for easy access, grouping, and historical reference. Six levels of database objects display (from top to bottom): Database, Group, Monitor, Monitoring Point, Device, and Data Entity. Use the **Profile** main screen to create and organize your project database. Each **Profile** database is stored to a **Microsoft® Access®** (.mdb) file format. Refer to *How to Start a Profile Project* in Chapter 2, for more information.

- **Set Communication Parameters** Setting the communication parameters involves designating the modem, communication ports, and temperature, battery, and signal thresholds to ensure proper communication, measurement, and maintenance of the ADS monitors.

- **Create Locations** Creating locations involves establishing a new location in the database and entering and designating location-specific information. Location-specific information includes the location name, monitor serial number, telephone number/IP address, monitor series, communication method, data log rates, collection range, and other parameters. For more information, refer to *Creating and Configuring a New Location* in Chapter 2.

- **Create Installations** Create physical profiles of monitoring points called *installations*. Installations allow quantity data to be generated in the database. Use the **Installation Generator** to perform this step of the project. The **Installation Generator** supports standard and non-standard pipe shapes and sizes, weirs, flumes, lookup tables, and manual entry tables. For more information, refer to *How to Use the Installation Generator* in Chapter 3.

- **Select and Edit Devices** Selecting and editing the devices corresponding to a monitor location ensures the monitor logs the desired data. Editing the devices involves setting specific parameters to ensure the monitor and **Profile** properly obtains and processes the data. Refer to *Selecting and Editing Devices* in Chapter 2 for more information.

- **Edit Silt and Gain** Editing the silt and gain accounts for any silt present at the bottom of the pipe and differences between raw velocity and average velocity. Use the **Quantity Coefficient Generator** to edit these values. These are critical for the monitor to accurately calculate flow quantity. For more information, refer to *Storing the Coefficients* in Chapter 4.

- **Activate Monitors** Activating a monitor initiates the flow monitoring process based on the monitor configuration. Monitor activation, performed using the **Diagnostics** tool, involves generating the activation data, downloading this data to the monitor, and initiating flow data measurement and logging. Refer to *Activating a Monitor* in Chapter 5 for more information.

- **Confirm Monitors** Confirmations involve comparing depth, velocity, and weir measurements taken manually by field technicians to measurements obtained electronically by the sensors. This comparison helps to identify and remedy any discrepancies in readings that can exist due to improper sensor installation or electronic malfunctions. Use the **Diagnostics** tool to perform ultrasonic depth, peak velocity and depth, velocity profile, and weir confirmations. Refer to *Performing Confirmations* in Chapter 6 for more information.

- **Generate Quantity Coefficients** Generate quantity coefficients for those monitoring points for which you want to generate depth-based flow quantity data (Manning or Colebrook-White). Use the **Quantity Coefficient Generator** to solve for the unknown quantity coefficients (HC, roughness, and slope) required when using the Manning and Colebrook-White quantity equations.

  Note: To perform this step, you must have field confirmation information available or have performed a preliminary data collect of your ADS monitors.

  For more information, refer to *How to Use the Quantity Coefficient Generator* in Chapter 4.

The *weekly routine* begins at this point (with the exception of the **Select Final Depth Entity** step). This routine is performed each week throughout the life of the project. **Profile** allows you to schedule data collect and report printing activities to occur at your convenience, for example, nights and weekends.

- **Retrieve Data** The first step of the weekly routine includes retrieving the monitor data and reviewing real-time flow sensor statistics. Use the **Communications** tool to perform monitor data collects. If necessary, use either the **Importer** or the **Data Transfer Utility** to import a variety of other data formats into your **Profile** database. In addition, use the **Bin Fin Processor**, when necessary, to process raw data files collected using other systems or software.

For more information, refer to *How to Use the Communications Tool* in Chapter 5, *How to Use the Data Transfer Utility* in Chapter 7, or *How to Use the Importer* in Chapter 8.

- **Review Logs** The second step of the weekly routine includes reviewing the **Profile** activity logs for communication and data retrieval success, and monitor battery voltage status. Use the **Log Viewer** to perform this step. For more information, refer to *Printing Logs* in Chapter 2, *How to Use the Log Viewer* in Chapter 9, or *Viewing Logs* in Chapter 6. The **Logs** feature in the **Diagnostics** tool provides detailed information on many activities performed through **Diagnostics**, including monitor activation, confirmations, collects, firmware downloads, and other functions.

- **Select Final Entities** Specify which ultrasonic data entities will be averaged to create the **Avgudepth** data entity and specify a final depth data entity in order to generate flow quantities. The final depth entity selection is typically performed once, during the project setup after the first data collect or import. Refer to *How to Use the Final Data Generator* in Chapter 14 for more information on selecting the final depth data entity.

- **Edit Data** The third step of the weekly routine includes data editing. Editing includes reviewing flow data for anomalies and then flagging or modifying those anomalies. **Profile** supports on-screen flow data editing with an editing audit trail (**Log Viewer**). **Profile** utilizes a variety of on-screen editing formats, including hydrograph, tabular, and scattergraph views. An undo edit capability is provided allowing users to reverse the last edit performed. Refer to *How to Use the Hydrograph Editor* in Chapter 10, *How to Use the Tabular Editor* in

Chapter 11, *How to Use the Scattergraph Editor* in Chapter 12, or *How to Use the Block Function Editor* in Chapter 13 for more information.

- **Generate Final Entities** The fourth step of the weekly routine includes specifying which data entities will represent your final quantity data entity, **QFinal**. Specify the most appropriate **QFinal** data entities to represent the monitoring conditions over the life of the project. Refer to the *How to Use the Final Data Generator* in Chapter 14, for more information.
- **Generate Balance Reports** After editing the flow data and generating the final entities, use the **Balance Reporter** to generate *balance reports*. Balance reports can be graphical or tabular and are representations of flow totals from a selected monitoring point displayed in comparison to the composite flows of all upstream monitoring points. Refer to *How to Use the Balance Reporter* in Chapter 15, for more information.
- **Generate Reports** This step includes producing hardcopy graphical and tabular reports or copying and pasting tabular data to other **Windows** spreadsheet applications. Report individual data entities, quantity calculations, field confirmations, data quality, and a multitude of additional information in both on-screen and hardcopy formats of hydrographs, scattergraphs, or tabular flow data. Final reporting capabilities are flexible, allowing you to customize tabular, hydrograph, or scattergraph views. Refer to the *How to Use the Hydrograph Reporter* in Chapter 16, *How to Use the Tabular Reporter* in Chapter 17, and *How to Use the Scattergraph Reporter* in Chapter 18 for more information.
- **Perform System Maintenance** ADS recommends that you perform a routine back-up of your **Profile** database (.mdb) file. Refer to *Creating and Organizing the Database* in Chapter 2 for more information.

Getting Started

Understanding how to use **Windows** software, obtaining the recommended personal computer hardware, and correctly performing the software installation helps to ensure the proper operation of the **Profile** software.

Software Skills Prerequisite

Before using the **Profile** software, you should have experience with **Windows** operation and functionality.

Hardware and Software Requirements

ADS recommends the following PC hardware and software for proper operation of the **Profile** software:

- Laptop or desktop PC with **Microsoft® Windows® XP**, **Windows 7**, or **Windows Vista®**
- 1 Gigabyte RAM

In addition, for optimum viewing, set the PC screen settings to 1024 x 768.

Profile utilizes **Windows**-supported printers and plotters.

Profile Software Installation

The instructions for installing **Profile** vary based on the operating system used by the computer on which the software will be installed. Refer to the following sections for detailed instructions on installing the software according to a specific operating system.

Installing Profile on Window XP Systems

If you are running **Windows XP**, install the **Profile** software according to the following instructions:

1. (*applicable only to current **Profile** users*) If you currently have an existing version of **Profile** on your system, you must uninstall it and any associated add-ons prior to installing a new version of **Profile**. Uninstall the add-ons *before* uninstalling **Profile**.
2. Download the **Profile** installation files to a folder on your local directory or network.
3. From your installation folder, double-click on the **Profile** applicable executable (*Setup.exe*).

*The **Profile** installation wizard displays.*

4. Follow all of the prompts in the installation wizard to successfully install the software.

> **Note:** During the software installation process, be sure to carefully review the installation options in the **Select Features** window. Choosing the checkbox for the *HOLIDAYS.DAT* or sample database installs the selected item to the destination path potentially overwriting an existing file.

When the SETUP program successfully completes the installation, an exit messages displays.

5. Select **Finish** to complete the installation process.

Installing Profile on Windows 7 Systems

The installation procedure for users running **Windows 7** operating systems requires system configuration by a user with administrative rights. Therefore, you must have access to an administrative user account to successfully install **Profile**. Install the software in the following way:

1. Log on to the computer through the *administrative* user account.

2. (applicable only to current **Profile** users) Uninstall the existing version of **Profile** and any associated add-ons from your computer using the **Add/Remove Programs** tool in **Windows**. Uninstall the add-ons *before* uninstalling **Profile**.

3. Download the **Profile** installation files to a folder on your local directory or network.

4. From your installation folder, right-click on the **Profile** application executable (*Setup.exe*) and select **Run as administrator** to initiate the installation process.

*The **Profile** installation wizard displays.*

5. Follow all the steps in the installation wizard to successfully install the software.

> **Note:** Install **Profile** to the following path instead of the default destination: *C:\ADS Corporation\Profile.*
>
> **Note:** Carefully review the installation options in the **Select Features** window during the installation process. Choosing the checkbox for the *HOLIDAYS.DAT* or sample database installs the selected item to the destination path potentially overwriting an existing file.

6. Select **Finish** to complete the installation process.

7. Right-click on the **Profile** icon on your **Windows** desktop, and select **Run as administrator**. Enter the administrator username and password.

A dialog displays requesting a valid license number.

8. Enter the **Profile** license key (number) in the **Enter valid license** field, and select **OK**. Contact ADS Client Services by email at adssupportcenter@idexcorp.com or phone at (877) 237-9585 for the specific license key.

*The **Profile** main screen displays.*

9. While logged on as administrator, collect data from a monitor through *both* the **Diagnostics** and **Communications** tools.

> **Note:** **Profile** requires a special executable when running on a **Windows 7** system to enable you to access the online help. Downloading this file is only necessary the first time you install **Profile** on a **Windows 7** system. Therefore, if you already possess this file from a previous **Profile** installation on this system, proceed to step 11.

10. Perform the following procedure to download the required executable file to enable the **Profile** online help:

    - Select **Help > Help Topics** from the main menu on the **Profile** main screen.

An error message dialog displays.

- Follow the steps indicated in the error window to browse to the **Microsoft Help and Support** website.
- Download and install the appropriate WinHLP32.exe. Choose *Windows6.1-KB917607-X64*.msu for *32-bit systems*; choose *Windows6.1-KB917607-X86* for *64-systems*.

11. Close **Profile** by selecting **File > Exit** from the **Profile** main menu.
12. Log back on as a *standard* user by double-clicking on the **Profile** icon on your **Windows** desktop. Launch **Profile** in this way for all future operations involving this version of **Profile**

> **Note:** If you require additional assistance in installing **Profile** on a system running **Windows 7**, please contact ADS Client Services by email at adssupportcenter@idexcorp.com or by phone at (877) 237-9585.

Installing Profile on Windows Vista Systems

If you are running **Windows Vista**, please contact ADS Client Services by email at adssupportcenter@idexcorp.com or by phone at (877) 237-9585 for detailed instructions on installing **Profile**.

The installation procedure for users running this operating system requires that the user have *administrative* rights.

Launching the Software Application

Run the **Profile** software after the installation is successful by double-clicking on the **Profile** icon on the **Windows** desktop or selecting **Start > Programs > ADS Corporation > Profile** from the **Windows** start menu.

During your initial attempt to launch the application, **Profile** will prompt you for a user license key. It is impossible to access the application without this key. The prompt includes instructions on how to contact ADS Client Services to obtain the license key and a field for entering the key to ensure access to the **Profile** software application.

Using the Interface

Important components and features of the **Profile** user interface include the following:

Windows Functionality

The software includes **Windows** functionality (for example **Drag** and **Drop**, **Copy**, **Paste**, **Undo**, and **Redo**).

Toolbar Buttons

Toolbar buttons allow quick access to common software operations. A pop-up dialog displays the toolbar button name when any toolbar button is highlighted with the mouse cursor.

Scrollable Lists

Scrollable lists are used when more information is available than can be displayed in a window. Select the scroll bar or directional arrows to move through the lists.

Status Bar

The status bar, located at the bottom of each software screen, provides a brief explanation about the highlighted activity, active function, and/or selected object.

Fields

Enter information or perform updates to specific fields within the software by placing the mouse cursor over the text window and entering the appropriate information.

Drop-Down Lists

These lists are indicated by a small arrow to the right of the field and are used when a dialog box cannot display the entire list. Select the arrow to display the entire list.

Header Control

Increase or decrease the width of a table column by placing the mouse cursor between the column headings to display a ←||→ symbol. Move this symbol to the left or right to widen or narrow the table column.

Context Menu

Display and select from all available options for a selected object on a screen by right clicking the mouse button to display a context menu.

Tool Tips

Highlight any button or field in the **Profile** interface, and a tool tip will pop-up. Tool tips display helpful reference or descriptive information about the selected object.

Accessing Help

Profile is equipped with an online help system which includes field descriptions, definitions, and step-by-step procedures to follow as you work.

- **Conceptual** This information includes overviews of each software tool. You can find conceptual information in the *What is the...?* topics. For example, find conceptual information about the **Tabular Reporter** in the *What is the Tabular Reporter?* topic.
- **Procedural** This information includes step-by-step information on how to perform a specific task. You can find procedural information in each *How to Use the…* section. For example, find step-by-step information about how to use the **Tabular Reporter** in *How to Use the Tabular Reporter*.

Using Content, Index, and Find Help

Select the **Help > Help Topics** option or the **Help** toolbar button to display the **Help** system. **Help** includes **Content**, **Index**, and **Find** topics.

- **Content** This displays the *Table of Contents*. Select a topic from the *Table of Contents* to find in-depth conceptual and step-by-step information.
- **Index** This displays alphabetical keyword information. Find help in the **Index** by searching for a specific word.
- **Find** This generates an alphabetical word list based on each unique word in the help documentation system. The **Help** system allows you to build a limited, comprehensive, or customized word list the first time you select this type of help.

Using "What's This?" Help

This help option allows you to find specific reference information on each field or button without interrupting your work. View a summary of a particular field or button by selecting the question mark toolbar button and then selecting the item or field in question. A pop-up dialog displays the requested reference information.

Using the Task Scheduler

Use the **Microsoft Task Scheduler** when you want to delay a **Profile** activity from occurring until at a later time. This option is available for many **Profile** software activities, including printing reports, collecting monitor data, and importing data. For example, while using the **Tabular Reporter**, schedule a tabular report print activity to occur at a later time by choosing the **Schedule** button in the **Print** dialog. Use the **Task Scheduler** to delay a long-distance data collect activity to occur at a time when long-distance telephone rates are lower or to schedule a local collect to occur during non-work hours. After successfully installing the **Task Scheduler** software, the application starts each time you start **Windows** and continues to operate in the background.

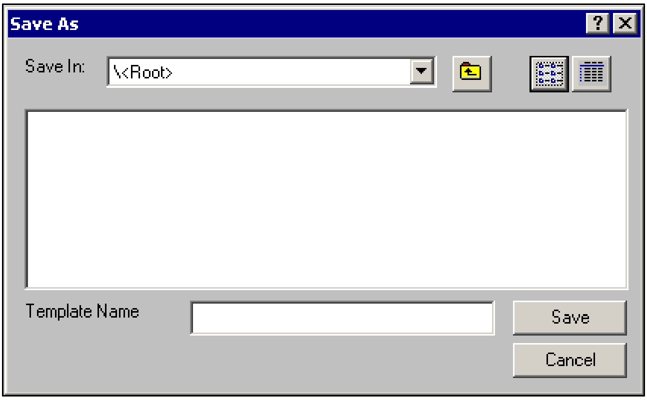
> **Warning:** Disabling the **Task Scheduler** will prevent scheduled activities from occurring.

Scheduling a Task

> **Note:** Errors will occur when scheduling tasks created with the / symbol. Therefore, do not use this symbol when creating templates.

Schedule a **Profile** activity to occur by performing the following steps from any **Profile** dialog that allows activity scheduling:

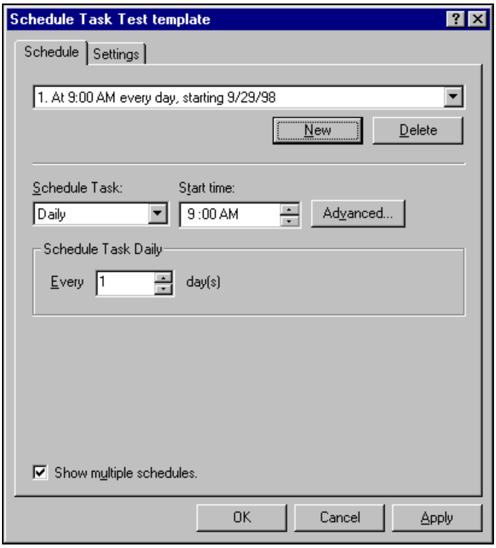
1. Select the **Schedule** button from the current dialog that offers the **Scheduler** feature to display the **Save As** dialog.



The **Save As** dialog

2. Enter a **Template Name** under which to save the scheduled activity. Ideally, this name should describe the scheduled activity.

3. Select the **Save** button to display the **Schedule** and **Settings** tabs.



The **Schedule** and **Settings** tabs

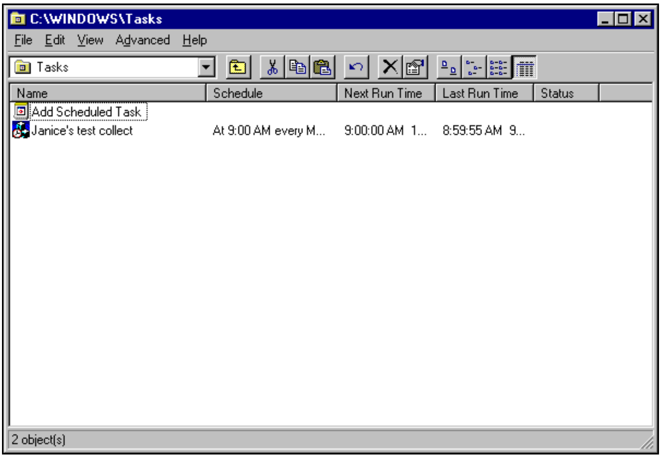
4. Select the **New** button on the **Schedule** tab to begin entering the schedule information.
5. Continue using the **Schedule** tab to define the frequency of the scheduled activity.
6. Use the **Settings** tab to configure the scheduled activity options.
7. Select **OK** to schedule the activity.

The scheduled activity will occur at the pre-defined time as long as the personal computer is powered, **Windows** is active, and the **Task Scheduler** is enabled.

> **Warning:** If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled activity. Therefore, *do not* log off from the network when operations are scheduled to occur.

Editing the Scheduled Task List

From the **Profile** main screen, select the **Scheduler** toolbar button to access the **Task Scheduler**. Use the **Task Scheduler** to change or delete any scheduled **Profile** activity. In addition, you can customize how a task will perform at its scheduled time.



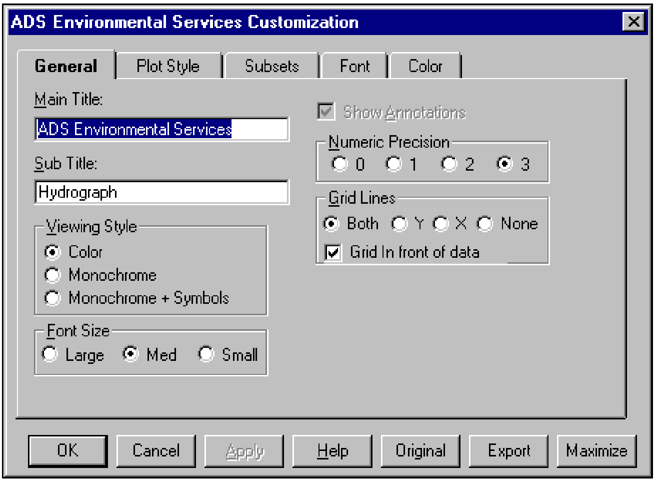
Edit the **Task Scheduler**

For help while using the **Task Scheduler**, select the **Help** > **Help Topic** option for **Microsoft**® documented help.

Customizing Graphs

Anytime you are viewing a graph, use the graph **Customization** tabs or the **Graph Options** to customize the graph.

Access the **Customization** tabs by double-clicking on the graph.



The **Customization** tabs

Access the **Graph Options** by right-clicking on the graph to display the graphical options menu.

Graph Options menu

Select the **Help** option within the graphical options menu for help on any graphical option menu item.

Creating and Using Templates

Profile allows you to create and save *data representations* as templates. A data representation includes all of the user-customized attributes and options used to display a span of data. Use the templates to save time when you frequently generate the same or a similar data representation.

Several of the **Profile** software tools allow you to create and save templates. For example, create and save a **Hydrograph Reporter** template to include customized graph scales, color assignments for each data entity on the graph, and selected data entities. After you have finished setting up the data representation, store it to the database as a template using the **Save** option. Save templates to the **<Root>** folder (found on the **Profile** main screen), or save them to a group, monitor location, or monitoring point within **Profile**. Then, retrieve and use the template during the weekly reporting routine to save time.

> **Note:** Do not use the / symbol when naming templates.

Viewing the Software Version

Display the current **Profile** software version and copyright dates by selecting the **Help > About Profile** option from the **Profile** main menu.

Contacting Product Support

Contact ADS Client Services in one of the following ways for questions or comments about the **Profile** software:

- Toll free at 1-877-237-9585 (outside Huntsville)
- Locally at 256-430-6234 (inside Huntsville)
- By e-mail at *adssupportcenter@idexcorp.com*

Have the software version number (displayed by selecting **Help > About Profile** on the **Profile** main screen) and **Windows** version for your computer ready to provide to the support center representative.

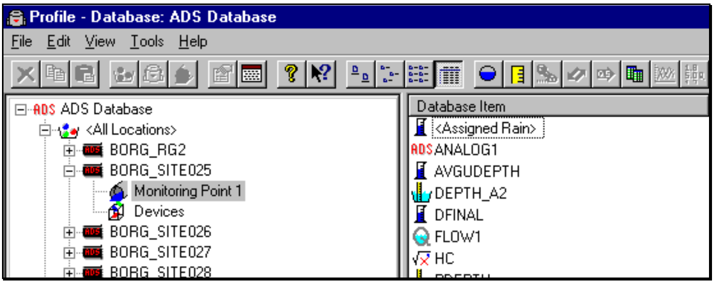
CHAPTER 2

Profile Main Screen

To learn about:	*See page:*

Understanding the Profile Database Organization

Objects in **Profile** databases are displayed in a hierarchical format with six object levels (from highest level to lowest level): database level, group level, location level, monitoring point level, device level, and data entity level. Refer to the following cutaway illustration of the **Profile** main screen:



The different levels of the Profile database

Each level of the **Profile** database is represented by an icon—reveal the contents of a level by single-clicking the framed plus (+) symbol next to its icon.

- **Database** The *database* level is the top level. Each database is an *.mdb* file. Databases are composed of locations and location groups. **Profile** allows you to create as many databases as necessary to organize your project data; however, only one database may be displayed and accessed at a time.

- **Group** The next level below the database is the *group* level. Groups contain user-defined subsets of monitor locations. Typically, monitor locations associated with a specific flow monitoring project will be defined in the same group. Large projects may be divided into two or more groups. Select any group from the left side of the main screen to display the monitor locations contained in that group on the right side of the screen.

- **Location** Below each group level is the *location* level. The location level is the individual monitor. A monitor location can appear in multiple groups at the same time—every monitor location in the database will appear in the **<All Locations>** group. Each monitor location is assigned at least one monitoring point. Select a location from the left side of the main screen to display the associated monitoring point(s) on the right side of the screen.
- **Monitoring Point** The *monitoring point* level is located below the location level. The monitoring point is the specific location in the pipe from which the monitor receives flow measurements. The number of monitoring points depends on the monitor's capabilities and configuration.
- **Devices** The *devices* level also is located below the location level. Devices include the components, inputs, or outputs through which the monitor receives data and/or outputs a signal to other measurement devices or equipment. The number and variety of devices corresponds to the monitor series. View the devices available and currently assigned to a specific location by selecting the **Devices** designation associated with the location and then selecting the **Properties** toolbar button.
- **Data Entity** The lowest level of the database is the *data entity* level. This level includes all of the individual data entities associated with a monitoring point. The right hand section of the screen displays the entity name and available data periods. Display all of the data entities associated with a monitoring point by selecting the monitoring point from the left side of the main screen.

<All Locations> and <Group Entities>

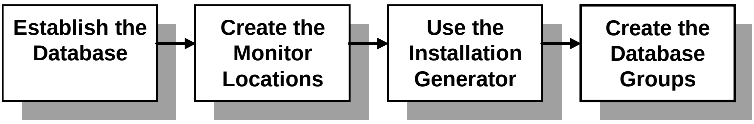
Two objects are automatically created by **Profile** for each database: an **<All Locations>** group and a **<Group Entities>** group.

<All Locations> This group includes every monitor location within the current database. Each time you add a monitor location to any group in the current database, **Profile** automatically adds the same location to this group. **Profile** allows you to delete monitor locations from groups other than the **<All Locations>** group without actually deleting the location from the database. However, delete a location from the **<All Locations>** group, and it permanently deletes from the database.

<Group Entities> Each group in the database includes an entity list called **<Group Entities>** which contains a complete listing of all data entities common to the monitoring points within that particular group. **Profile** automatically creates this list and allows you to use it to expedite data reporting operations. For example, select **<Group Entities>** to save time when generating the same type of report for an entire group of monitor locations.

How to Start a Profile Project

Starting a new **Profile** analysis project includes establishing the database, locations, and groups for the new project. Use the **Profile** main screen to perform the steps in the following diagram to successfully start a new project.



Steps to starting a new Profile analysis project

- **Establish the Database** Organize and store your database contents (i.e., groups, locations, and data entities) within a database. The first step to starting the new project includes using the **Profile** main screen to select an existing database to use or to create a new database. An **<All Locations>** group is automatically created for each database. Refer to *Creating a New Database*, page 2-8, or *Changing the Selected Database*, page 2-13, for step-by-step information.

- **Create the Monitor Locations** After creating the database, manually create a monitor location for each of your monitors in the **<All Locations>** group. The location level is where the monitor specific information is stored—for example, name, telephone number, and monitor serial number. Refer to *Creating and Configuring a New Location*, page 2-19, for more information. This step also includes selecting and setting the parameters for devices to log and designating the number of monitoring points. Refer to *Selecting and Editing Devices* on page 2-25 or *Creating a Second Monitoring Point* on page 2-24 for more information.

- **Use the Installation Generator** After setting up the database and creating the monitor locations, use the **Installation Generator** to configure and generate *installations* for each monitoring point in the project. Installations define the size, shape, and physical characteristics of the monitoring point and allow the software to calculate the correct flow depths and quantities. Refer to *How to Use the Installation Generator* in Chapter 3 for more information.
- **Create the Database Groups** To accommodate more than one project in the same database, you have the option to create groups and then copy and paste monitor locations from the **<All Locations>** group to the new groups. Typically, all monitor locations associated with a specific flow monitoring project will be defined in the same group. Refer to *Creating a New Group* on page 2-115 for more information.

Creating and Organizing the Database

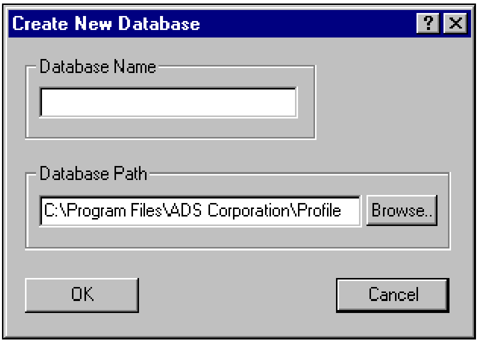
Use the **Profile** main screen to create your project database (*.mdb* file). A database is made up of one or more groups, with each group containing one or more monitor locations. Each monitor location contains at least one monitoring point—each monitoring point represents a different point in a manhole where a sensor device (such as ultrasonic depth or Doppler velocity) is installed. Flow statistics (data) generated by the sensors are stored under each monitoring point within the database as data entities. In order to organize your database, **Profile** allows you to create, remove, or modify any database object (group, location, or monitoring point). You also can designate the file paths for storing location information and collected data for backup purposes.

> **Note:** A database must not exceed 2 gigabytes in size. Therefore, ADS provides a special database update utility, *AdsDbUpdate.exe*, for compacting databases that begin to progress toward exceeding the recommended limit. Refer to *Compacting a Database* on page 2-16 for instructions.

Creating a New Database

Create new databases (*.mdb* files) as necessary, to logically organize your projects. Perform the following steps to successfully create a new database:

1. Select the **File > Database > Create** option to display the **Create New Database** dialog.



Create New Database

2. Enter the new **Database Name**. (Spacing between words is permitted.)

3. (Optional) Use **Browse** if you want to choose a different location in which to store the database file.

4. Select **OK**.

5. Select the **File** > **Database** > **Use** option to display the **Open Database** dialog.

6. Select the new database from the **Open Database** drop-down list.

7. Select **OK** to access the new database.

The new database will display on the **Profile** *main screen. A new database (.mdb) file has been created.*

Designating the System Paths

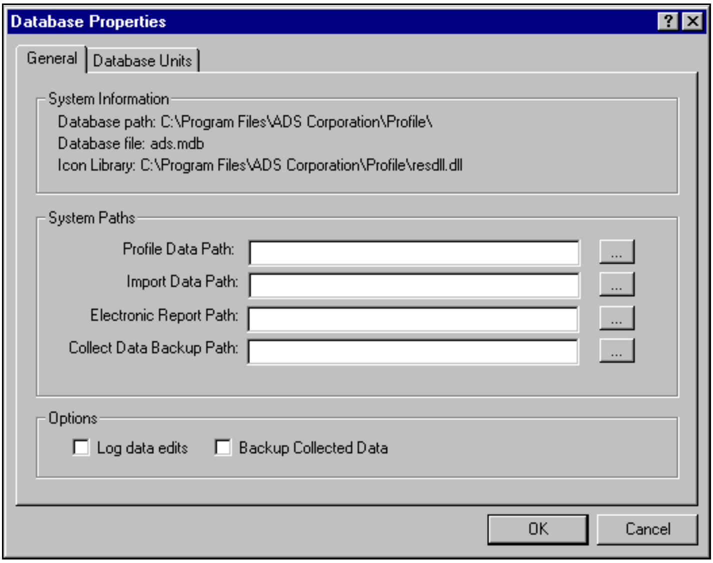
Before **Profile** can use collected or imported data, you must designate the data paths in use for your system. In addition, you can provide paths for the output files of **Adobe Distiller** (*pdf* files) for your electronic report files and a path for updated monitor data.

Designate system paths in the following way:

1. Select the database from the main screen.

Properties button

2. Select the **Edit** > **Properties** option or the **Properties** toolbar button to display the **Database Properties** dialog.



Database Properties —General tab

3. Click the **Browse** button to locate and designate the following paths for location information files (LIFs), electronic reports, and backup data:

   - ❑ **Profile Data Path** Choose the folder in which you want to store LIFs, bin files, and collect logs for the current database. ADS recommends creating a separate data path for each database and using the same name for a database and its corresponding data path folder.

   - ❑ **Import Data Path** Choose the folder location from which you want to import location information files (LIFs) from other sources. ADS recommends designating *C:\Program Files/ADS Corporation/ FieldScan\DAT* as the import data path.

- **Electronic Report Path** Choose the folder location at which you want to store **Adobe Distiller** (*pdf*) output files. ADS recommends designating *C:\ADS Report* as the path for these files.

Note: This path must be the same path designated for **Adobe Acrobat Distiller**.

- **Collect Data Backup Path** Choose the folder you want to serve as the backup location for storing collected and processed **Profile** data for the current database. ADS recommends designating *C:\ADS Backup* as the backup location.

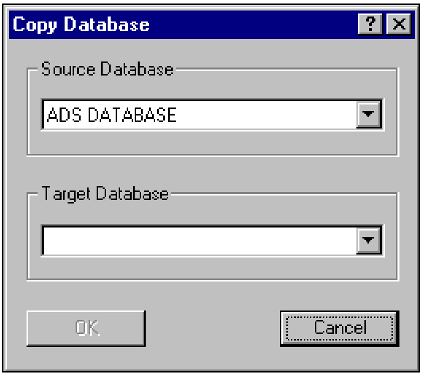
4. Select the **Backup Collected Data** checkbox to automatically save collected and processed **Profile** data to the folder location designated in the **Collect Data Backup Path** field during data collection activities. **Profile** appends the existing data as you collect new data.

5. Select the **Log Data Edits** checkbox to generate logs for each edit operation (performed in modules **Tabular Editor**, **Hydrograph Editor**, and **Scattergraph Editor**).

Copying an Existing Profile Database

Copy an existing database using the **Copy** option. Use this option when you want to create a backup copy of a database.

1. Select the **File > Database > Copy** option.



Copy Database

2. Select a **Source Database** from the drop-down list.

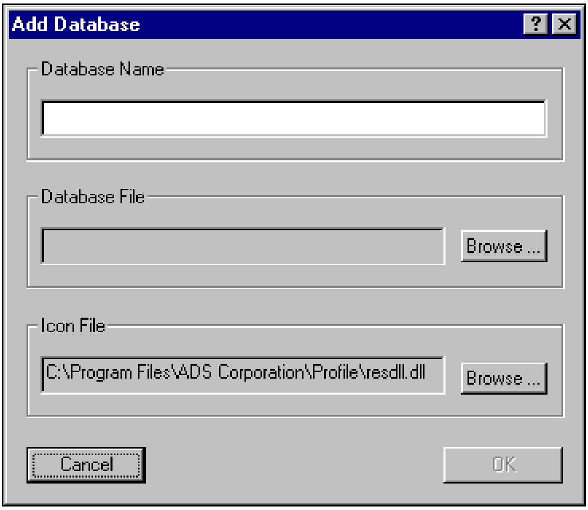
3. Select an existing database from the **Target Database** drop-down list, or enter a new database name.

The selected **Target Database** *will be overwritten with the* **Source** *database or the new database will be created.*

Recognizing a Database

When you want to add a database (*.mdb* file) to your database list, use the **Add** option. Perform the following steps to add a database to your database list.

1. Select the **File** > **Database** > **Add** option to display the **Add Database** dialog.



Add Database

2. Browse for and select the **Database File** (*.mdb*) you want to add to your database list.
3. Enter a **Database Name** for the new database. The **Database Name** can be the actual database name or a new name.
4. Optionally, browse for and select a new **Icon File.**
5. Select **OK** to add the database to your database list.

To use the database, you must select the **File** > **Database** > **Use** option and select the database from the **Open Database** drop-down list.

Changing the Selected Database

Profile allows you to access only one database at a time. When you have multiple databases in your list, you can replace the currently open database with another using **Use** option.

1. Select the **File** > **Database** > **Use** option.

2. Select another database from the **Open Database** drop-down list.

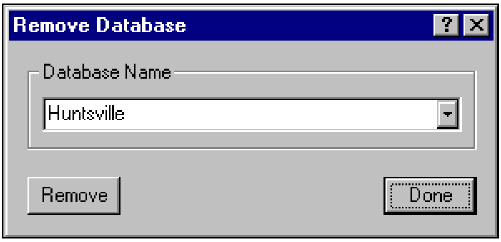
3. Select **OK**.

Removing an Existing Profile Database

Remove an existing database from the available database list using the **Remove** option.

> **Note:** Using this option only removes the database from the database list. A removed database can be restored to by using the **File** > **Database** > **Add** option.

1. Select the **File** > **Database** > **Remove** option to display the **Remove Database** dialog.



Remove Database

2. Select the database, which you want to remove from the **Database Name** drop-down list.

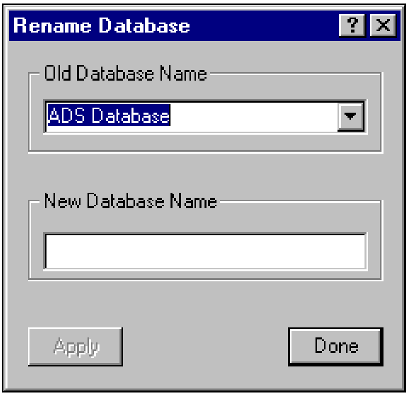
3. Select **Done** to close and exit the **Remove Database** dialog.

Renaming a Profile Database

Rename an existing database in **Profile** using the **Rename** option.

Note: Do *not* rename a database using **Windows Explorer**. Any name changes must be made through the **Profile** software.

1. Select the **File** > **Database** > **Rename** option to display the **Rename Database** dialog.



Rename Database

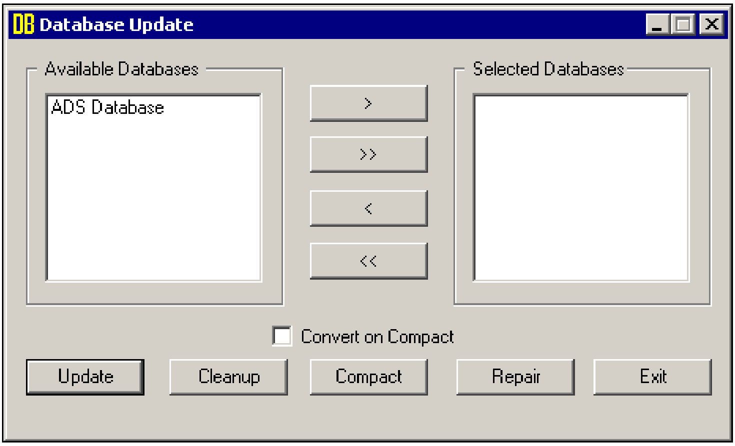
2. Select the old database name from the **Old Database Name** drop-down list.
3. Enter the new database name in the **New Database Name** text box.
4. Select **Apply**.
5. Select **Done** to close and exit the **Rename Database** dialog.

Compacting a Database

Compacting a database reduces the size of the database file (*.mdb) by removing spaces created as a result of deleted records. When necessary, compact a **Profile** database in the following way:

1. If open, exit **Profile** and **Access**; these must be closed to compact the database. You also may consider closing other applications that may slow down the compaction process.

2. Launch **Windows Explorer**, and double-click *AdsDbUpdate.exe* found in *C:\Program Files\ADS Corporation\Profile*.

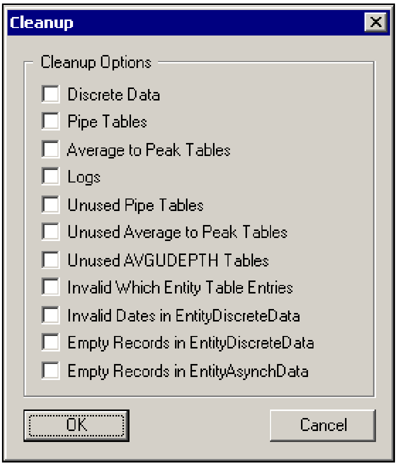


Database Update

3. Select the database file you want to compact from the **Available Databases** box, and then select the **>** button to move the database to the **Selected Databases** box.

4. (*optional*) Clean up the database to remove any extraneous information in the following way:

   - Select the **Cleanup** button to display the **Cleanup** dialog.



Cleanup dialog

- ❑ Select all checkboxes in the **Cleanup** dialog, and select the **OK** button.

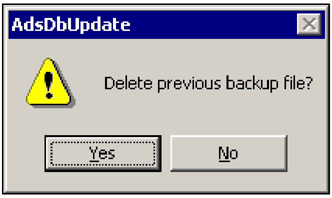
AdsDbUpdate *provides notification when the cleanup process is complete. Select the* **OK** *button to continue.*

5. (*optional*) Select the **Convert on Compact** checkbox to convert your database to an **Access 2000** database which accommodates a 2-gigabyte size limit.

   Note: Once you convert a database to **Access 2000**, it will no longer be accessible with **Access 97**.

6. Select the **Compact** button to begin the compaction process.

AdsDbUpdate *prompts the user to delete the previous backup file.*



AdsDbUpdate dialog

7. Select **Yes** to delete the file.
8. Select **OK** when the database compaction process is complete, and select **Exit** to close the **Database Update** dialog.
9. Launch **Profile**, access the newly compacted database, and verify that it is fully operational.

The new, compressed database will exist in the **Profile** directory under the name *[database file name]*.*mdb*. The original, uncompressed database will exist in your **Profile** directory under the name *old-[database file name].mdb.*

Creating and Organizing the Database Contents

Create new locations, groups, and monitoring points within a database using the **Edit > New** command to access the **Location, Group**, and **Monitoring Point** options. Organize the **Profile** database locations, groups, and monitoring points using the **Copy** and **Paste** or **Delete** options.

Creating and Configuring a New Location

Create a new monitor location in the **<All Locations>** group using the **Edit > New > Location** option or the **New Location** toolbar button. Creating a new location includes configuring the location information. This is the first step in establishing a location information file (LIF) for a monitor location. The LIF contains the location configuration parameters that satisfy the specific project monitoring requirements and reflect the actual site conditions. These parameters include location details, communication information, designated device settings, log and scan rates, installation table, and other relevant information. Specific components of the LIF are stored in the monitor memory during activation.

Perform the following steps to successfully create and configure the new monitor location:

> **Note:** **Profile** automatically creates the location and monitoring point during **QuadraScan** data imports; therefore, there is no need to manually create monitor locations in the database for **QuadraScan** monitor locations.

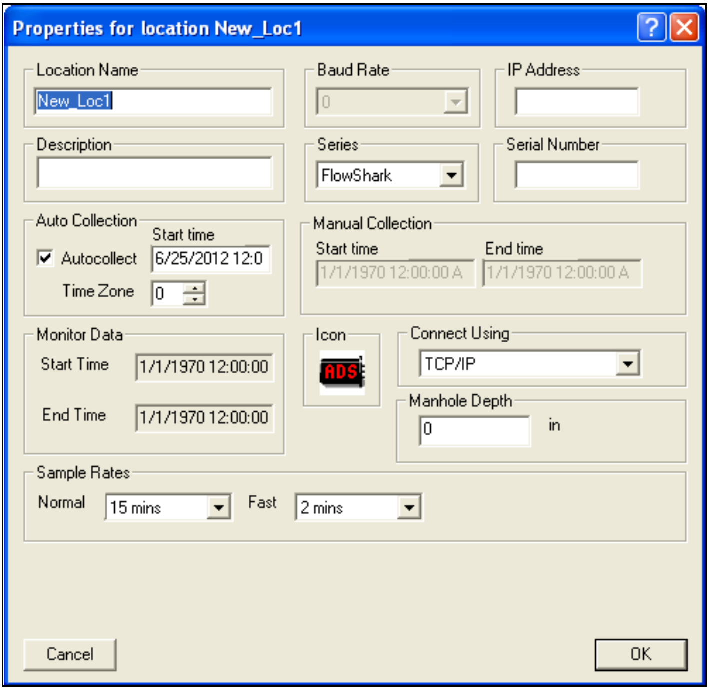
1. Select the **<All Locations>** group located under the database level.

New Location button

2. Select the **Edit** > **New** > **Location** option or the **New Location** toolbar button.

A new location named **New_Loc1** *is added to the* **<All Locations>** *group, and the* **Properties** *dialog for the location displays.*

> **Note:** The **Location Properties** may differ slightly for each monitor series.



Location Properties

3. Enter the new **Location Name**. Do not duplicate more than the first seven (7) characters of the monitor name for multiple monitor locations, unless the 8^{th} character is followed by an underscore (_) and a unique character(s). For example, you cannot use the names FSTriton1 and FSTriton2. However, you can use the names FSTriton_1 and FSTriton_2.

4. Enter the new location **Description**.

5. Select the appropriate monitor **Series** from the drop-down list. The series selected from this list determines the parameters and default options displayed on the **Properties** dialog. The options contained within the individual parameter fields include only those options relevant to the selected monitor series.

6. Select the appropriate method of communication from the **Connect Using** drop-down list.

   Note: All communication options (**Modem, Serial, TCP/IP**) may not be available for all monitor series.

7. Select another **Baud Rate** from the drop-down list, when necessary. **Profile** automatically defaults to the preferred baud rate for the selected monitor **Series**.

8. Enter the monitor location **Telephone Number** or the **IP Address** for the connection.

   Note: When entering an IP address, do not use leading zeros before or within the IP address. For example, an IP address of 166.213.006.020 contains leading zeros and, therefore, should be entered in the following way: 166.213.6.20.

9. Enter the monitor **Serial Number**.

10. Choose one of the following methods for collecting monitor data using **Profile**:

    - ❑ **Auto Collect** Select this option to ensure **Profile** collects data ranging from the last timestamp collected or a user-defined start date and time to the current date and time (***Profile** defaults to this option*). The **Auto Collect** checkbox must be selected to edit the **Start time** field and employ this option.

    - ❑ **Manual Collect** Select this option to ensure **Profile** collects data based on the date and time range designated in the **Manual Collection** section. The **Auto Collect** checkbox must be *deselected* in order to edit the **Start**

Time and **End Time** fields under **Manual Collection** and implement this option.

> **Note:** The start and end times displayed in the **Monitor Data** section represent the complete date/time range of flow data available in the monitor memory.

11. Enter or use the arrow buttons to designate the number of hours difference between your location (i.e., the location of the computer on which the database resides) and the physical location of the monitor in the **Time Zone** field. For example, if you are in the *Central* time zone and the monitor is located in the *Eastern* time zone, enter **1** in this field. However, if you are in the *Central* time zone and the monitor is located in the *Pacific* time zone, enter **-2** in this field.

12. Enter the vertical distance from the manhole rim to the bottom of the manhole invert in the **Manhole Depth** field. **Profile** provides the option to include this information on hydrograph data reports.

13. Choose the rates at which you want the monitor to take readings and/or log data from the corresponding drop-down lists:

    - ❑ **Normal** Select the standard rate at which you want the monitor to log data from this drop-down list.

> **Note:** The **Fast** and **Scan** drop-down lists apply only when implementing the **Dual Data Rate** feature in MLI. The **Scan** rate also pertains to applications involving Modbus and Telog® Ru-33 operations.

    - ❑ **Fast** Select the accelerated interval at which you want the monitor to log data once the threshold defined in MLI has been exceeded from this drop-down list. *The monitor will remain in this state until the flow conditions at the monitoring point return to normal, as defined by MLI.*

    - ❑ **Scan** Select the rate at which you want the monitor to evaluate flow conditions to verify whether an event threshold has been exceeded from the drop-down list.

These readings are not stored or logged as historical data for future data collection. Instead, the readings taken at a particular date/time in the interval remain available (*or persist*) until they are overwritten by the readings taken at the next consecutive date/time in the interval. For *Modbus* applications, the *scan* rate also represents the rate at which Modbus updates the data available to the RTU or the Telog Ru-33. The RTU requests this data from either the EMUX (*Buffered Mode*) or the monitor (*Passthrough Mode*). The Telog unit requests this data directly from the monitor. Please note that the EMU, when in use, automatically retrieves the available (i.e., persisting) data from the monitor every minute. When using the Telog Ru-33, ADS recommends applying the same interval for both the scan rate in the monitor and the rate at which the Telog unit requests data from the monitor.

14. (*applies only to Modbus/Telog Ru-33 applications*) Select the **Enable** checkbox (*when applicable*) and modify the following parameters in the **Modbus** section as necessary:

    - **ID** Enter the slave address number from 2 to 57, 59 to 96, or 98 to 247 to be used when facilitating communication between the EMUX and RTU *or* the monitor and Telog Ru-33. The numbers 1, 58, and 97 are used for other addressing purposes and will not be recognized. Choose a number that is unique from other slave IDs used by the RTU or Telog unit when referencing other devices. For Telog Ru-33 operations, ADS recommends considering using 55 as the identifier through which to request data from the monitor. *The default ID is 1.*

    - **Delay Response** Enter the amount of time, in milliseconds, following a request before the monitor returns the requested data to the RTU (*through the EMUX*) or the Telog Ru-33. The maximum delay allowed is 2000 ms. *The default delay response is 10 ms.*

15. Select **OK** to create a LIF for the location in the database and exit the dialog.

The new monitor location with a single monitoring point is now created, configured, and available in the database.

Creating a Second Monitoring Point

Use this option only when you want to create a *second* monitoring point for an ADS monitor location. The first monitoring point is created automatically when a monitor location is created.

Create a second monitoring point in the **Profile** database for the currently selected monitor by selecting **Edit > New > Monitoring Point** or the **New Monitoring Point** toolbar button.

1. Select a location from the database.

New Monitoring Point button

2. Select the **Edit > New > Monitoring Point** option or the **New Monitoring Point** toolbar button. This option is only available when a monitor location is selected.

A second monitoring point now exists for the selected monitor location.

Assigning a Rain Gauge to a Monitoring Point

Allow **Profile** to report the corresponding rain data for a monitoring point by assigning a rain gauge. Perform the following steps to assign a rain gauge to a monitoring point:

1. Select the monitoring point from the database to which you want to assign a rain gauge.

Properties button

2. Select the **Edit > Properties** option or the **Properties** toolbar button.

3. Complete the **Properties for [*location name, monitoring point*]** dialog in the following way:

- **Description Lines** Enter or edit the descriptive information concerning the location for display during reporting activities.
- **Elevation** Enter the elevation at the location based on the United States Geological Survey (USGS).
- **Latitude** Enter the latitude coordinate at the location based on the USGS.
- **Longitude** Enter the longitude coordinate at the location based on the USGS.
- **Drain Basin Number** Enter the designated drainage basin number if available.
- **Rain Gauge** Select the rain gauge you want to assign to the monitoring point.

4. Select **OK** to save these parameters to the **Profile** database.

The selected rain gauge is assigned to the monitoring point.

Selecting and Editing Devices

Select and edit the devices corresponding to the new monitor location to log the desired data. Editing the devices involves setting specific parameters to ensure the monitor and **Profile** properly obtain and process the data. Perform the following steps to properly select and edit devices:

1. Select the location for which you want to select/edit devices from the database.

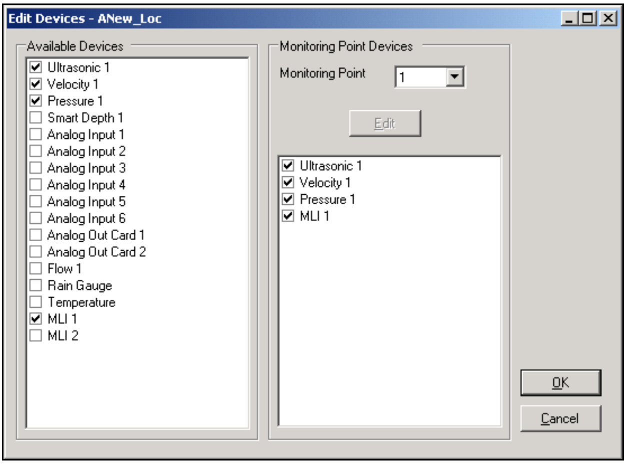
Expansion Symbol

2. Expand the location contents (monitoring point and devices) by selecting the expansion symbol corresponding to the location, and then select **Devices**.

Properties button

3. Select the **Edit > Properties** option or the **Properties** toolbar button.

The **Edit Devices** *dialog displays the available devices and devices selected by default for Monitoring Point 1.*



Edit Devices

Note: The sensor devices listed in **Available Devices** vary depending on the monitor series currently selected.

4. Select the monitoring point to which you want to assign the devices from the **Monitoring Point** drop-down list.

5. Select the checkboxes corresponding to the devices you want to assign to the designated monitoring point from the **Available Devices** selection box. A checkmark must display beside a device in the **Monitoring Point Devices** section to ensure **Profile** includes the device in the LIF. *Deselect* the checkboxes from the **Available Devices** section corresponding to the devices you want to remove from association with the selected monitoring point.

Note: Some monitors allow you to connect two of the same device type to the monitor at one time. Therefore, the **Available Devices** list may include two of each device type (e.g., **Peak Combo 1** and **Peak Combo 2**), except for the *Modem Setup* device. However, do not assign two devices of the same type to the same monitoring point. For FlowShark Triton and FlowHawk™ monitors, this will cause the monitor to overwrite the new data corresponding to one of the duplicate devices with the data from the other device during data collection. In addition, assign a device to the monitoring point of the same number. For example, always assign **Peak Combo 1** only to *Monitoring Point 1* and **Peak Combo 2** only to *Monitoring Point 2*.

Note: The **Smart Depth 1** and **Smart Depth 2** devices represent standalone ultrasonic depth sensors.

Note: The **MLI 1**, **MLI 2**, and **Modem Setup** devices are not associated specifically with a sensor. *MLI* represents special software (Basic Code) included in **Profile** that is downloaded to the monitor upon activation to support activities such as water quality sampling and event notification. *Modem Setup* represents a list of wireless communication provider's carrier codes.

The selected devices display in the ***Monitoring Point Devices*** *section.*

6. As necessary, edit the parameters corresponding to each device in the following way:

   - ❑ Select the device you want to edit from the **Monitoring Point Devices** section, and then select the **Edit** button.

The ***Edit [device type] Parameters*** *dialog displays for the selected device. Please note that each device dialog contains default settings.*

   - ❑ Edit the device parameters. Refer to the information corresponding to the particular device (*in the following sections*) for details concerning the specific parameters. Some device dialogs include multiple tabs representing sensors or other tools that require editing. Refer to the following sections for details concerning the specific parameters corresponding to each device and any associated sensors/tools. Select and edit each sensor/tool tab as necessary.

   - ❑ Select the **OK** button after editing the device parameters and any associated sensors/tools.

- ❑ Repeat the three previous steps from Step 6 for each additional device that requires new settings or modification for the currently selected monitoring point.

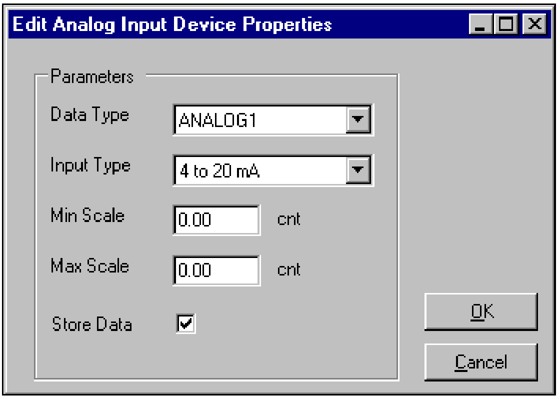
7. (*applicable only to locations with a second monitoring point*) Repeat steps 4 through 6 to assign a device(s) to the other monitoring point and edit the device parameters.

8. After editing the devices as necessary, select the **OK** button to save the device selections and parameter modifications to the LIF.

Analog Input Device

Edit the analog input device in the following way:

> **Note:** The following instructions apply to all ADS monitors using an analog input device except FlowShark monitors. For instructions on editing an analog input device associated with a FlowShark monitor, refer to *Analog Input Device (FlowShark)* on page 2-29.



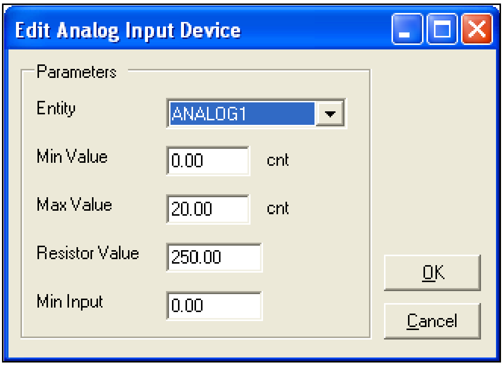
Edit Analog Input Device Properties

- **Data Type** Select the type of data this signal represents to ensure **Profile** applies the correct unit of measure to the data. **Profile** defaults to *ANALOG1*.

- **Input Type** Select the range for the signal. **Profile** defaults to *4 to 20 mA*.
- **Min Scale** Enter the data value corresponding to the lowest signal in the range. **Profile** defaults this scale to *0*.
- **Max Scale** Enter the data value corresponding to the highest signal in the range. You must set the maximum scale about 0 to use this device. **Profile** defaults this scale to *0*.
- **Store Data** Select this checkbox to ensure that the monitor logs the data produced through this device. The monitor saves the data by default (*selected*).

Analog Input Device (FlowShark)

Edit the analog input device associated with a FlowShark monitor in the following way:



Edit Analog Input Device (FlowShark)

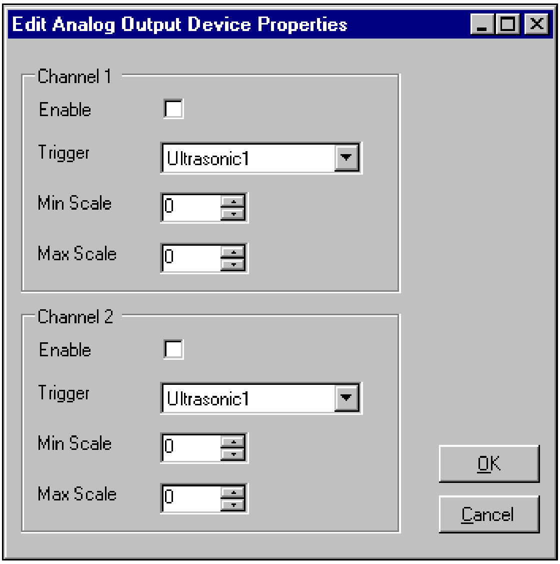
- **Entity** Select the entity for which you want to input data through the analog input.
- **Min Value** Enter the reading you want to correspond to 4 mA.
- **Max Value** Enter the reading you want to correspond to 20 mA.

- **Resistor Value** Enter the nominal value in ohms for the 4/20 mA circuit.
- **Min Input** Enter the value you want to serve as the minimum cutoff value for the input. If a reading falls below this setting, this value will be recorded in place of the actual reading.

Analog Output Card Device

Edit the analog output card device in the following way:

> **Note:** The following instructions apply to all ADS monitors using an analog input device except FlowShark monitors. For instructions on editing an analog input device associated with a FlowShark monitor, refer to *Analog Output Card Device (FlowShark)* on page 2-31.



Edit Analog Output Device Properties

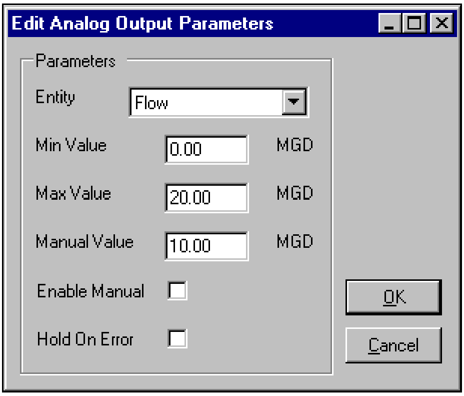
- **Enable** Select the checkbox corresponding to the channel for which you want to set up parameters.

- **Trigger** Select the device for which you want to output entity data through the Analog Output Card.
- **Min Scale** Enter the data value that will correspond to the weakest signal available in the scale (4 mA). This value should reflect the lowest possible value for the data.
- **Max Scale** Enter the data value that will correspond to the strongest signal available in the scale (20 mA). This value should reflect the highest possible value for the data.

Note: To use another channel on the **Analog Output Device**, select the checkbox and edit the parameters corresponding to the other channel.

Analog Output Card Device (FlowShark)

Edit the analog output card device associated with a FlowShark monitor in the following way:



Edit Analog Output Parameters (FlowShark)

- **Entity** Select the entity type for which you want to output data.
- **Min Value** Enter the data value that you want to correspond to the weakest signal available in the scale (4 mA). This value should reflect the lowest possible value for the data.

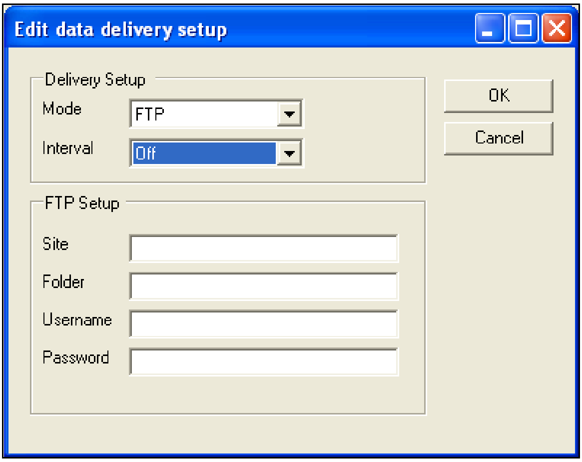
- **Max Value** Enter the data value that you want to correspond to the strongest signal available in the scale (20 mA). This value should reflect the highest possible value for the data.
- **Manual Value** Enter the value that you want to represent the output when the *Enable Manual* option is selected. *This parameter is applicable only for testing purposes; therefore, ADS does not recommend editing this value.*
- **Enable Manual** Select this checkbox to output the value designated in the *Manual Value* field. *ADS provides this option only for testing purposes.*

> **Note:** Activate the monitor with the **Enable Manual** option selected only to test the designated **Manual Value**. Once the test is complete, you must disable this option and reactivate the monitor to implement the **Min** and **Max Values** entered for the output device.

- **Hold On Error** Select this checkbox to maintain the last output reading when the current value is erroneous.

Data Delivery Device

The data delivery device enables FlowShark Triton and FlowHawk monitors to upload flow data stored in the monitor memory to an **IntelliServe**® database or an FTP site at a user-designated interval. To upload the data to an FTP site, you must know the address of the FTP site, the folder at the FTP site in which you want the monitor to place the data, and the username and password the monitor must use to access the site. Edit the data delivery device in the following way:



Edit data delivery setup

- **Mode** Select the destination to which you want the monitor to deliver the data. This list includes an **IntelliServe** database or an existing **FTP** site. To deliver data to an **IntelliServe** database, you must enter the IP address for the **IntelliServe** system in the **IP Address** field of the **Alarm Notification** section on the **Edit MLI Device Properties** dialog. Refer to *MLI Device* on page 2-36 for more information.
- **Interval** Select the rate at which you want the monitor to upload data to the selected destination. Determine the appropriate interval based on the sample rate for the monitor and the number of entities for which the monitor records data. A faster sample rate and/or a greater number of entities may require a more frequent interval for data delivery.

Note: The remaining parameters apply only when uploading data to an FTP site.

- **Site** Enter the address of the FTP site to which you want the monitor to send the data.
- **Folder** Enter the name of the folder at the FTP site to which you want the monitor to upload the data.

- **Username** Enter the username through which the monitor can access the FTP site.
- **Password** Enter the password through which the monitor can access the FTP site.

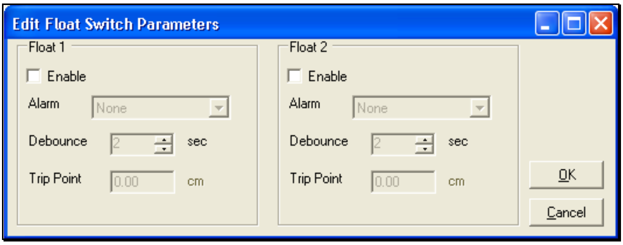
Digital Card Device

Select the **Digital Card 1** or **Digital Card 2** device for pump station applications. If channels 1 through 8 are assigned to the pumps, select the **Digital Card 1** device. If channels 9 through 16 are assigned to the pumps, select the **Digital Card 2** device.

Digital Card devices *do not* require editing.

Float Device

Edit the float device(s) for each float switch connected to the FlowAlert monitor in the following way. Although configuration of both floats (*when applicable*) occurs on the same dialog, each float represents an independent device.



Edit Float Switch Parameters

- **Enable** Select the checkbox(es) in the **Float 1** and/or **Float 2** sections to activate up to two float devices for the FlowAlert monitor.
- **Alarm** Select the type of alarm you want the **Float** device to trigger when the flow reaches the corresponding depth level. Choose from **High**, **High High**, or **Low Depth** from this drop-down list. If the **High** or **High High** alarm is configured for the pressure sensor, it will be unavailable for the **Float** device.

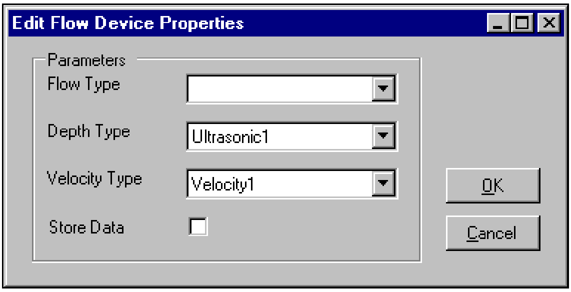
- **Debounce** Enter or use the arrows to set the amount of time (in seconds), following a change in state, the float device must remain in a new state to activate an alarm or indicate a return to normal. ADS recommends maintaining the default setting for this parameter.
- **Trip Point** Enter the elevation at which the float will change states. This value typically represents the distance from the manhole invert to the midsection of the float when hanging freely in the manhole.

Flow Device

Profile supports three flow device entities: QContinuity, QPSFill, and QPSRun. QContinuity is available for monitors with depth and velocity devices; however, QPSFill and QPSRun are available only with pump station monitors.

> **Note**: Only ADS pump station monitors can generate QPSFill and QPSRun from the **Flow** device. Therefore, most ADS monitors generate *only* the QContinuity entity from the **Flow** device.

Edit the flow device in the following way:



Edit Flow Device Properties

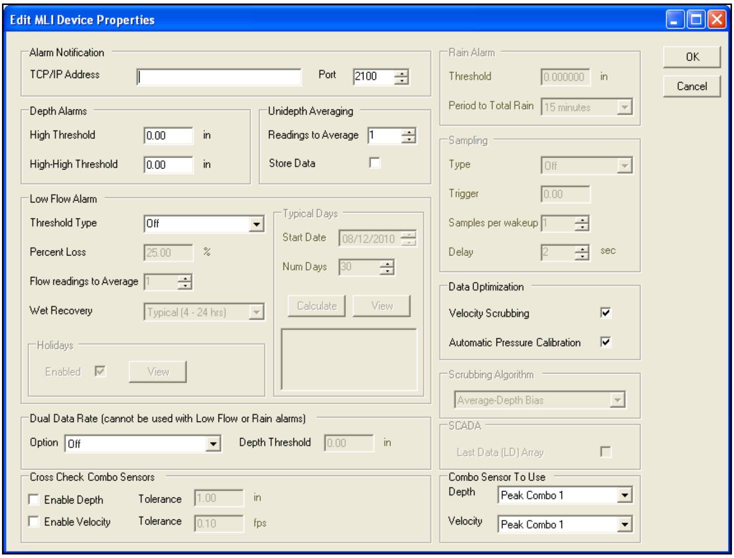
> **Note:** The options available for **Flow Type**, **Depth Type**, and **Velocity Type** correspond to the devices assigned to the monitoring point.

- **Flow Type** Select the method through which you want the monitor to calculate flow from the drop-down list.
- **Depth Type (*applies only to QContinuity*)** Select the depth device from which you want to apply depth data in calculating QContinuity from the drop-down list.
- **Velocity Type (*applies only to QContinuity*)** Select the velocity device from which you want to apply velocity data in calculating QContinuity from the drop-down list.
- **Store Data** Select this checkbox to ensure the monitor stores the flow data. **Profile** *does not* store this data under the default configuration.

MLI Device

Edit the MLI device in the following way: These instructions apply to all ADS monitors with the MLI device except the FlowShark monitor. *See MLI Device (FlowShark) on* page 2-47 *for a description of the parameters for the MLI device corresponding to FlowShark monitors.*

> **Note:** The parameters available to the MLI device may vary based on the monitor series; therefore, some parameters may not be available on the MLI properties dialog corresponding to certain monitors. The following image represents an **Edit MLI Device Properties** dialog for a FlowShark Triton or FlowHawk monitor.



Edit MLI Device Properties (FlowShark Triton)

- **Alarm Notification**

  - **Phone Number/IP Address** Enter the telephone number or the IP address of the **IntelliServe** system you want the monitor to contact when the designated alarm conditions occur. You also must enter an IP address for an **IntelliServe** system when using the *data delivery device* to ensure the monitor delivers data to the specific **IntelliServe** system at the appropriate interval designated in the **Edit data delivery setup** dialog.

  - **Port** Enter the number of the port on the **IntelliServe** system through which wireless communication will occur (*when applicable*). Please consult ADS before changing this parameter.

Note: The number/address field displays **IP Address** only when the monitor location is configured for *wireless (TCP/IP) communications*.

- **Depth Alarms** Edit the following MLI device parameters when you want the monitor to send out an alarm(s) to an ADS **IntelliServe** system under high depth conditions.

  - ❑ **High Threshold** Enter the flow depth at which you want the monitor to contact the ADS **IntelliServe** system to initiate an alarm. Typically, this value is set to a height slightly below, equivalent to, or exceeding the pipe height to ensure notification occurs when the pipe is full or surcharge conditions exist. Alarm conditions will discontinue, or conditions will *return to normal*, when the flow depth falls *1 inch* below the depth designated for the **High Threshold**.

  - ❑ **High-High Threshold** Enter a second, higher flow depth at which you want the monitor to contact the **IntelliServe** system. This value must be zero when this feature is *not* in use *or* greater than the value entered for **High Threshold** when it is in use. ADS recommends setting the **High High Threshold** at least 2 inches greater than the **High Threshold**. Alarm conditions will discontinue, or conditions will *return to normal*, when the flow depth falls *1 inch* below the depth designated for the **High High Threshold**.

Note: The monitor evaluates the flow conditions for alarm settings based on the *Normal* interval when the *Dual Data Rate* feature is not in use. When the Dual Data Rate feature is in use, the monitor evaluates the flow conditions at the *Fast* interval.

- **Unidepth Averaging** Set up the monitor to average the Unidepth data logged using MLI in the following way:

  - ❑ **Readings to Average** Select the number of consecutive Unidepth readings you want the monitor to average to limit the impact of erroneous readings on the data.

  - ❑ **Store Data** Select this checkbox to save the averaged Unidepth data to the monitor memory. When the value entered for **Readings to Average** is greater than 1, the monitor creates and stores the new entities, DMLI_AVG and DML2_AVG. Data for these entities is retrieved to the **Profile** database during data collects.

- **Low Flow Alarm** Edit the following MLI parameters when you want to configure the monitor to send out an alarm under low flow conditions.

  - **Threshold Type** Select the flow condition you want to serve as the threshold by which you want the monitor to send out a low flow alarm to **IntelliServe**.

    – **Daily Flow Pattern** Choose this option to trigger an alarm when the average daily flow rate calculated by the monitor falls below the threshold (*designated percentage*) of typical flow rates for the particular day type (weekday or weekend) and time of day.

    – **Daily Depth Pattern** Choose this option to trigger an alarm when the flow depth level measured by the monitor falls below the threshold (*designated percentage*) of typical depth levels for the particular day type (weekday or weekend) and time of day.

  - **Percent Loss** Select the percentage of the *average daily flow* (ADF) rates or depths you want to set as the threshold below which the monitor will send out an alarm. To discontinue a low flow alarm and allow the system to *return to normal,* MLI must register average daily flow rates or depths a predefined number of percentage points above the threshold for percent loss.

  - **Flow Readings to Average** Select the number of consecutive readings you want the monitor to average to prevent isolated erroneous readings from accidentally setting off false alarms. When the value entered for **Readings to Average** is greater than 1, the monitor creates and stores the new entities, DMLI_AVG and DML2_AVG. The data for these entities will be available during data collection activities.

- **Wet Recovery** Select the time period following a rain event for which you want the monitor to refrain from alarm notification during abnormal flow conditions. This prevents false alarms from occurring by allowing flow conditions to return to a dry weather state before the system continues analyzing the flow for unusual patterns.

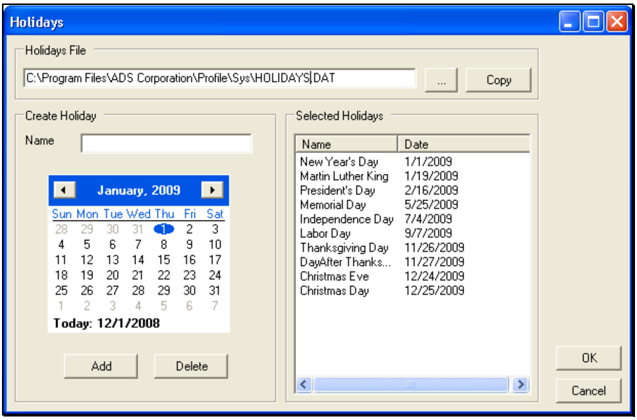
- **Holidays** Select the **Enabled** checkbox to allow the current monitor to use the holiday file (HOLIDAYS.DAT). The holiday file is a user-customized list of dates designated as holidays which, when enabled, helps prevent the monitor from sending out false flow alarms. Holidays typically produce substantially different flow conditions than regular days. If the **Holidays** option is enabled, the monitor will compare data produced on days designated as *holidays* to a typical *weekend* day instead of a typical *weekday* when investigating low flow conditions. Profile will download the HOLIDAYS.DAT file to the monitor during activation.

  Create a global holiday file to be used by all locations in the database, or customize a holiday file and save it to a specific location (to ignore the global holiday file).

Note: The HOLIDAYS.DAT file can contain only a limited number of holidays. Therefore, please verify the holiday file is up to date on an annual basis. Add new holidays as necessary and delete old holidays that have already occurred to ensure the monitor uses the appropriate holidays when comparing the data. In addition, reactivate the monitor with the new or updated HOLIDAYS.DAT file following any additions or changes.

  Customize a holiday file in the following way:

  – Select the **View** button to access the **Holidays** dialog.

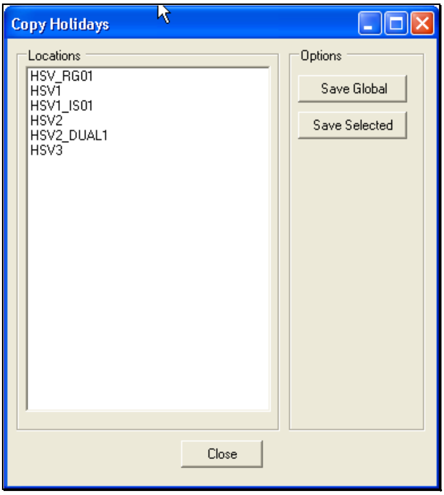


Holidays parameters

- Use the calendar to choose the date of the holiday you want to create. Scroll from month-to-month using the right- and left-arrow buttons. You also can select the month or year to reveal additional controls for quickly changing the date.
- Enter the name of the holiday you want to designate in the **Name** field.
- Select the **Add** button to include the specified holiday on the **Selected Holidays** list.
- Repeat the previous *three* steps for each additional holiday you want to designate.
- Use the **Holiday File** field to specify the path to the HOLIDAYS.DAT file you want to use for this location.

Note: Delete an item from the **Selected Holidays** list by selecting the holiday and selecting the **Delete** button.

- Select **Copy** to access the **Copy Holidays** window to select where to save the new holiday file.



Copy Holidays

– Select one of the following:

- Choose **Save to Global** to save the current holiday list as the system-wide holiday list.
- Choose **Save to Selected** to save the current holiday list to the location folders of any monitors selected from the **Locations** list. The HOLIDAYS.DAT file is saved to the selected location folders and used during activation, and the global HOLIDAYS.DAT file is ignored.

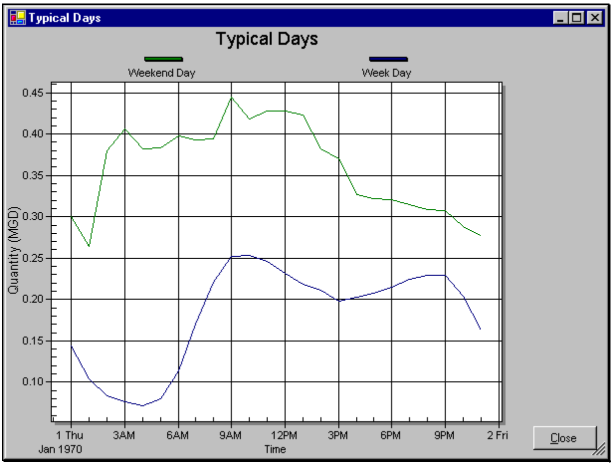
– Select **Close** to exit.

❑ **Typical Days** Complete the following procedure to determine the flow for typical days based on historical data stored in your local directory or network for the selected location.

– Select the date on which you want to begin the calculation from **Start Date**. You can either edit the date field directly *or* select an item and then use the arrows to scroll to the appropriate date. *You must select a date for which data already exists.*

– Select the number of days from the start date for which you want to calculate typical days using the **Num Days** arrow controls. ADS recommends selecting 28-31 days for the most beneficial results; ***Profile** will not allow you to run a calculation for less than 7 days.*

– Select the **Calculate** button to determine typical days for the selected time span and display a graphical representation of the data.



Typical Days

– Select the **Close** button to exit the graph and return to the **Edit MLI Device Properties** dialog.

Note: Select the **View** button in the **Typical Days** section at any time to display the typical days data for the selected location.

- **Dual Data Rate** Select one of the following conditions from the **Option** drop-down list under which you want the monitor to increase the log rate:

❑ **Depth Limit** Choose this option to temporarily increase the log rate to the fast rate (defined in the **Properties for**

location [*location name*] dialog for the selected monitor location) once flow exceeds the user-defined depth threshold. The log rate will return to the *normal* rate once the flow depth falls below the designated threshold. For this option, you also must enter the flow depth at which you want the monitor to temporarily increase the log rate to the fast rate in the **Depth Threshold** field.

- **Automatic Rain Detection (Flow)** Choose this option to temporarily increase the log rate to the fast rate (defined in the **Properties for location [*location name*]** dialog for the selected monitor location) if the flow rate reads 30 percent over the average daily flow for that particular time of day. The log rate will return to the *normal* rate once the flow rate falls below 15 percent over the average daily flow.
- **Automatic Rain Detection (Depth)** Choose this option to temporarily increase the log rate to the fast rate (defined in the **Properties for location [*location name*]** dialog for the selected monitor location) if the flow reading is 10 percent of the pipe height higher than the depth reading logged the previous day at the same time. For example, assume the pipe diameter is 20 inches (making 10 percent of the pipe height 2 inches), and today at 10:15 am the monitor reads a depth of 11 inches. If the depth reading at 10:15 am yesterday was 8 inches, the log rate would increase to the *fast* rate. The log rate will return to the normal rate once the flow depth reads no more than 5 percent of the pipe height higher than the typical (historical) depth reading logged at the same time on other days.

- **Cross Check Combo Sensors** Using this function allows you to configure the monitor to log an event each time two sensors assigned to the same monitoring point measuring the same characteristic (i.e., flow depth or velocity) of the flow return readings exhibiting a difference outside a designated tolerance. The monitor calculates the differences using a running average to minimize the possibility of anomalies that may trigger false alarms. The monitor also will log an event when the difference in readings falls back below the designated tolerance.

- **Enable Depth/Tolerance** Select the **Enable Depth** checkbox to ensure the monitor logs a *CROSS_DEPTH* event when the difference between at least two of the depth readings at the monitoring point exceeds the corresponding tolerance. Enter the difference in depth measurements beyond which you want the monitor to log a cross check event in the **Tolerance** field.

- **Enable Velocity/Tolerance** Select the **Enable Velocity** checkbox to ensure the monitor logs a *CROSS_VELOCITY* event when the difference between at least two of the velocity readings at the monitoring point exceeds the corresponding tolerance. Enter the difference in velocity measurements beyond which you want the monitor to log a cross check event in the **Tolerance** field.

- **Rain Alarm** Use the parameters in this section to configure the rain gauge device for rain alarms. Enter the total amount of rainfall that must occur within a specified time period to initiate the alarm in the **Threshold** field. Then, select the specific period of time from the **Period to Total Rain** drop-down list.

- **Sampling** Use the information in this section to configure the water quality sampling activities.

  - Select the type of sampling you want to perform from the **Type** drop-down list. Select **Depth** when you want to trigger water-quality sampling at a specific flow depth; select **Flow Rate** when you want to trigger sampling based on a specific rate of flow; and select **Flow Total** when you want to initiate sampling activities based on a specific flow volume.

  - Select or enter the reading at which you want the monitor to pulse the sampler based on the selected sampling option and unit of measure in the **Trigger** field.

- Select or enter the total, consecutive number of times you want the monitor to pulse the sampler (fill a bottle) within a single interval each time the trigger condition is satisfied in the **Samples Per Wakeup** field. **Profile** defaults to *1*.
- Select or enter the amount of time the monitor pauses between sending pulses to the sampler in the **Delay** field. This feature applies only when you configure the monitor to pulse the sampler more than one time at each interval. **Profile** defaults to *2 seconds*.

- **Data Optimization** Use the following options to obtain the most accurate velocity and pressure depth data:
  - **Velocity Editing** Select this checkbox to ensure the monitor confirms questionable or erroneous velocity readings based on the historical relationship between the ultrasonic depth and velocity data for the location.
  - **Automatic Pressure Calibration** Select this checkbox to ensure the monitor automatically calibrates the pressure depth data to read consistently with the ultrasonic depth data. The monitor will maintain a running average of the difference between the pressure depth data and the ultrasonic data throughout the day. At midnight each day, the monitor will apply a new offset based on the most recent difference in the running average.
- **Scrubbing Algorithm** Select the scrubbing algorithm you want the monitor to apply when evaluating ultrasonic depth, Smart Depth, or pressure depth to determine Unidepth from the following:
  - **Average-Depth Bias** Choose this option to ensure the monitor excludes unusual spikes *and* drops that may exist in the depth readings when calculating Unidepth. Spikes and drops represent isolated, inconsistently high (spikes) or low (drops) depth readings that fall outside a predefined tolerance or range.
  - **Low-Depth Bias** Choose this option to ensure the monitor excludes unusual *spikes* that may exist in the depth readings when calculating Unidepth.

- **High-Depth Bias** Choose this option to ensure the monitor excludes unusual *drops* that may exist in the depth readings when calculating Unidepth.

- **SCADA** Select the **Last Data (LD) Array** checkbox to ensure **IntelliServe** users have access to the most current flow data (last data array) logged by the monitor at the last firing (time interval). By default, the LD Array is reported in MGD. Change the units between MGD, metric, or CFS by using **Windows Explorer** to browse to *C:\Program Files\ADS Corporation\Profile\SYS* and copying the desired *UNITS.MGD*, *UNITS.MET*, or *UNITS.CFS* file over the *UNITS.DAT* file.

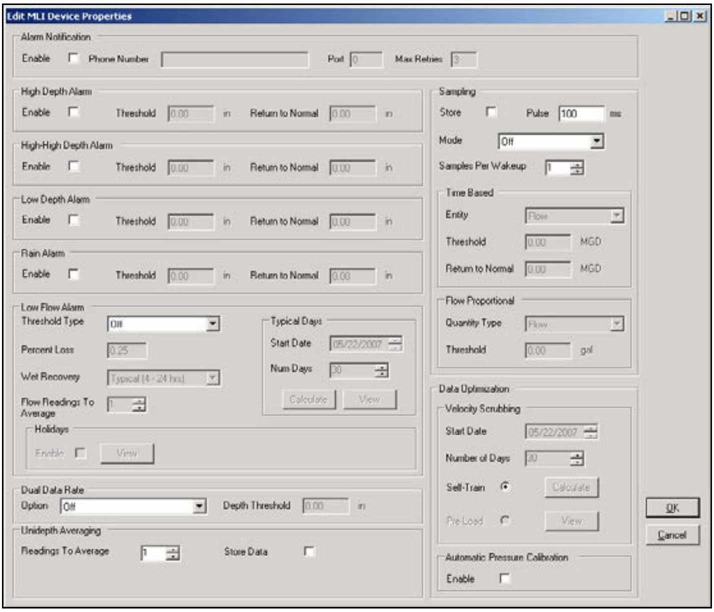
- **Combo Sensor To Use**

  - **Depth** Select the combo sensor containing the depth sensor you want to use for processes involving MLI and to generate UNIDEPTH.

  - **Velocity** Select the combo sensor containing the velocity sensor you want to use for processes involving MLI and to generate RAWVEL.

MLI Device (FlowShark)

Edit the MLI device properties corresponding to a FlowShark monitor in the following way. *See MLI Device on* page 2-36 *for a description of the parameters corresponding to the MLI device associated with other ADS monitors.*



Edit MLI Device Properties (FlowShark)

- **Alarm Notification** Enter the communication parameters required to enable the monitor to contact an ADS **IntelliServe** system under alarm conditions.
    - ❑ **Enable** Select this checkbox to ensure **Profile** configures the monitor with the alarm notification communication information.
    - ❑ **Phone Number *or* TCP/IP Address** Enter the telephone number or the IP address (*for wireless communication*) for the **IntelliServe** system you want the monitor to contact when a designated alarm condition occurs.

Note: The number/address field displays **IP Address** when the monitor location is configured for *wireless (TCP/IP) communications*.

- **Port** Enter the number of the port through which wireless communication will occur. Please consult ADS before changing this parameter.
- **Max Retries** Enter the maximum number of times you want the monitor to attempt to establish communication with the **IntelliServe** system following an initial failed attempt.

- **High Depth Alarm** Set up the following parameters when you want the FlowShark monitor to send an alarm message to an **IntelliServe** system when high flow depths occur at the monitor.
  - **Enable** Select this checkbox to enable the **High Depth Alarm** function using the conditions specified in the *High Depth Alarm* **Threshold** and **Return to Normal** fields.
  - **Threshold** Enter the flow depth above which you want the monitor to contact the **IntelliServe** system to initiate a high depth alarm. Typically, this value is set to a height slightly below, equivalent to, or exceeding the pipe height to ensure notification occurs when the pipe is full or surcharge conditions exist.

Note: To prevent potential false alarms, input a value greater than 1 into the **Readings to Average** field of the **Unidepth Averaging** section.

  - **Return to Normal** Enter the flow depth below which you want the monitor to send a message to the ADS **IntelliServe** system indicating the high depth conditions no longer exist at the location.

- **High High Depth Alarm** Set up the following parameters when you want the FlowShark monitor to send a **High High Depth Alarm** message to an ADS **IntelliServe** system when exceedingly high flow depths occur at the monitor.
  - **Enable** Select this checkbox to enable the **High High Depth Alarm** function using the conditions specified in

the *High High Depth Alarm* **Threshold** and **Return to Normal** fields.

- **Threshold** Enter the flow depth above which you want the monitor to contact the **IntelliServe** system to initiate a **High High Depth** alarm. This value must be zero when not in use or at least 2 inches greater than the value entered for the **High Threshold** when it is in use.

Note: To prevent potential false alarms, input a value greater than 1 into the **Readings to Average** field of the **Unidepth Averaging** section.

- **Return to Normal** Enter the flow depth below which you want the monitor to send a message to the ADS **IntelliServe** system indicating the high, high depth conditions no longer exist at the monitor.

- **Low Depth Alarm** Set up the following parameters when you want the FlowShark monitor to send a **Low Depth Alarm** message to an ADS **IntelliServe** system when specific low flow depth conditions occur at the monitor.

  - **Enable** Select this checkbox to enable the **Low Depth Alarm** function using the conditions specified in the *Low Depth Alarm* **Threshold** and **Return to Normal** fields.

  - **Threshold** Enter the flow depth below which you want the monitor to contact the ADS **IntelliServe** system to initiate a **Low Depth** alarm. *This depth should be lower than the lowest depth that commonly occurs at the location.*

Note: To prevent potential false alarms, input a value greater than 1 into the **Readings to Average** field of the **Unidepth Averaging** section.

  - **Return to Normal** Enter the flow depth at which you want the monitor to send a message to the ADS **IntelliServe** system indicating the low depth conditions no longer exist at the monitor.

- **Rain Alarm** Set up the following parameters when you want the FlowShark monitor (equipped with a rain gauge) to send out an alarm to an **IntelliServe** system when specific rain conditions occur at the monitor.
  - ❑ **Enable** Select this checkbox to enable the **Rain Alarm** function using the conditions specified in the *Rain Alarm* **Threshold** and **Return to Normal** fields.
  - ❑ **Threshold** Enter the rainfall that must occur over a specified interval (*designated in the Rain Gauge device property window*) for the monitor to contact the ADS **IntelliServe** system to initiate a *rain alarm*.
  - ❑ **Return to Normal** Enter the rainfall amount that must occur over a specified interval (*designated in the Rain Gauge device property window*) for the monitor to contact the ADS **IntelliServe** system to discontinue alarm conditions.
- **Low Flow Alarm** Configure the **Low Flow Alarm** parameters when you want the FlowShark monitor to send out an alarm to an ADS **IntelliServe** system when low flow conditions occur at the monitor based on either a *Daily Flow Pattern* or a *Daily Depth Pattern*.
  - ❑ **Threshold Type** Select the flow condition you want to use as the threshold for the low flow alarms.
    - – **Daily Flow Pattern** Choose this option to trigger an alarm when the flow rate calculated by the monitor falls below the threshold of typical flow rates. The monitor accommodates the different day types (*weekday* or *weekend*) and time of day when reviewing the threshold.
    - – **Daily Depth Pattern** Choose this option to trigger an alarm when the flow depth level measured by the monitor falls below the threshold of typical depth levels. The monitor accommodates the different day types (*weekday* or *weekend*) and time of day when reviewing the threshold.

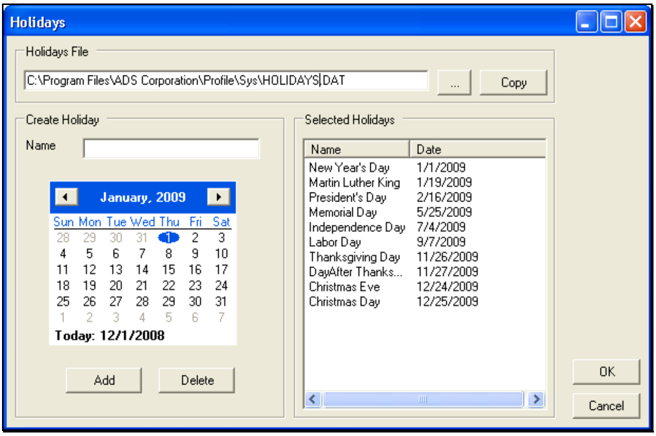
- **Percent Loss** Enter the percentage of the *average daily flow* (ADF) below which you want the monitor to send out an alarm.
- **Wet Recovery** Select the time period following a wet weather event during which you want the monitor to refrain from alarm notification. This prevents false alarms from occurring by allowing flow conditions to return to a dry weather state before the system continues analyzing the flow for unusual patterns.
- **Flow Readings to Average** (*applies only to **Daily Flow Pattern** alarms*) Select the number of consecutive readings you want the monitor to average to prevent isolated erroneous readings from accidentally triggering false alarms. When the value entered for **Readings to Average** is greater than 1, the monitor creates and stores the new entity QMLI_AVG. Data for this entity is retrieved and stored in the **Profile** database during data collects.
- **Holidays** Select the **Enabled** checkbox to allow the current monitor to use the holiday file (HOLIDAYS.DAT). The holiday file is a user-customized list of dates designated as holidays which, when enabled, helps prevent the monitor from sending out false flow alarms. Holidays typically produce substantially different flow conditions than regular days. If the **Holidays** option is enabled, the monitor will compare data produced on days designated as *holidays* to a typical *weekend* day, instead of a typical *weekday*, when investigating low flow conditions. **Profile** will download the HOLIDAYS.DAT file to the monitor during activation.

  Create a global holiday file to be used by all locations in the database, or customize a holiday file and save it to a specific location (the global holiday file will be ignored).

Note: The HOLIDAYS.DAT file can contain only a limited number of holidays. Therefore, please verify the holiday file is up to date on an annual basis. Add new holidays as necessary and delete old holidays that have already occurred to ensure the monitor uses the appropriate holidays when comparing the data. In addition, reactivate the monitor with the new or updated HOLIDAYS.DAT file following any additions or changes.

Customize a holiday file in the following way:

– Select the **View** button to access the **Holidays** dialog.



Holidays window

– Use the calendar to choose the date of a holiday you want to designate or create. Scroll from month-to-month using the right- and left-arrow buttons. You also can select the month or year to reveal additional controls for quickly changing the date.

– Enter the name of the holiday you want to designate in the **Name** field.

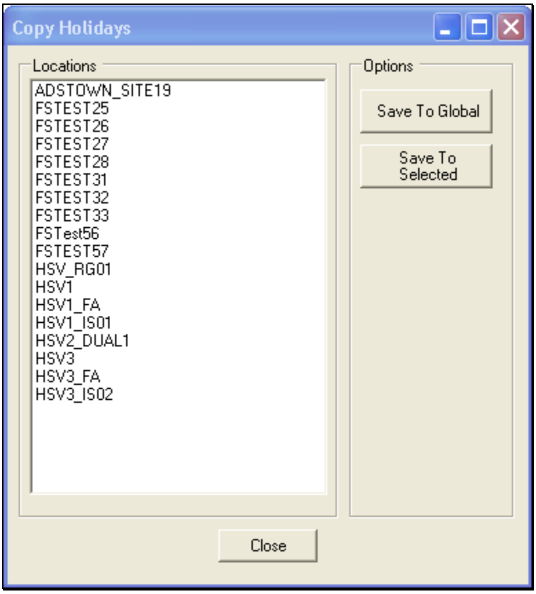
– Select the **Add** button to include the specified holiday on the **Selected Holidays** list.

– Repeat the previous *three* steps for each additional holiday you want to designate.

– Use the **Holiday File** field to specify the path to the HOLIDAYS.DAT file for this location.

Note: Delete an item from the **Selected Holidays** list by selecting the holiday and selecting the **Delete** button.

– Select **Copy** to access the **Copy Holidays** window to designate the location to save the new holiday file.



Copy Holidays window

– Select one of the following options:

- Choose **Save to Global** to save the current holiday list as the system-wide holiday list.
- Choose **Save to Selected** to save the current holiday list to the location folders of any monitors selected from the **Locations** list. The HOLIDAY.DAT file is saved to the selected location folders and used during activation. The global HOLIDAY.DAT file is ignored.

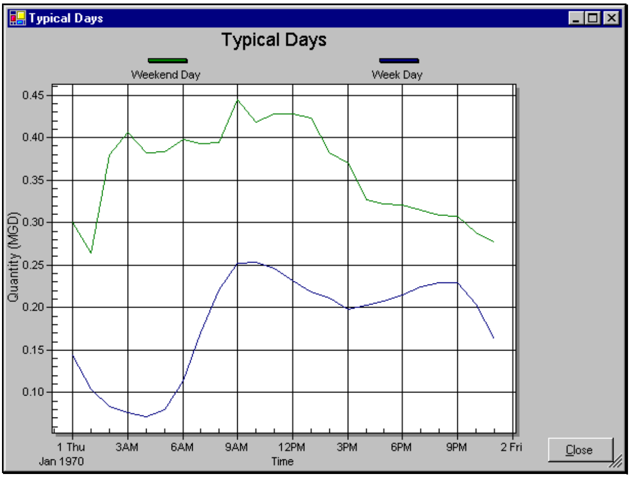
– Select **Close** to exit.

- **Typical Days** Complete the following procedure to generate a *typical day* curve based on historical monitor data. This curve information is downloaded to the monitor during *activation*. The monitor continually updates and maintains the curve information for use when determining whether a **Daily Flow Pattern** or **Daily Depth Pattern** threshold has been exceeded.

  – Select the date on which you want to begin the curve data calculation from **Start Date**. Edit the field directly *or* select an item and use the arrows to scroll to the appropriate date. *You must select a date for which data already exists.*

  – Select the number of days from the start date for which you want to calculate typical days using the **Num Days** arrow controls. ADS recommends selecting between 28 and 31 days for the most beneficial results; **Profile** *will not allow you to run a calculation for less than 7 days.*

  – Select the **Calculate** button to determine typical days for the selected time span and display a graphical representation of the data.



Typical Days graph

– Select the **Close** button to exit the graph and return to the **Edit MLI Device Properties** dialog.

Note: Select the **View** button in the **Typical Days** section at any time to display the typical days data for the selected location.

- **Dual Data Rate** Set up the monitor to temporarily increase the data log rate in response to a depth trigger (threshold).
  - ❑ **Option** Select **Depth Limit** to temporarily increase the log rate to the **Fast** rate (*defined in the **Properties for location [location name]** dialog for the selected monitor location*) once flow exceeds the user-defined **Depth Threshold**. The log rate returns to the **Normal** rate once the flow depth falls back below the designated threshold.
  - ❑ **Depth Threshold** Enter the flow depth above which you want the monitor to temporarily increase the log rate to the *fast* rate.
- **Unidepth Averaging** Use this option when using *High Depth Alarms*, *High High Depth Alarms*, *Low Depth Alarms*, or *Daily Depth Pattern* (*Low Flow) Alarms* to allow the monitor to average the Unidepth data (*which these alarms are based upon*) to help prevent erroneous readings from triggering false alarms.
  - ❑ **Readings to Average** Select the number of consecutive Unidepth readings you want the monitor to average to minimize the impact of erroneous readings on the data.
  - ❑ **Store Data** Select this checkbox to save the averaged Unidepth data to the monitor memory. When the number entered into the **Readings to Average** field is greater than 1, the monitor creates and stores the new entity, DMLI_AVG (DML2_AVG for monitoring point 2), which is collected and stored in the **Profile** database.
- **Sampling** Edit the **Sampling** parameters to manage water-quality sampling activities.

> **Note:** The **Sampling** option is available *only* for FlowSharks supporting a single monitoring point.

- **Store** Select this checkbox to ensure **Profile** stores the sampling data.
- **Pulse** Enter the amount of time you want the monitor to delay between sending pulses to the sampler once sampling activities begin.
- **Mode** Select the method of sampling you want to use. Select **Time Based** to configure the monitor to initiate and terminate sampling operations based on readings from a selected **Entity** trigger. Select **Flow Proportional** to configure the monitor to pulse the sampler based on a specific flow quantity trigger.
- **Samples Per Wakeup** Select and enter or use the arrows to indicate the total, consecutive number of times you want the monitor to pulse the sampler within a single interval each time the trigger condition is satisfied. ***Profile*** *defaults this field to 1.*
- **Time Based** Edit the following parameters when using **Time Based** sampling.
  - **Entity** Select the entity you want to use as the trigger to initiate sampling activities.
  - **Threshold** Enter the entity value (corresponding to the entity) at which you want to trigger sampling activities.
  - **Return to Normal** Enter the value at which you want the monitor to discontinue sampling activities.
- **Flow Proportional** Edit the following parameters when using **Flow Proportional** sampling.
  - **Quantity Type** This option represents the kind of flow measurement that will be used to determine the threshold. Currently, the only option available for triggering the sampler is **Flow (**QContinuity).

- **Threshold** Enter the volume of flow at which you want the monitor to pulse the sampler. For example, enter 100,000 if you want the monitor to pulse the sampler each time 100,000 gallons have passed the monitoring point.

- **Data Optimization** Implement the following options to obtain the most accurate velocity and pressure depth data:

  - **Velocity Scrubbing** Configure this option to apply one of the following techniques for establishing a baseline by which to confirm questionable or erroneous velocity readings for a monitor location.

    - **Self-Train** Select this radio button to ensure the monitor tracks and learns the patterns and characteristics of the ultrasonic depth and velocity relationship at the location. The monitor applies this information to establish and develop a dynamic curve against which to compare, process, and confirm incoming velocity data to minimize questionable or erroneous data.

    - **Pre-Load** Select this radio button to ensure the monitor confirms questionable or erroneous velocity readings based on the historical relationship between the ultrasonic depth and velocity data at the location. As the monitor logs data, it continues to apply the new data to dynamically refine the curve. Selecting this option requires that you designate the range of data for which you want to create the baseline.

      First, select the date on which you want to begin the calculation from **Start Date**. You can edit the date field directly *or* select an item and use the arrows to scroll to appropriate date. *You must select a date for which data already exists.*

      Next, select and enter or use the arrows to designate the number of days from the start date for which you want to calculate the historical baseline in the **Number of Days** field. ADS recommends selecting

28-31 days for the most beneficial results; ***Profile*** *requires at least 7 days of data.*

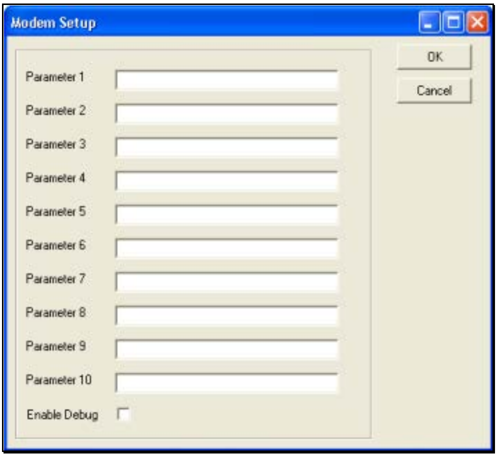
Finally, select the **Calculate** button to determine a historical baseline for the selected time span and display a graphical representation of the data. Select the **Close** button to exit the graph and return to the **Edit MLI Device Properties** dialog.

Note: Select the **View** button in the **Velocity Scrubbing** section at any time to display the historical data pattern for the selected location.

- **Automatic Pressure Calibration** Select the **Enable** checkbox to ensure the monitor automatically calibrates the pressure depth data to read consistently with the ultrasonic depth data. The monitor will compare the pressure depth data to the ultrasonic data throughout the day. At midnight each day, the monitor will apply a new offset based on the difference between the two sensors using the 15 previous good ultrasonic depth readings.

Modem Setup

Note: This device applies only to monitors equipped with roaming SIM cards for wireless communication and requires advanced knowledge involving wireless networks. Therefore, ADS strongly recommends contacting Customer Support for guidance and assistance before attempting to set up this device.



Modem Setup parameters

A roaming SIM card in the monitor modem enables the monitor to perform wireless communication through multiple carrier networks in the vicinity of the monitor location. The *Modem Setup* device allows you to designate the providers that support the SIM card and offer service in the area as well as prioritize the order in which you want the monitor to attempt to communicate through each provider's network. Priority should reflect the availability, strength, reliability, and consistency of the carrier's signal to ensure communication. The **Modem Setup** list is downloaded to the wireless monitor during activation and used every time the modem is reset and re-establishes a connection with a provider.

Edit the modem setup device in the following way:

Parameter 1 should represent the carrier that you estimate will ensure the highest, most consistent level of success in performing wireless communication. Designate the remaining carriers in descending order of reliability until you have indicated all of the possible carrier options corresponding to your monitor location.

- **Parameter 1** Enter the following information for each carrier in this field: **`at+cops=1,2,""12345""`** where **12345** is the wireless carrier code. (Use two sets of quote marks before and after the wireless carrier code.) For example, enter **`at+cops=1,2""23433""`** into this **Parameter** field when you want the monitor to search for the carrier *Orange* (located in the United Kingdom).

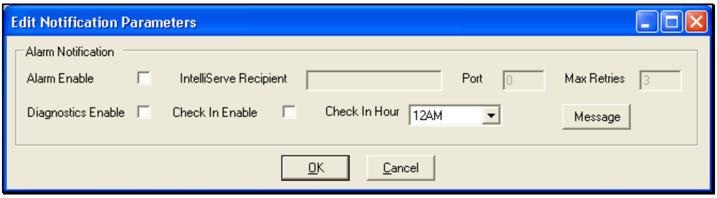
- **Parameter 2 through Parameter 10** Enter additional carriers using the same format as defined for the **Parameter 1** field.

Notification Device

FlowAlert and RainAlert II monitors can provide alarm notification through **IntelliServe** systems, email, and cellular phone with text messaging (SMS) capability using the **Notification** device. These alarms represent High, High High, and Low Depth conditions and Rain Events, based on the monitor type.

This device also enables monitors to report events and perform daily check-ins to an email address and cellular phone. Events involve low battery voltage occurrences, power failures, and float and time errors.

Edit the Notification device for a FlowAlert or RainAlert II in the following way:



Edit Notification Parameters

- **Alarm Enable** Select this checkbox to enable the options for configuring the monitor to send an alarm to a single **IntelliServe** system, cellular phone, and/or email address(es) when necessary.
- **IntelliServe Recipient** Enter the IP address for the **IntelliServe** system you want the monitor to notify under alarm conditions.
- **Port** This field displays the number of the port on the **IntelliServe** system through which wireless communication will occur. Do not change the default value in this field; 2100 is currently the *only* applicable port.

The following section applies to wireless FlowAlert and RainAlert II monitors only.

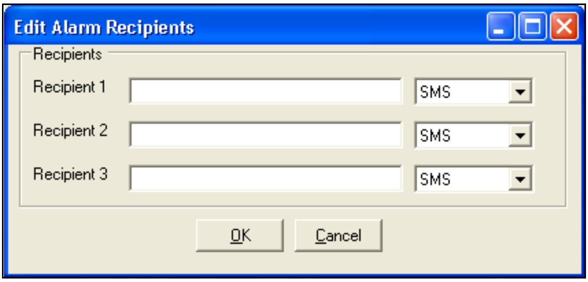
- **Diagnostics Enable** Select this checkbox to enable the FlowAlert or RainAlert II monitor to send diagnostic event notification to text-message-capable cell phones or email addresses when specific monitor events occur, such as low battery, power failures, float errors, or time errors.

- **Maximum Retries** Enter the maximum number of times you want the monitor to attempt to establish communication with the **IntelliServe** system when broadcasting alarms.

- **Check-In Enable** Select this checkbox to configure the monitor to perform daily check-ins at the same time each day via text message or email to report the following: monitor name, check-in event, date and time, and battery voltage.

- **Check-In Hour** Select the hour of the day at which you want the monitor to check in to the designated recipients.

- **Message** Select this button to access the **Edit Alarm Recipients** window for configuring cell phone numbers and email addresses for those individuals and/or entities that will receive alarm/event notification, when necessary. Designate the appropriate information and selections in the following way, and then select **OK** when complete.



Edit Alarm Recipients

❑ Enter the email address or cellular phone number for the daily check-in or alarm/event notification for the first recipient:

   – *For text messages*, enter both the area code and the phone number for the cellular phone. For example, enter a number in the following format when sending a text message: 2561234567.

– *For email*, enter the wireless provider's SMS/mail Gateway number and the recipient's email address separated by a colon. At this time, ADS uses only AT&T wireless service; therefore, all email addresses should read in the following format: *+121:John.Smith@adsenv.com*

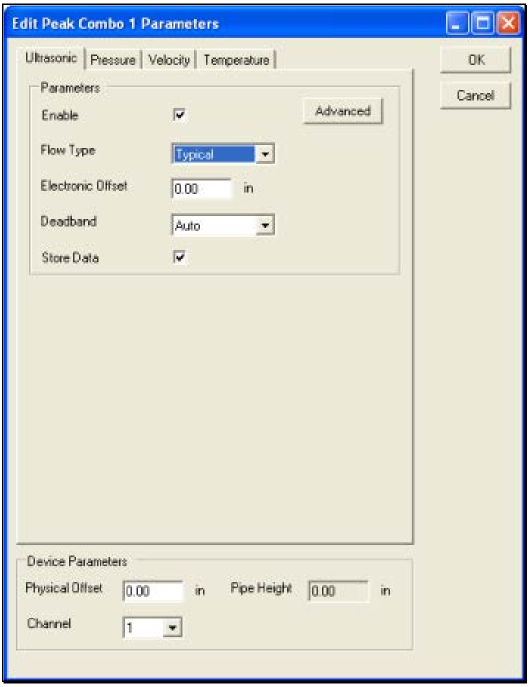
- ❑ Select the method through which communication with the recipient will occur from the corresponding drop-down list. SMS represents text message recipients; email represents email recipients.
- ❑ Repeat the previous two steps for up to two more individuals or entities (in the **Recipient 2** and **3** fields) you want to be contacted for check-in or concerning an alarm or event.

Peak Combo Device

Edit the **Peak Combo Sensor 1** (or **2**) device associated with a FlowShark Triton or FlowHawk monitor that represents the upward-looking ultrasonic depth, pressure, and velocity sensors in the following way.

The **Edit Peak Combo 1** (or **2**) **Parameters** consists of four tabs for editing the individual ultrasonic, pressure, velocity, and temperature parameters. Use these parameters to configure the peak combo sensor device.

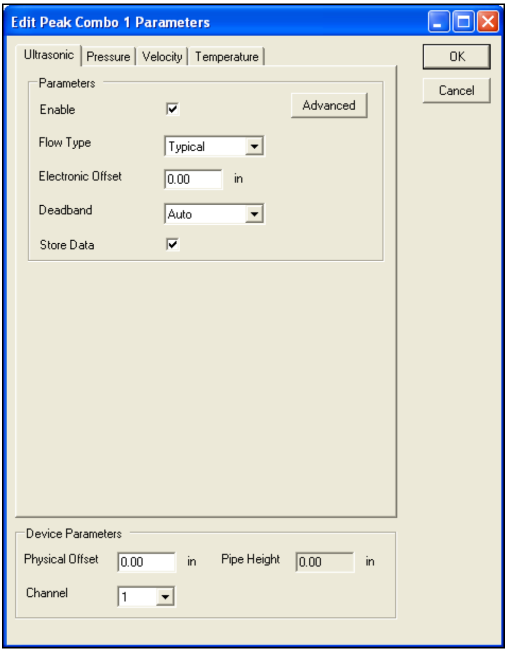
The following parameters are located in the **Device Parameters** section at the lower portion of the **Edit Peak Combo 1** (or **2**) **Parameters** window and are relevant to the physical installation of the sensor.



Device Parameters at lower portion of screen

- **Physical Offset** Maintain an offset of zero if the sensor is installed at the bottom center of the pipe. If it is installed up the side of the pipe, enter the vertical distance from the bottom center of the pipe to the height at which the nose of the sensor exists. The simplest way to obtain this value is to measure the depth of the flow, measure the distance from the nose of the sensor to the flow surface, and then subtract the second measurement from the first.
- **Pipe Height** This field displays the pipe height at the monitoring point where the combo sensor is installed. This value is entered through the **Installation Generator** and used when calculating the depth of the flow.
- **Channel** Select the channel number of the port on the top of the monitor to which the combo sensor device is attached.

Ultrasonic tab—



Ultrasonic parameters – Peak Combo 1 (or 2)

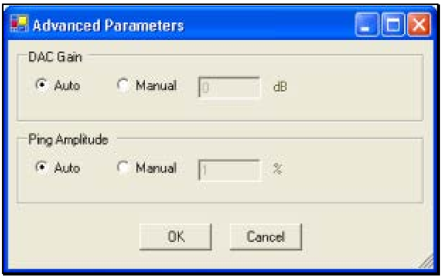
- **Enable** Select this checkbox to ensure the monitor begins taking upward ultrasonic depth readings at the designated interval upon activation.
- **Flow Type** Select the option that most accurately reflects the kind of flow conditions that typically occur at the monitoring point.
  - ❑ **Typical** Flow exhibits a typical diurnal pattern.
  - ❑ **Wet/Stagnant** Flow remains in the pipe, but moves only during wet weather events.
  - ❑ **Usually Dry** Pipe typically remains dry, except under wet weather conditions.
- **Electronic Offset** Enter the difference that exists between the depth sensor readings and the manually measured depth.

- **Deadband** Select the distance from the sensor face within which readings received will be ignored. The *default* value (**Auto**) represents a percentage of the flow depth and should be sufficient under normal circumstances. However, consider another value when the sensor readings reveal a potential problem with false drop-outs. Choose a value for the deadband that is sufficiently below the minimum depths that legitimately occur at the monitoring point, yet above the confirmed drop-outs that have been detected. For example, choosing **1** inch causes all ultrasonic depth ranges measured within **1** inch from the face of the sensor to be ignored.

- **Store Data** Select this checkbox to ensure the monitor logs the ultrasonic data to memory. This option is *selected* by default.

- **Advanced** Select this button to access the **Advanced Parameters** window.

Note: Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

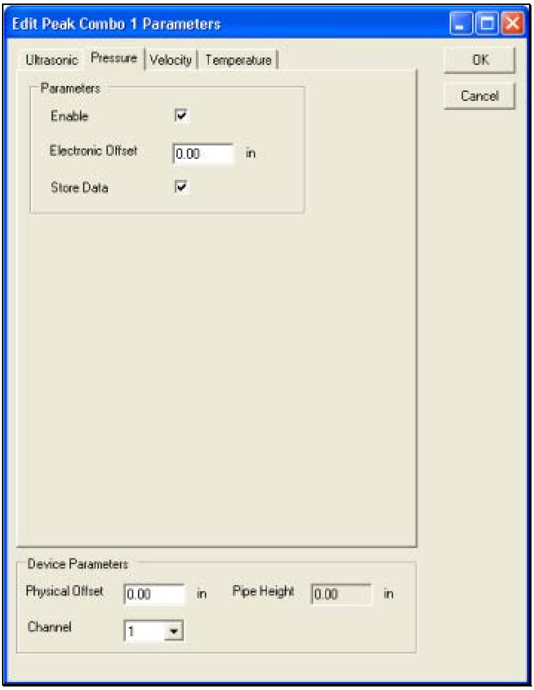


Advanced Parameters

- **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Choose **Manual** to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).

- **Ping Amplitude** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude values, while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

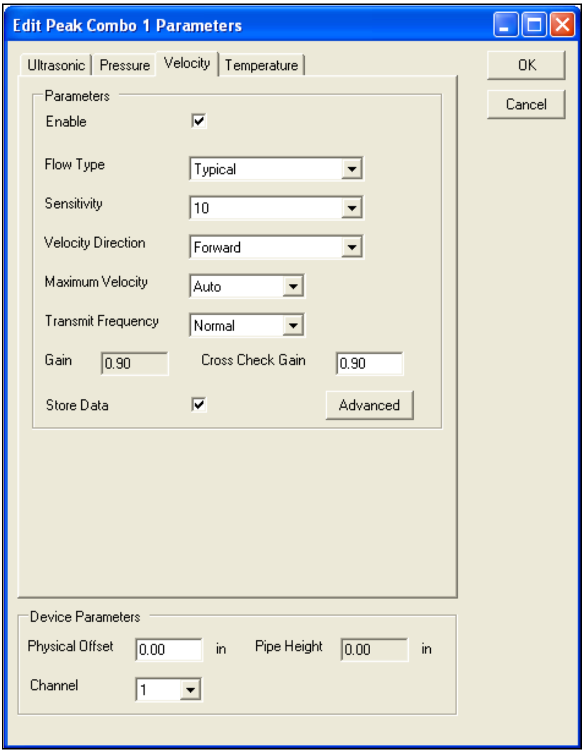
Pressure tab—



Edit Peak Combo Sensor 1 (or **2**) **Parameters**

- **Enable** Select this checkbox to ensure the monitor begins taking pressure depth readings at the designated interval once activated.
- **Electronic Offset** Enter the difference that exists between the pressure depth readings and the manually measured depth.
- **Store Data** Select this checkbox to ensure the monitor logs the pressure data to memory. This option is *selected* by default.

Velocity tab—



Edit Peak Combo 1 (or **2**) **Parameters**

- **Enable** Select this checkbox to ensure the monitor begins taking velocity readings at the designated interval once activated and to enable the parameter fields for editing.
- **Flow Type** Select option that most accurately reflects the kind of flow conditions that typically occur at the monitoring point.
  - ❑ **Typical** Flow exhibits a typical diurnal pattern.
  - ❑ **Wet/Stagnant** Flow remains in the pipe, but moves only during wet weather events.
  - ❑ **Usually Dry** Pipe typically remains dry, except under wet weather conditions.
- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down list. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A sensitivity that is too low can produce readings that are low in comparison with manual confirmation readings. *This value should only by changed on the advice of trained ADS personnel.*
- **Velocity Direction** Select one of the following options that reflects the general direction of the flow at the monitoring point and position of the velocity sensor.
  - ❑ **Bidirectional** Choose this option for monitoring points that may experience reverse flows. The Peak Combo Sensor is typically positioned facing upstream into the flow. Choosing this ensures the monitor analyzes both positive and negative values returned from the velocity sensor.
  - ❑ **Forward** Choose this option for monitoring points where reverse flows are not expected and to ensure the monitor only analyzes positive values returned from the velocity sensor. The Peak Velocity Sensor is typically positioned facing upstream into the flow. *ADS recommends using this setting for most applications.*

- **Backward** Choose this option for monitoring points at which the Peak Combo Sensor has been positioned downstream and to ensure the monitor only analyzes flows moving away from the face of the sensor. One application in which this would be the preferable option would involve measuring velocity in an outgoing line following two incoming lines in the manhole.

- **Backward Bidirectional** Choose this option when the Peak Combo Sensor is installed facing downstream and to ensure the monitor analyzes flows moving both away from and toward the face of the sensor. This option would be beneficial, for example, when using a weir to measure overflows that may experience of river intrusion.

- **Maximum Velocity** Select the maximum expected velocity that will occur at the site for the monitor to use in fine-tuning the velocity data. The *default* setting (**Auto**) serves to optimize the range and resolution of the velocity data samples to match the characteristics of the flow.

- **Transmit Frequency** Select the frequency at which to transmit the signal. ADS recommends leaving the *default* setting (**Normal**) for most applications. However, if hydraulic conditions at the site are resulting in questionable or erroneous readings, consider applying the other frequency option.

Note: For Peak Combo Sensors with serial numbers of *1xxx*, ADS recommends using the **High** frequency option. Contact ADS for assistance, when necessary.

- **Gain** This *read-only* value represents the factor applied to raw velocity readings to determine average velocity for calculating quantity and typical days in the monitor. The **Gain** is *not* applied to velocity readings reported in **Diagnostics** where raw velocity readings are reported for comparison to manual measurements.

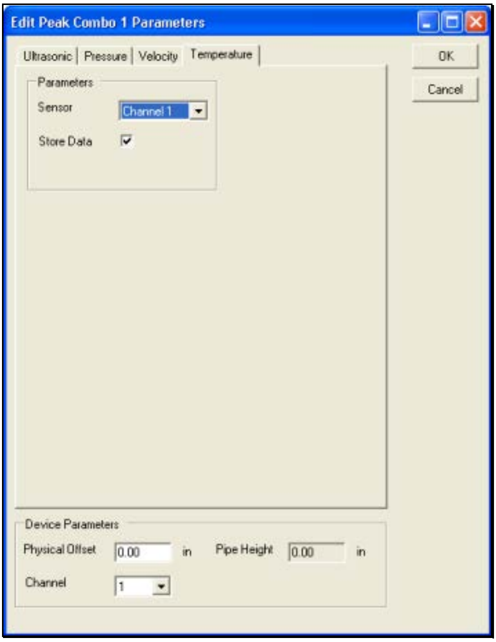
- **Cross Check Gain** Enter the value by which to multiply raw velocity readings in the monitor to determine average velocity for calculating *CROSS_VELOCITY* events in the monitor.

- **Store Data** Select this checkbox to ensure the monitor logs the velocity data to memory. This option is *selected* by default.
- **Advanced** Select this button to access the **Advanced Parameters** window.

> **Note:** Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

- ❑ ***DAC Gain*** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
- ❑ ***Ping Amplitude*** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude values, while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

Temperature tab—



Temperature parameters for Peak Combo 1 (or 2)

- **Sensor** Select the source from which to measure the temperature used when compensating for temperature in Peak Combo Sensor readings. The channels correspond to the sensors connected to those channels (ports) on the monitor. The option selected here should be consistent with the option selected for the **Channel** in the **Device Parameters** section at the bottom of the dialog.

Note: The stored temperature value is the actual water temperature reading from the Peak Combo Sensor.

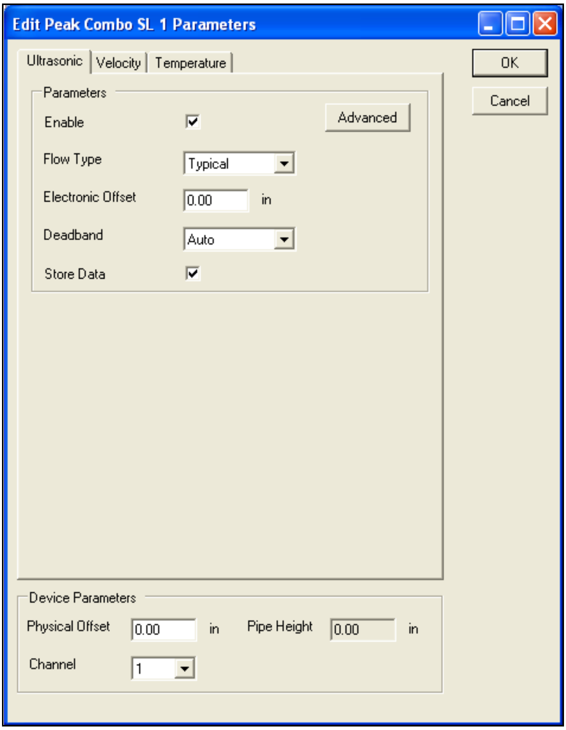
- **Store Data** Select this checkbox to ensure the monitor logs the temperature data to memory. This option is *selected* by default.

Peak Combo SL Device

Edit the **Peak Combo SL 1 (or 2)** device associated with a FlowShark Triton or FlowHawk monitor that represents the upward-looking ultrasonic depth and velocity sensors in the following way. The Peak Combo SL device corresponds to the *Slimline Peak Combo Sensor*.

The **Edit Peak Combo SL 1 (or 2) Parameters** consists of three tabs for editing the individual ultrasonic, velocity, and temperature parameters. Use these parameters to configure the peak combo SL sensor device.

The following parameters are located in the **Device Parameters** section at the lower portion of the **Edit Peak Combo SL 1 (or 2) Parameters** window and are relevant to the physical installation of the sensor.



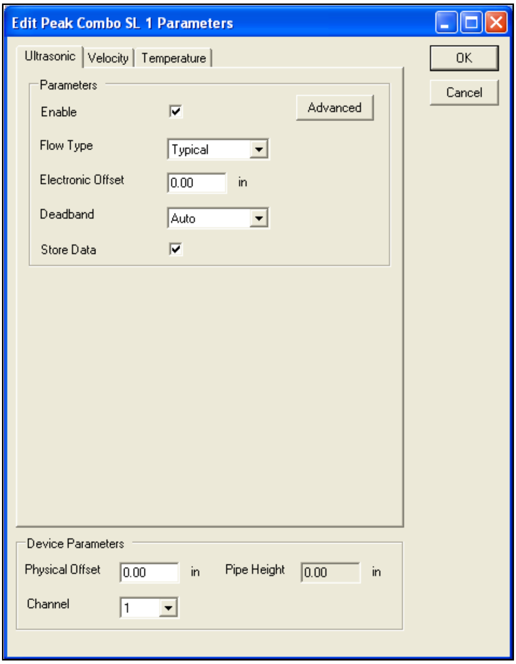
Device Parameters at lower portion of screen

- **Physical Offset** Maintain an offset of zero if the sensor is installed at the bottom center of the pipe. If it is installed up the side of the pipe, enter the vertical distance from the bottom center of the pipe to the height at which the nose of the sensor exists. The simplest way to obtain this value is to measure the depth of the flow, measure the distance from the nose of the sensor to the flow surface, and then subtract the second measurement from the first.

- **Pipe Height** This field displays the pipe height at the monitoring point where the combo sensor is installed. This value is entered through the **Installation Generator** and used when calculating the depth of the flow.

- **Channel** Select the channel number of the port on the top of the monitor to which the combo sensor device is attached.

Ultrasonic tab—



Ultrasonic parameters – Peak Combo SL 1 (or 2)

- **Enable** Select this checkbox to ensure the monitor begins taking upward ultrasonic depth readings at the designated interval upon activation.

- **Flow Type** Select the option that most accurately reflects the kind of flow conditions that typically occur at the monitoring point.

  - **Typical** Flow exhibits a typical diurnal pattern.

  - **Wet/Stagnant** Flow remains in the pipe, but moves only during wet weather events.

- ❑ **Usually Dry** Pipe typically remains dry, except under wet weather conditions.

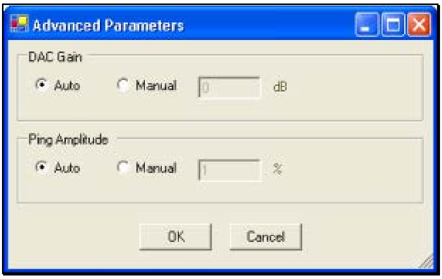
- **Electronic Offset** Enter the difference that exists between the depth sensor readings and the manually measured depth.

- **Deadband** Select the distance from the sensor face within which readings received will be ignored. The *default* value (**Auto**) represents a percentage of the flow depth and should be sufficient under normal circumstances. However, consider another value when the sensor readings reveal a potential problem with false drop-outs. Choose a value for the deadband that is sufficiently below the minimum depths that legitimately occur at the monitoring point, yet above the confirmed drop-outs that have been detected. For example, choosing **1** inch causes all ultrasonic depth ranges measured within **1** inch of the face of the sensor to be ignored.

- **Store Data** Select this checkbox to ensure the monitor logs the ultrasonic data to memory. This option is *selected* by default.

- **Advanced** Select this button to access the **Advanced Parameters** window.

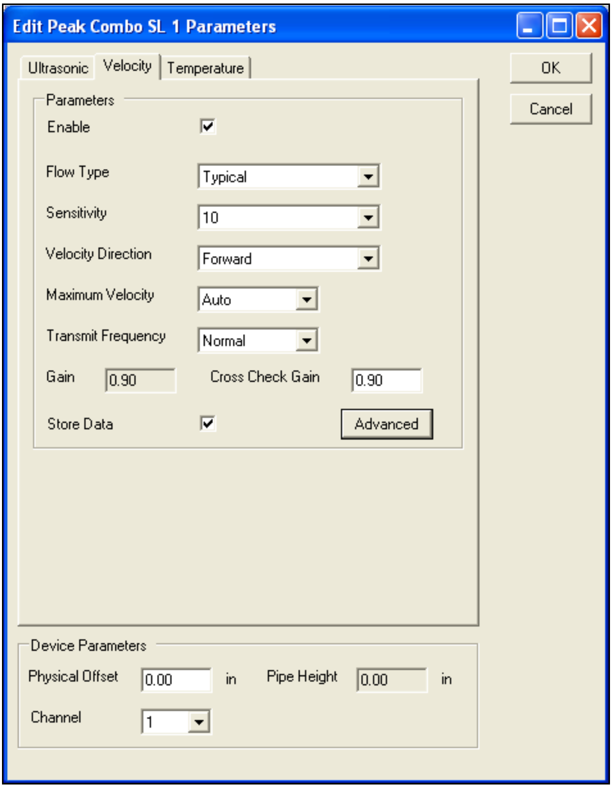
Note: Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.



Advanced Parameters

- **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. **Select** the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Choose **Manual** to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
- **Ping Amplitude** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude values, while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

Velocity tab—



Edit Peak Combo SL 1 (or **2**) **Parameters**

- **Enable** Select this checkbox to ensure the monitor begins taking velocity readings at the designated interval once activated.
- **Flow Type** Select the option that most accurately reflects the kind of flow conditions that typically occur at the monitoring point.
  - ❑ **Typical** Flow exhibits a typical diurnal pattern.
  - ❑ **Wet/Stagnant** Flow remains in the pipe, but moves only during wet weather events.

- **Usually Dry** Pipe typically remains dry, except under wet weather conditions.

- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down list. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A sensitivity that is too low can produce readings that are low in comparison with manual confirmation readings. *This value should only by changed on the advice of trained ADS personnel.*

- **Velocity Direction** Select one of the following options that reflects the general direction of the flow at the monitoring point and position of the velocity sensor.

  - **Bidirectional** Choose this option for monitoring points that may experience reverse flows. The Slimline Peak Combo Sensor is typically positioned facing upstream into the flow. Choosing this ensures the monitor analyzes both positive and negative values returned from the velocity sensor.

  - **Forward** Choose this option for monitoring points where reverse flows are not expected and to ensure the monitor only analyzes positive values returned from the velocity sensor. The Slimline Peak Combo Sensor is typically positioned facing upstream into the flow. *ADS recommends using this setting for most applications.*

  - **Backward** Choose this option for monitoring points at which the Slimline Peak Combo Sensor has been positioned downstream and to ensure the monitor only analyzes flows moving away from the face of the sensor. One application in which this would be the preferable option would involve measuring velocity in an outgoing line following two incoming lines in the manhole.

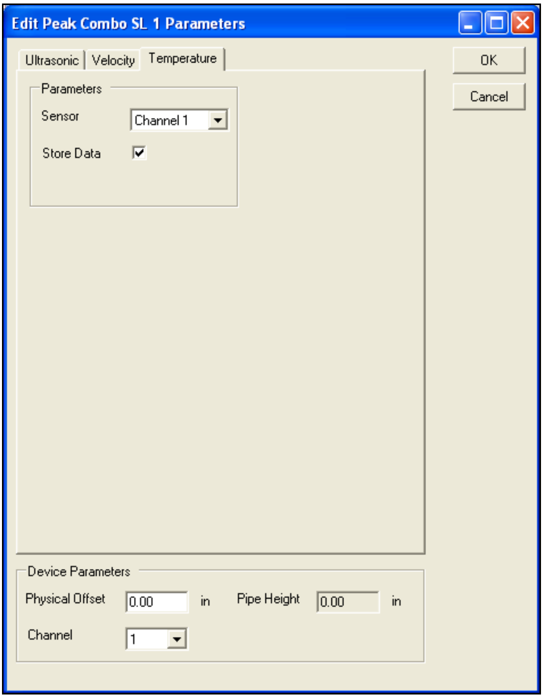
  - **Backward Bidirectional** Choose this option when the Slimline Peak Combo Sensor is installed facing downstream and to ensure the monitor analyzes flows moving both away from and toward the face of the sensor. This option would be beneficial, for example, when using a weir to measure overflows that may experience of river intrusion.

- **Maximum Velocity** Select the maximum expected velocity that will occur at the site for the monitor to use in fine-tuning the velocity data. The *default* setting (**Auto**) serves to optimize the range and resolution of the velocity data samples to match the characteristics of the flow.
- **Transmit Frequency** Select the frequency at which to transmit the signal. ADS recommends leaving the *default* setting (**Normal**) for most applications. However, if hydraulic conditions at the site are resulting in questionable or erroneous readings, consider applying the other frequency option.
- **Gain** This *read-only* value represents the factor applied to raw velocity readings to determine average velocity for calculating quantity and typical days in the monitor. The **Gain** is *not* applied to velocity readings reported in **Diagnostics** where raw velocity readings are reported for comparison to manual measurements.
- **Cross Check Gain** Enter the value by which to multiply raw velocity readings in the monitor to determine average velocity for calculating *CROSS_VELOCITY* events in the monitor.
- **Store Data** Select this checkbox to ensure the monitor logs the velocity data to memory. This option is *selected* by default.
- **Advanced** Select this button to access the **Advanced Parameters** window.

> **Note:** Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

- **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
- **Ping Amplitude** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude values, while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

Temperature tab—



Temperature parameters for Peak Combo 1 (or 2)

- **Sensor** Select the source from which to measure the temperature used when compensating for temperature in Slimline Peak Combo Sensor readings. The channels correspond to the sensors connected to those channels (ports) on the monitor. The option selected here should be consistent with the option selected for the **Channel** in the **Device Parameters** section at the bottom of the dialog.

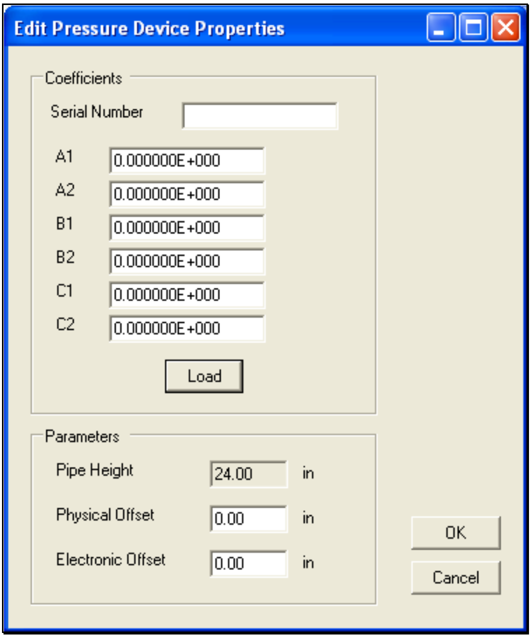
Note: The stored temperature value is the actual water temperature reading from the Peak Combo Sensor.

- **Store Data** Select this checkbox to ensure the monitor logs the temperature data to memory. This option is *selected* by default.

Pressure Device

Edit the pressure device in the following way:

Note: The parameters available may vary based on the monitor series associated with the device.



Edit Pressure Device Properties

- **Serial Number** Enter the serial number listed on the pressure depth sensor.

Note: It is essential that you enter the pressure sensor's serial number and download the pressure coefficients to ensure the monitor logs accurate pressure depth data.

- **Coefficients** Enter the coefficients for the pressure depth sensor manually or select the **Load** button to browse to the folder in your local directory containing the coefficients (based on the sensor's serial number). Download the file containing the pressure coefficients to your local directory from the ADS website in the following way:

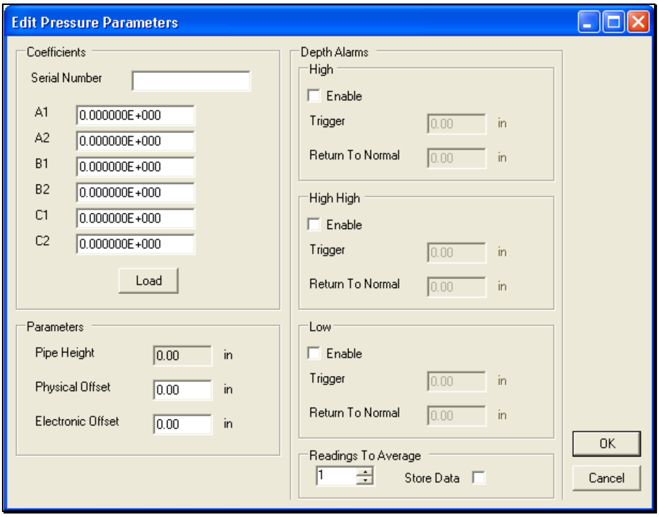
- ❑ Access the ADS website at *www.adsenv.com* through the Internet browser on your computer.
- ❑ Select **Environmental Services > Support > Client Services**.
- ❑ Click on the **Download pressure coefficients…** link.
- ❑ Right-click on the year in which the sensor was manufactured, and select the **Save Target As…** option.
- ❑ Rename the file to reflect the following format: *pressure.xx*, where xx represents the last two digits of the year in which the sensor was manufactured. *You must remove the .txt extension!*
- ❑ Save the file to the appropriate location in your local directory.

- **Pipe Height** This field displays the pipe height at the monitor location. *This parameter is not editable from this location in **Profile**.*
- **Physical Offset** Enter the vertical distance from the bottom of the pipe to the height at which the pressure depth sensor is installed in the pipe, provided it is not installed at the bottom center of the pipe. ADS recommends measuring this during the monitor/sensor installation or confirmation process. **Profile** defaults to *0 inches*.

  - ❑ **Pipe** Maintain an offset of zero (default) if the sensor is installed at the bottom center of the pipe. If it is installed up the side of the pipe, enter the vertical distance from the bottom center of the pipe to the height at which the nose of the sensor exists. The simplest way to obtain this value is to measure the depth of the flow, measure the distance from the nose of the sensor to the flow surface, and then subtract the second measurement from the first.
  - ❑ **Manhole/Wet Well Wall** When the sensor is mounted to the manhole or wet well wall, enter the vertical distance

from the nose of the sensor to the manhole invert (or bottom).

- **Electronic Offset** Enter the difference that exists between the pressure depths sensor readings and the manually measured depth. **Profile** will apply this value to each pressure reading to accurately calculate depth. *(This applies only to pressure sensors associated with FlowShark, IS FlowShark, and FlowAlert monitors.)*



Edit Pressure Parameters (FlowAlert)

Note: The remaining parameters concerning, **Depth Alarms** and **Readings To Average** apply only to pressure devices assigned to FlowAlert monitors.

- **Depth Alarms - High** Edit this device to ensure the monitor initiates a high depth alarm when a pressure depth reading reaches or exceeds a specified depth in the following way:

  - **Enable** Select this checkbox to enable the high depth alarm options and to activate the high depth alarm when the appropriate conditions are satisfied. *When the **High*** *depth alarm is selected for the float device, it cannot be configured for the pressure device.*

- ❑ **Trigger** Enter the pressure depth reading at or above which you want the monitor to initiate a high depth alarm.
- ❑ **Return to Normal** Enter the pressure depth reading at or below which you want the monitor to terminate alarming conditions corresponding to a high depth alarm and report this change in alarm status.

- **Depth Alarms – High High** Edit this device to ensure the monitor initiates a high high depth alarm when a pressure depth reading reaches or exceeds a specified depth in the following way:
  - ❑ **Enable** Select this checkbox to enable the high high depth alarm options and to activate the high high depth alarm when the appropriate conditions are satisfied. *When the* ***High High*** *depth alarm is selected for the float device, it cannot be configured for the pressure device.*
  - ❑ **Trigger** Enter the pressure depth reading at or above which you want the monitor to initiate a high high depth alarm. ADS recommends choosing a value that is at least 2 inches greater than the value entered for the high depth trigger when it is in use.
  - ❑ **Return to Normal** Enter the pressure depth reading at or below which you want the monitor to terminate alarming conditions corresponding to a high high depth alarm and report this change in alarm status.

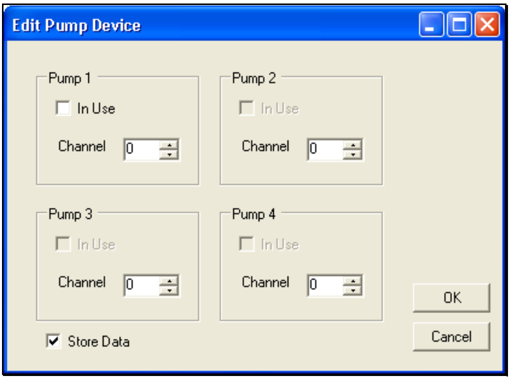
- **Depth Alarms – Low** Edit this device to ensure the monitor initiates a low depth alarm when a pressure depth reading reaches or falls below a specified depth in the following way:
  - ❑ **Enable** Select this checkbox to enable the low depth alarm options and to activate the low depth alarm when the appropriate conditions are satisfied.

- **Trigger** Enter the pressure depth reading at or below which you want the monitor to initiate a low depth alarm.
- **Return to Normal** Enter the pressure depth reading at or above which you want the monitor to terminate alarming conditions corresponding to a low depth alarm and report this change in alarm status.

- **Readings to Average** Enter or use the arrows to designate the number of consecutive readings you want the monitor to average to produce a value against which to compare the triggers for the depth alarms. This feature prevents false alarms from occurring due to unstable or erratic flow conditions. When the number entered into the **Readings to Average** field is greater than 1, the monitor creates and stores the new entity, DMLI_AVG (DMLI2_AVG for monitoring point 2), which is collected and stored in the **Profile** database. Select the **Store Data** checkbox to store the averaged Unidepth data values (DLMI_AVG or DMLI2_AVG) to the **Profile** database.

Pump Device

Editing the pump device enables **Profile** to generate pump quantities for 4500, 5500, or 5600 series flow monitors. The pump device window allows you to specify the active pumps and designate the input channel to which each pump is connected. Edit the pump device in the following way:



Edit Pump Device

- **In Use** Select the **In Use** checkbox(es) corresponding to the pump(s) you want to configure as active and for which you want **Profile** to calculate quantity. **Profile** supports up to *four* pumps.
- **Channel** Enter or use the arrows to indicate the appropriate Digital Input/Output channel (between 1 and 16) to which each pump is connected.

Note: Selecting channels 1 through 8 requires assigning the **Digital Card 1** device to the monitoring point and selecting channels 9 through 16 requires assigning the **Digital Card 2** device to the monitoring point. Digital Card devices do not require configuration.

- **Store Data** Select this checkbox to ensure **Profile** stores the pump data.

Rain Gauge Device

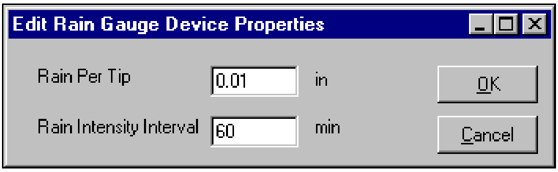
Edit the rain gauge device in the following way. These instructions do not apply to the rain gauge device parameters associated with FlowShark and RainAlert II monitors. For instructions on modifying the parameters for these monitors, refer to *Rain Gauge Device (FlowShark)* on page 2-90 or *Rain Gauge Device (RainAlert II)* on page 2-91.

Edit Rain Gauge Device Properties

- **Rain Per Tip** Enter the amount of rainfall that must accumulate in the tipping bucket to initiate one tip of the tipping mechanism.
- **Store Data** (*applies only to non-FlowShark or RainAlert II monitors*) Select this checkbox to ensure the monitor stores the rain data. ***Profile** stores rain data by default.*

Rain Gauge Device (FlowShark)

Edit the rain gauge device for a FlowShark monitor in the following way. For instructions on modifying the rain gauge device parameters for RainAlert II and other monitors with this device, refer to *Rain Gauge Device* on page 2-89 or *Rain Gauge Device (RainAlert II)* on page 2-91.



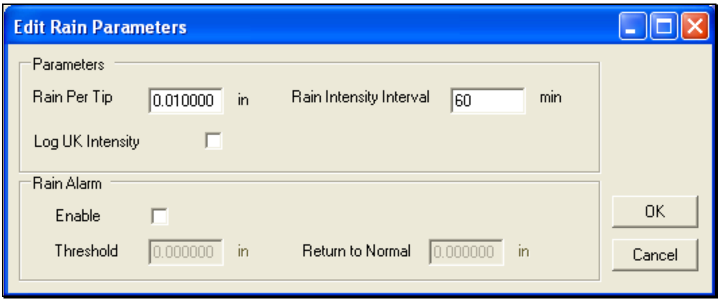
Edit Rain Gauge Device Properties (FlowShark)

- **Rain Per Tip** Enter the amount of rainfall that must accumulate in the tipping bucket to initiate one tip of the tipping mechanism.
- **Rain Intensity Interval** Enter the amount of time within which a specified amount of rainfall must occur to initiate a rain alarm. Designate the amount of rain in the **Rain Alarm** section of the **Edit MLI Device Properties** dialog corresponding to the *FlowShark* monitor. Refer to *MLI*

Device (FlowShark) on page 2-47 for more information on setting this threshold.

Rain Gauge Device (RainAlert II)

Edit the rain gauge device for a RainAlert II monitor in the following way. For instructions on modifying the rain gauge device parameters for FlowShark and other monitors with this device, refer to *Rain Gauge Device* on page 2-89 or *Rain Gauge Device (FlowShark)* on page 2-90.



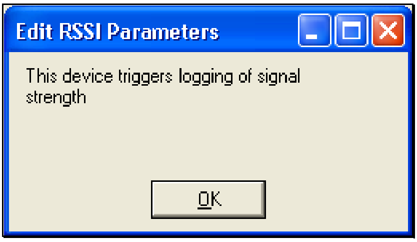
Edit Rain Parameters (RainAlert II)

- **Rain Per Tip** Enter the amount of rainfall that must accumulate in the tipping bucket to initiate one tip of the tipping mechanism.
- **Rain Intensity Interval** Enter the amount of time in minutes within which a specified amount of rain (**Threshold**) must fall to initiate a rain alarm.
- **Log UK Intensity** Select this checkbox to log the amount of rainfall that occurs over a specified time period based on the United Kingdom's rain intensity standards. (*The monitor must be activated with a 2-minute Normal sample interval.*)
- **Enable** Select this checkbox to activate the options corresponding to the **Rain Alarm** section and configure the RainAlert II monitor to cryout rain alarms to an **IntelliServe** system and up to three of any combination of text-message capable cell phones or email addresses (*see the Notification device*) based on the parameters defined in this section.

- **Threshold** Enter the rain amount within the designated **Rain Intensity Interval** that must occur to send a *rain alarm* message to an ADS **IntelliServe** system, an email recipient, and/or a cellular phone that receives text messages.
- **Return to Normal** Enter the amount of rain that cannot be exceeded within the designated **Rain Intensity Interval** to ensure the monitor discontinues the rain alarm and reports the *return to normal* condition to the alarm recipients.

RSSI Device

Select the **RSSI** (Receive Signal Strength Indicator) device when you want a wireless FlowAlert or RainAlert II monitor to log the variation of the TCP/IP wireless signal strength throughout the day or over time. *This device does not require editing.*

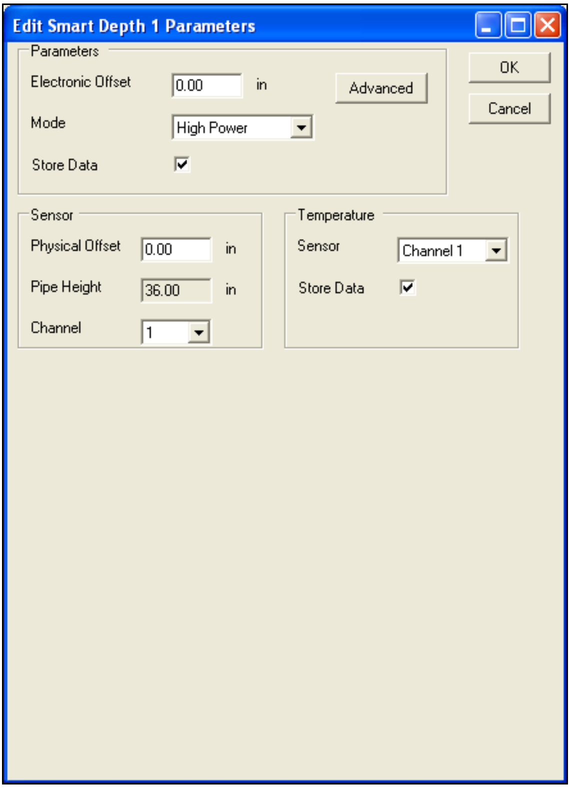


Edit RSSI Parameters

Smart Depth Device

Edit the smart depth device parameters using the following information, and select **OK** when complete to save the parameters.

> **Note:** The parameters for smart depth devices may vary for each monitor series.
>
> **Note:** Edit the parameters for an Ultrasonic Depth Sensor equipped with the *pressure* option through the *Surface Combo* device (Refer to page 2-95 for more information).



Edit Smart Depth Device parameters (FlowShark Triton monitor)

- **Electronic Offset** Enter the difference that exists between the smart depth sensor readings and the manually measured depth. **Profile** applies this value to the range reading to calculate depth. ADS recommends obtaining this value during the confirmation process. **Profile** defaults to *0 inches*.
- **Mode** Select the mode in which you want the smart depth sensor to operate based on environmental factors or site constraints. ADS recommends using the **High Power** (*default*) option under most conditions. However, if erratic *Smart Depth* readings occur, consider using the **Normal** setting.

- **Store Data** Select this checkbox to ensure the monitor logs the smart depth data to the monitor memory. This checkbox is *selected* by default.
- **Advanced** Select this button to access the **Advanced Parameters** window.

Note: Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

  - ❑ **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
  - ❑ **Surcharge Detection** Select the **Disable** checkbox to prevent the monitor from implementing the Surcharge Detection function when processing smart depth data. For locations that typically do not experience surcharges, disabling **Surcharge Detection** eliminates the processing time required for this function and, as a result, conserves monitor power.

- **Physical Offset** Enter the physical distance from the face of the ultrasonic depth sensor to the crown (top) of the pipe.
- **Pipe Height** This *read-only* field displays the pipe height at the monitoring point at which the sensor is installed.
- **Channel** Select the channel number of the port on top of the monitor to which the sensor device is connected.
- **Sensor** Select the source from which to measure the temperature used when compensating for temperature in Ultrasonic Depth Sensor readings. The channels correspond to the sensors connected to those channels (ports) on the monitor. The option selected here should be consistent with

the option selected for the **Channel** in the **Device Parameters** section at the bottom of the dialog for that sensor.

- **Store Data** Select this checkbox to ensure the monitor logs the temperature data to memory.

> **Note:** The remaining parameters (**Temperature**, **Pulse Command**, and **Spare 2 Delay**) apply only to Smart Depth devices associated with ADS 3600, 4000, 5500, and 5600 monitors.

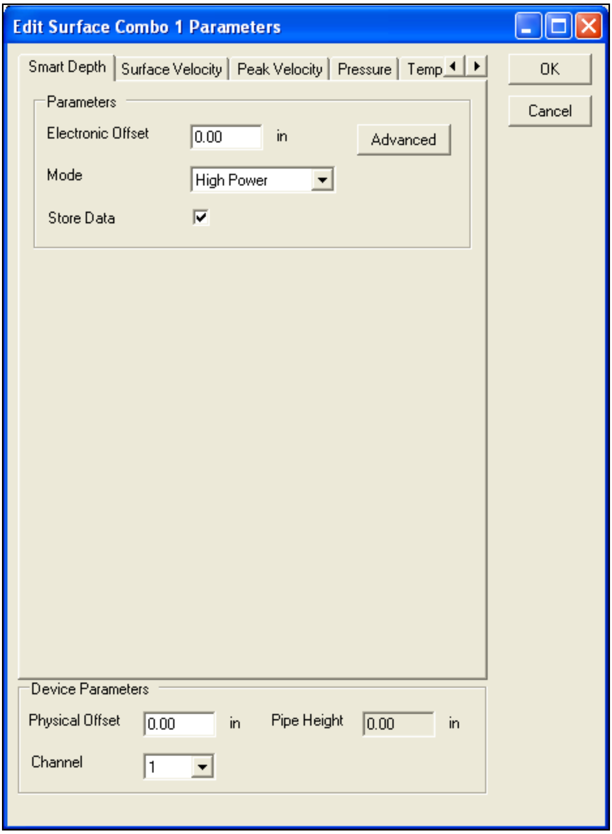
- **Temperature** Select the appropriate temperature sensor for the monitor to reference when compensating for the air temperature in the pipe when calculating range.
- **Pulse Command** Enter the strength of the ultrasonic transmit signal.
- **Spare 2 Delay** Enter the length of time the ultrasonic depth sensor waits before listening for the return signal (following the initial transmit signal). ADS does not recommend changing this parameter unless the data provides erroneous readings indicating a full pipe that is not actually full. One Spare 2 Delay unit is equivalent to adding approximately 0.33 inches of distance to the deadband required to receive a legitimate reading. This should have the same value as the **Spare 2 Delay** designated for the ultrasonic device for the same sensor. **Profile** defaults to *1*.

Surface Combo Device

Edit the **Surface Combo 1** (or **2**) device associated with a FlowShark Triton or FlowHawk monitor that represents the downward-looking ultrasonic range (depth), surface velocity, surcharge peak velocity, and surcharge pressure depth sensors in the following way.

The **Edit Surface Combo 1** (or **2**) **Parameters** consists of five tabs for editing the individual sensor parameters containing the surface combo configuration parameters. Use these parameters to configure the surface combo sensor device.

The following parameters are located in the **Device Parameters** section at the lower portion of the **Edit Surface Combo 1** (or **2**) **Parameters** window and pertain to the physical installation of the sensor.



Edit Surface Combo Parameters

- **Physical Offset** Enter the physical distance from the face of the sensor (horizontal surface with crystals) to the crown of the pipe. This value is used to calculate the depth of the flow.
- **Pipe Height** This field displays the height of the pipe at the monitoring point where the sensor is installed. This value is

entered through the **Installation Generator** and used when calculating the depth of the flow.

- **Channel** Select the channel number of the port on top of the monitor to which the combo sensor is connected.

Smart Depth tab—Surface Combo Device

- **Electronic Offset** Enter the difference that exists between the smart depth sensor readings and the manually measured depth. **Profile** applies this value to the range reading to calculate depth. ADS recommends obtaining this value during the confirmation process. **Profile** defaults to *0 inches*.
- **Mode** Select the mode in which you want the smart depth sensor to operate based on environmental factors or site constraints. ADS recommends using the **High Power** (*default*) option under most conditions. However, if erratic *Smart Depth* readings occur, consider using the **Normal** setting.
- **Store Data** Select this checkbox to ensure the monitor logs the smart depth data to the monitor memory. This checkbox is *selected* by default.
- **Advanced** Select this button to access the **Advanced Parameters** window.

> **Note:** Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

- ❑ **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
- ❑ **Surcharge Detection** Select the **Disable** checkbox to prevent the monitor from implementing the Surcharge

Detection function when processing smart depth data. For locations that typically do not experience surcharges, disabling **Surcharge Detection** eliminates the processing time required for this function and, as a result, conserves monitor power.

Surface Velocity tab—Surface Combo Device

- **Enable** Select this checkbox to ensure the monitor begins taking velocity readings at the designated interval once activated.
- **Transmit Frequency** Select the frequency at which to transmit the signal. ADS recommends leaving the *default* setting (**Normal**) for most applications. However, if hydraulic conditions at the site are resulting in questionable or erroneous readings, consider applying the other frequency option. Contact ADS for assistance, when necessary.
- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down list. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A sensitivity that is too low can produce readings that are low in comparison with manual confirmation readings. *This value should only by changed on the advice of trained ADS personnel.*
- **Velocity Direction** Select one of the following options that reflects the general direction of the flow at the monitoring point and position of the velocity sensor.
  - ❑ **Bidirectional** Choose this option for monitoring points that may experience reverse flows. The Surface Combo Sensor is typically positioned facing upstream into the flow. Choosing this ensures the monitor analyzes both positive and negative values returned from the velocity sensor.
  - ❑ **Forward** Choose this option for monitoring points where reverse flows are not expected and to ensure the monitor only analyzes positive values returned from the velocity sensor. The Surface Combo Sensor is typically positioned

facing upstream into the flow. *ADS recommends using this setting for most applications*.

- **Backward** Choose this option for monitoring points at which the Surface Combo Sensor has been positioned downstream and to ensure the monitor only analyzes flows moving away from the face of the sensor. One application in which this would be the preferable option would involve measuring velocity in an outgoing line following two incoming lines in the manhole.
- **Backward Bidirectional** Choose this option when the Surface Combo Sensor is installed facing downstream and to ensure the monitor analyzes flows moving both away from and toward the face of the sensor. This option would be beneficial, for example, when using a weir to measure overflows that may experience of river intrusion.

- **Maximum Velocity** Select the maximum expected velocity that will occur at the site for the monitor to use in fine-tuning the velocity data. The *default* setting (**Auto**) serves to optimize the range and resolution of the velocity data samples to match the characteristics of the flow.
- **Duration** Select the amount of time for the sensor to transmit and receive the velocity signal based on the noise present at the monitoring point. Most sites require only a 1 second (*default*) interval. However, sites that experience elevated noise levels or velocity dropouts to 0 (zero) require a longer interval (**2**).
- **Coefficient A** Enter the factor (*offset*) by which to calibrate surface velocity to ensure accurate surface velocity readings across all velocity ranges. ADS strongly recommends using the default setting (**0**) for this offset; therefore, please contact ADS before modifying this setting.
- **Coefficient B** Enter the factor (*gain*) by which to calculate surface velocity to ensure accurate surface velocity readings across all velocity ranges. ADS strongly recommends using the default setting (**1.00**); therefore, please contact ADS before modifying this setting.

- **Gain** This *read-only* value represents the factor applied to the raw velocity readings to determine average velocity for calculating quantity and typical days in the monitor. The **Gain** is *not* applied to velocity readings reported in **Diagnostics** where a raw velocity reading is reported to facilitate comparison with manual measurements.
- **Cross Check Gain** Enter the value by which to multiply raw velocity readings in the monitor to determine average velocity for calculating *CROSS_VELOCITY* events in the monitor.
- **Store Data** Select this checkbox to ensure the monitor logs the velocity data to memory. This option is *selected* by default.
- **Advanced** Select this button to access the **Advanced Parameters** window.

Note: Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

- ❑ **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).
- ❑ **Ping Amplitude** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude values, while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which

to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

Peak Velocity tab— Surface Combo Device

- **Enable** Select this checkbox to ensure the monitor begins taking velocity readings at the designated interval once activated.
- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down list. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A sensitivity that is too low can produce readings that are low in comparison with manual confirmation readings. *This value should only by changed on the advice of trained ADS personnel.*
- **Velocity Direction** Select one of the following options that reflects the general direction of the flow at the monitoring point and position of the velocity sensor.
  - ❑ **Bidirectional** Choose this option for monitoring points that may experience reverse flows. The Surface Combo Sensor is typically positioned facing upstream into the flow. Choosing this ensures the monitor analyzes both positive and negative values returned from the velocity sensor.
  - ❑ **Forward** Choose this option for monitoring points where reverse flows are not expected and to ensure the monitor only analyzes positive values returned from the velocity sensor. The Surface Combo Sensor is typically positioned facing upstream into the flow. *ADS recommends using this setting for most applications*.
  - ❑ **Backward** Choose this option for monitoring points at which the Surface Combo Sensor has been positioned downstream and to ensure the monitor only analyzes flows moving away from the face of the sensor. One application in which this would be the preferable option would involve measuring velocity in an outgoing line following two incoming lines in the manhole.

- **Backward Bidirectional** Choose this option when the Surface Combo Sensor is installed facing downstream and to ensure the monitor analyzes flows moving both away from and toward the face of the sensor. This option would be beneficial, for example, when using a weir to measure overflows that may experience of river intrusion.

- **Maximum Velocity** Select the maximum expected velocity that will occur at the site for the monitor to use in fine-tuning the velocity data. The *default* setting (**Auto**) serves to optimize the range and resolution of the velocity data samples to match the characteristics of the flow.

- **Transmit Frequency** Select the frequency at which to transmit the signal. ADS recommends leaving the *default* setting (**Normal**) for most applications. However, if hydraulic conditions at the site are resulting in questionable or erroneous readings, consider applying the other frequency option. Contact ADS for assistance, when necessary.

- **Gain** This *read-only* value represents the factor applied to the raw velocity readings to determine average velocity for calculating quantity and typical days in the monitor. The **Gain** is not applied to velocity readings reported in **Diagnostics** where a raw velocity reading is reported to facilitate comparison with manual measurements.

- **Store Data** Select this checkbox to ensure the monitor logs the velocity data to memory. This option is *selected* by default.

- **Advanced** Select this button to access the **Advanced Parameters** window.

Note: Modifications made to the **Advanced Parameters** should be performed only by or under the guidance of trained ADS personnel. Therefore, ADS recommends leaving the default settings in place.

- **DAC Gain** Choose the method for managing the amplification of the analog signal that returns to the sensor. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a fixed value between -12dB (lower amplification) and +12dB (higher amplification).

- **Ping Amplitude** Choose the method for managing the amplification of the analog signal that is sent out, or transmitted from, the sensor. Smaller pipes typically require lower (quieter) amplitude, values while larger pipes typically need stronger (louder) amplitudes. Select the **Auto** (*default*) option to allow the monitor to automatically optimize the amplification of the signal. Select the **Manual** option to enter a percentage of full amplification at which to transmit the signal. Enter a percentage between **10** and **100** (*where **100** represents maximum amplification*).

Pressure tab—Surface Combo Device

- **Enable** Select this checkbox to ensure the monitor begins taking pressure depth readings at the designated interval once activated.
- **Electronic Offset** Enter the difference that exists between the pressure depth readings and the value equal to the pipe height minus the physical offset of the Surface Combo Sensor. However, ADS recommends leaving this value at zero.
- **Store Data** Select this checkbox to ensure the monitor logs the pressure data to memory. This option is *selected* by default.

Temperature tab—Surface Combo Device

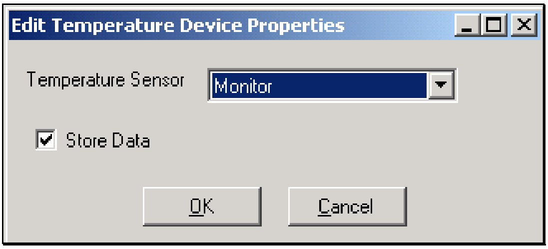
- **Sensor** Select the source from which to measure the temperature used when compensating for temperature in Surface Combo Sensor readings. The channels correspond to the sensors connected to those channels (ports) on the monitor. The option selected here should be consistent with the option selected for the **Channel** in the **Device Parameters** section at the bottom of the dialog.

Note: The stored temperature value is the actual air temperature reading from the Surface Combo Sensor.

- **Store Data** Select this checkbox to ensure the monitor logs the temperature data to memory. This option is *selected* by default.

Temperature Device

Edit the temperature device parameters in the following way:

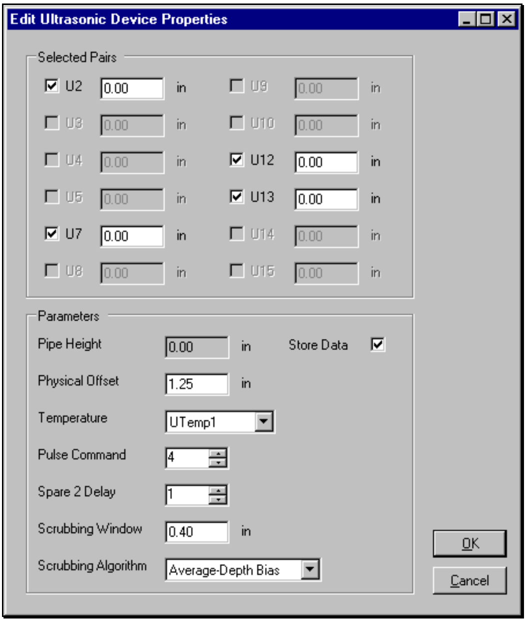


Edit Temperature Device Properties

- **Temperature Sensor** Select the sensor from which you want to log temperature readings from this drop-down list. This list is populated based on the available monitor devices.
- **Store Data** Select this checkbox to ensure the monitor stores the selected temperature data. **Profile** stores temperature data by default.

Ultrasonic Device

Edit the ultrasonic device in the following way. These instructions apply to all monitors using an ultrasonic device except for the FlowShark. For instructions on editing the ultrasonic device parameters for a FlowShark monitor, refer to *Ultrasonic Device (FlowShark)* on page 2-108.



Edit Ultrasonic Device Properties

- **Selected Pairs** Select the checkboxes corresponding to the *four* ultrasonic pairs you want to log. **Profile** defaults to pairs 2, 7, 12, and 13.

Note: The field beside each pair represents the electronic offset for that pair. The electronic offsets represent the confirmation values **Profile** applies to the raw readings to calculate depth. These offsets default to *0* in **Profile**. ADS does not recommend entering electronic offsets for the ultrasonic pairs in this dialog. The confirmation process performed after monitor activation enables you to accurately determine the correct offsets and save them to the LIF.

- **Pipe Height** This field displays the height of the pipe at the monitoring point at which the sensor is installed. This parameter is not editable from this location.
- **Physical Offset** Enter the distance from the face of the ultrasonic depth sensor to the crown (top) of the pipe. **Profile** defaults to *1.25 inches*.
- **Temperature** Select the temperature sensor you want the monitor to reference when compensating for the air temperature in the pipe when calculating range. **Profile** defaults to *UTemp1* (one of the two temperature sensors housed in the ultrasonic depth sensors).

Note: ADS *does not* recommend using the temperature sensor in the monitor as the temperature option for this device.

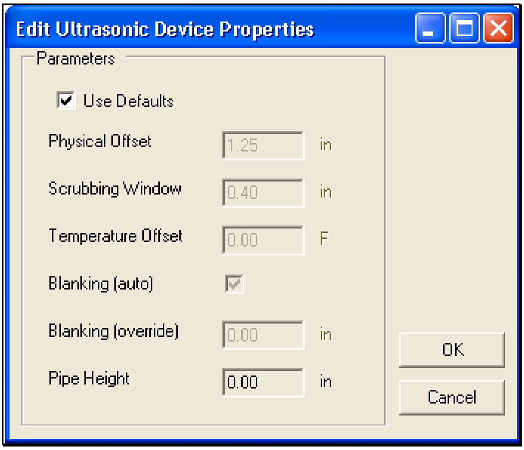
- **Pulse Command** Enter the strength/length of the signal you want the ultrasonic depth sensor to transmit when measuring range. The pulse command should increase with pipe size. For example, a 12-inch pipe may have a pulse command of 2 or 3, while a 72-inch pipe may have a pulse command of 8 or 9. The default pulse command is *4*.
- **Spare 2 Delay** Enter the length of time you want the ultrasonic depth sensor to wait before listening for the return signal (following the initial transmit signal). ADS does not recommend changing this parameter unless the data includes erroneous readings indicating a full pipe that is not full. One Spare 2 Delay unit is equivalent to adding approximately 0.33 inches of distance to the deadband required to receive a legitimate reading from an ultrasonic sensor pair. **Profile** defaults to a Spare 2 Delay of *1*.
- **Scrubbing Window** Enter the allowable difference between individual ultrasonic pair readings and the average reading of all the pairs. If any single pair exceeds the

difference, the monitor will flag the pair and remove it from the calculation. The monitor will average the remaining pairs to calculate the depth readings. **Profile** default to *0.4 inches*.

- **Scrubbing Algorithm** Select the scrubbing algorithm you want the monitor to apply when processing ultrasonic depth, Smart Depth, or pressure depth to determine AVGUDEPTH.
  - ❑ **Average-Depth Bias** Selecting this option ensures the monitor excludes unusual spikes or drops that may exist in the depth readings when calculating AVGUDEPTH. Spikes and drops represent isolated, inconsistently high (spikes) or low (drops) depth readings that fall outside a predefined tolerance or range. ***Profile** defaults to this option.*
  - ❑ **Low-Depth Bias** Selecting this option ensures the monitor excludes unusual spikes that may exist in the depth readings when calculating AVGUDEPTH.
  - ❑ **High-Depth Bias** Selecting this option ensures the monitor excludes unusual drops that may exist in the depth readings when calculating AVGUDEPTH.
- **Store Data** Select this checkbox to ensure the monitor logs the ultrasonic data. The monitor logs this data by default (*selected*). You must deselect this checkbox if you *do not* want the monitor to log the ultrasonic data.

Ultrasonic Device (FlowShark)

Edit the ultrasonic device associated with a FlowShark monitor in the following way. For instructions on editing the ultrasonic device parameters for all other monitors, refer to *Ultrasonic Device* on page 2-105.



Edit Ultrasonic Device Properties (*FlowShark*)

- **Use Defaults** Select this checkbox to apply the default parameters to the ultrasonic device. Deselect this option to enable the parameter fields for editing.
- **Physical Offset** Enter the physical distance between the face of the ultrasonic depth sensor and the top (crown) of the pipe.
- **Scrubbing Window** Enter the allowable difference between individual ultrasonic pair readings and the average reading of all the pairs. If any single pair exceeds the difference, the pair will be flagged and removed from the calculation. The remaining pairs will be averaged to calculate the depth readings.
- **Temperature Offset** This field should not require modification for the FlowShark monitor. No additional temperature compensation is necessary.

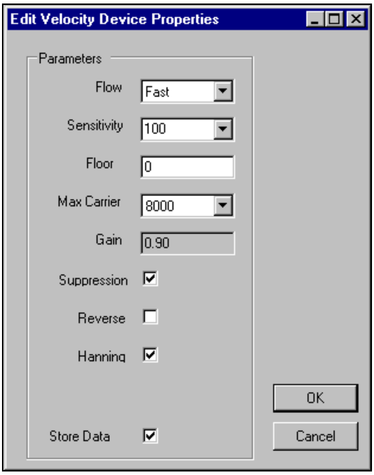
- **Blanking (auto)** Select this checkbox to ensure the monitor disregards depths that occur within a distance from the face of the sensor equivalent to 5 percent of the range from the sensor face to the bottom of the pipe. This (*default*) setting effectively represents the vast majority of pipe and flow conditions. *Therefore, ADS strongly recommends leaving this option selected for most applications!* To use a different blanking value, deselect this option and enter a value into the **Blanking (override)** field.

- **Blanking (override)** Enable this field by deselecting the **Blanking (auto)** checkbox. Enter the distance from the face of the ultrasonic sensor within which to ignore data potentially representing erroneous readings. Use this option in place of the auto-blanking option to designate a distance greater than 5 percent of the distance from the sensor face to the bottom of the pipe. Do not enter a distance shorter than 5 percent of this range. ADS recommends using this option only when spikes in the data are occurring beyond the 5 percent range and under direct consultation with an ADS representative. For example, entering a value of 2 inches into this field will cause all ultrasonic ranges measured within 2 inches of the face of the sensor to be ignored. ADS recommends using a value greater than 0.50 inches.

- **Pipe Height** This field represents the height of the pipe at the monitoring point at which the sensor is installed. *This parameter is not editable from this location.*

Velocity Device

Edit the velocity device in the following way. These instructions apply to all monitors using a velocity device except for the FlowShark. For instructions on editing the velocity device parameters for a FlowShark monitor, refer to *Velocity Device (FlowShark)* on page 2-112.



Edit Velocity Device Properties

> **Note:** Typically, the velocity device should not require editing. However, when editing is necessary, ADS does not recommend changing velocity parameters without proper training or assistance.

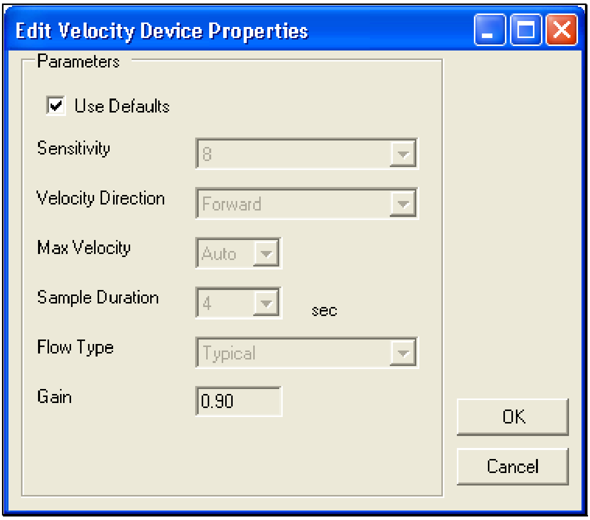
- **Flow** Select the option from the drop-down list that accurately represents typical flow conditions in the pipe. This ensures the monitor applies the best algorithm for calculating velocity. ADS recommends choosing the **Fast** (*default*) option for pipes with flows commonly exceeding 1.5 feet per second.
- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down list. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A low sensitivity can produce readings

that are low in comparison with confirmation readings. **Profile** defaults to *100*.

- **Floor** Enter the appropriate value to filter the low-level noise in the sensor. *ADS does not recommend changing this number*. The zero (*default*) value allows the sensor to adjust automatically with changing noise levels.
- **Max Carrier** Select the factor to use in detecting or limiting zero (0) readings that may occur based on the location characteristics and flow conditions. Increasing this value may help eliminate erratic readings that produce excessive zeros; decreasing this value can help detect authentic zeros. For example, ADS recommends selecting 800 for dry weather overflows. **Profile** defaults to *8000*.
- **Gain** This *read-only* value represents the factor applied to raw velocity to determine average velocity when taking diagnostic readings and calculating quantity and typical days in the monitor. This parameter is editable through the **Quantity Coefficient Generator**.
- **Suppression** Select this checkbox to maximize sensor sensitivity. ADS *strongly* recommends applying this option. It is *selected* by default.
- **Reverse** Select this checkbox to enable the monitor to properly log reverse flow when it occurs at the monitoring point. ADS recommends leaving this option unselected *only* when you anticipate that reverse flows will not occur at the monitoring point. **Profile** defaults to *unselected*.
- **Hanning** Select this checkbox for monitors containing a velocity board with an EPROM of 6.20 or newer. This option is *selected* by default.
- **Store Data** Select this checkbox to ensure the monitor logs the velocity data. This option is *selected* by default.

Velocity Device (FlowShark)

Edit the velocity device associated with a FlowShark monitor in the following way. For instructions on editing the velocity device parameters for all other monitors, refer to *Velocity Device* on page 2-110.



Edit Velocity Device Properties (*FlowShark*)

Note: Typically, the velocity device should not require editing. However, when editing is necessary, ADS does not recommend changing velocity parameters without proper training or assistance.

- **Use Defaults** Select this checkbox to apply the default parameters to the velocity device. Deselect this option to enable the fields to allow editing of the velocity device parameters.
- **Sensitivity** Select the appropriate velocity sensor sensitivity from the drop-down. A sensitivity that is too high may produce noise, causing interference in the signal and resulting in spikes in the data. A low sensitivity can produce readings that are low in comparison with confirmation readings.

- **Velocity Direction** Select one of the following options that represents the general direction of the flow at the location and the position of the velocity sensor. *The velocity sensor typically is positioned facing upstream into the oncoming flow.*
  - ❑ **Bidirectional** Choose this option for monitoring points that may experience reverse flows and where the velocity sensor is typically positioned facing upstream into the flow. Choosing this ensures the monitor analyzes both positive and negative values returned from the velocity sensor.
  - ❑ **Forward** Choose this for monitoring points where reverse flows are *not* expected, the velocity sensor is facing upstream into the flow, and to ensure the monitor only analyzes positive values returned from the velocity sensor. This is the most common **Velocity Direction** selected.
  - ❑ **Backward** Choose this option for monitoring points where the velocity sensor is positioned facing downstream and to ensure the monitor only analyzes flows moving *away* from the face of the sensor. One application for which this would be the preferable option would involve measuring velocity in an outgoing line following two incoming lines in the manhole.
  - ❑ **Backward Bidirectional** Choose this option for monitoring points where the velocity sensor is facing downstream and to ensure the monitor analyzes flows moving both away from and toward the face of the sensor. For example, this option would be beneficial when using a weir to measure overflows with the potential of river intrusion.
- **Max Velocity** Select the maximum velocity you expect to occur at the site for the monitor to use in fine-tuning the velocity data. The **Auto** (*default*) setting serves to optimize the range and resolution of the velocity data samples to match the characteristics of the flow.

- **Sample Duration** Select the duration of time for the sensor to fire based on the noise present at the monitoring point. This interval should increase with elevated noise levels. ADS recommends restricting the selected interval between 3 and 8 seconds.
- **Flow Type** Select the option that best reflects the kind of flow conditions that typically occur at the monitoring point:
  - **Typical** Flow exhibits a typical diurnal pattern
  - **Wet/Stagnant** Flow remains in the pipe, but moves only during wet weather events
  - **Usually Dry** Pipe typically remains dry, except under wet weather conditions
- **Gain** This value, *editable through the **Quantity Coefficient Generator***, represents the factor applied to raw velocity readings to determine average velocity for receiving diagnostic readings and calculating quantity and typical days in the monitor.

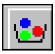
Managing the Database Objects

Managing the database objects involves creating new groups to which you can assign flow monitor and rain gauge locations and deleting, copying, or pasting objects in the database.

Creating a New Group

Create a new group in the current database using the **Group** option. Create a new group and then use the **Copy** and **Paste** options to add monitor locations from the **<All Locations>** group to the new group.

1. Select the current database.



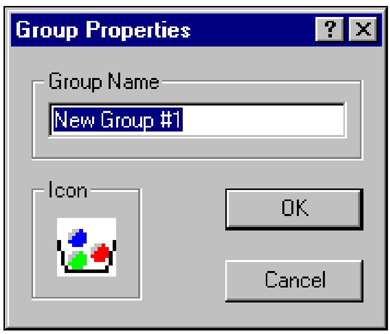
New Group button

2. Select the **Edit** > **New** > **Group** option or the **New Group** toolbar button.

A **New Group #1** *is added to the selected database.*

Properties button

3. Rename the group by highlighting the new group and selecting the **Edit** > **Properties** option or the **Properties** toolbar button to display the **Group Properties** dialog.



Group Properties

4. Enter the new **Group Name**.

5. Select **OK**.

The renamed group displays in the database.

Deleting a Database Object

Delete the currently selected group, location, or monitoring point from the **Profile** database by selecting the **Edit > Delete** option or the **Delete** toolbar button.

> **Note:** Deleting a monitor location from the **<All Locations>** group removes the location completely from the **Profile** database; however, deleting a monitor location from any other group only removes it from that group.

Copying a Database Object

Copy button

Copy a monitor location and its monitoring point to another group in one of the following ways:

- Select the location you want to copy and then select the **Edit > Copy** option (or the **Copy** toolbar button). Next, select the group to which you want to copy the location, and select the **Edit > Paste** option (or the **Paste** toolbar button).
- Select the location you want to copy and, while holding down the **Ctrl** button, drag it to the group to which you want to copy the location.
- Right-click on the group you want to copy, and then select the **Copy** option. Next, right-click on the group to which you want to copy the location, and select the **Paste** option.

For example, use **Copy** after you set up a new group to copy a location and its contents from the **<All Locations>** group to the new group. After performing the **Copy** and **Paste** options, the monitor location appears in both groups.

Pasting a Database Object

Paste button

Paste a copied monitor location or monitoring point to the selected destination by selecting the **Edit > Paste** option or the **Paste** toolbar button. For example, use this option to copy and paste a location from the **<All Locations>** group to a new group.

Modifying the Main Screen

Profile allows you to modify certain objects on the main screen—edit the properties for a database object and display or hide screen elements to suit the way you work. For example, change the group icon, hide all of the screen elements to allow more of the screen to display, or display specific screen elements to allow easier access to commonly used functions.

Editing Object Properties

Use the **Properties** option to edit screen properties for a selected main screen object. Each of the different main screen objects has a unique property editing screen. Select an object followed by the **Properties** toolbar button to display the property editing screen for the selected object type. For example, select a data entity and then select the **Properties** toolbar button to display the data entity property editing screen.

> **Note:** In order to change the *name* of a monitor location, you must select the location from the **<All Locations>** group.

Perform the following steps to edit the properties for a selected object.

1. Select the database, group, location, monitoring point, or data entity from the main screen that you want to edit.

Properties button

2. Select the **Edit > Properties** option or the **Properties** toolbar button to display the **Properties** dialog for the selected object.
3. Perform changes to the **Properties** dialog, as desired.
4. Select **OK** to exit and save changes.

The new property information will display.

Displaying the Profile Toolbar

Display or hide the **Profile** toolbar buttons on the main screen by selecting the **View > Toolbar** option.

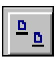
The toolbar is *dockable*— position the mouse cursor within any gray area on the toolbar and drag the toolbar to a more convenient working position on the screen. Resize the toolbar from a single horizontal bar to a box shape, as desired.

Displaying the Profile Status Bar

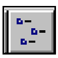
Display or hide the status bar on the **Profile** main screen by toggling the **View > Status Bar** option. Displaying the status bar allows you to view information about the current task.

Changing the Main Screen Icons

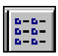
Change the way icons on the main screen display by selecting any one of the following **View** options or toolbar buttons: **Large Icons**, **Small Icons**, **List**, or **Detail**.



Large Icon button



Small Icon button



List button

Detail button

Editing System-Wide Properties

Change system-wide properties (units of measure, dependent data, customized dependent data, log data edits, new data entities, or date format) using either the **Entity Table** or the database **Properties** dialog. Use **Windows** to change the system date format. Refer to the following topics for more information.

> **Note:** ADS strongly recommends using the system defaults for all of the system-wide properties. Consult your ADS Service Representative for assistance.

Updating Data Dependencies

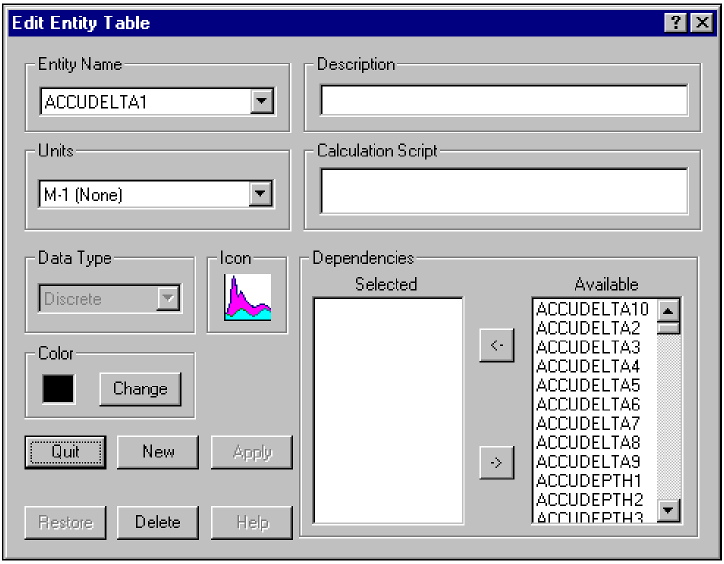
Most monitor data collected through **Profile** is obtained as raw data. **Profile** uses this raw data to calculate *dependent data* for final analysis and reporting. For example, **Profile** would use ultrasonic depth data obtained during a collect to determine DFinal. It then would apply the DFinal data to calculate QContinuity and QContinuity to determine QFinal. **Profile** also can ensure any changes made to data involving editing or importing are properly applied to the dependent data, preventing you from having to manually track changes throughout the system.

By default, **Profile** has pre-established the network of relationships among the raw data and dependent data that facilitates the accurate calculation of data dependencies. However, if necessary, **Profile** does allow you to change data dependency relationships system-wide.

> **Warning:** ADS strongly recommends leaving the current default data dependency structure unchanged. Changing or reassigning data dependencies can result in serious problems involving data accuracy throughout the database. Please consult your ADS Service Representative or Technical Support for assistance prior to making any changes.

Perform the following steps to change a data dependency for a selected data entity:

1. Select **Edit** > **System** > **Entity Table** from the **Profile** main screen.



Edit Entity Table

2. Select the data entity from the **Entity Name** drop-down list for which you want to change the dependent data.

3. Choose one of the following options:

   ❑ **Add a Dependency** Select the data entity that you now want to generate as dependent data from the **Available** list, and then select the left arrow button (**←**) to add the selected data entity to the **Selected** list.

   ❑ **Remove a Dependency** Select the data entity you would like to discontinue generating as dependent data from the **Selected** list, and then select the right arrow button (**→**).

4. Select **Apply** to initiate the change.

5. Select **Quit** to exit the dialog.

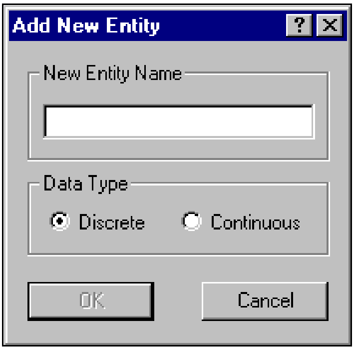
Creating a New Data Entity

Create a new data entity and associated dependent data using the **Entity Table** option.

> **Warning:** Creating new data entities requires recording calculation scripts using **Microsoft Visual Basic®** and adding new dependencies. Any error introduced in this procedure can result in serious problems involving data accuracy throughout the database. Implementing new scripts also can significantly slow down the process of calculating the entity. Therefore, ADS strongly recommends leaving the current default data entity and dependency structure unchanged. Please consult your ADS Service Representative or Technical Support for assistance prior to making any changes.

Perform the following steps to create a new data entity:

1. Select the **Edit** > **System** > **Entity Table** option from the **Profile** main screen to display the **Edit Entity Table** dialog.
2. Select the **New** button to display the **Add New Entity** dialog.



Add New Entity

3. Enter the new data entity name in the **New Entity Name** field.
4. Select the desired **Data Type** radio button: **Discrete** or **Continuous**.
5. Select **OK** to close the **Add New Entity** dialog and add the new entity to the **Entity Name** drop-down list.
6. Select the unit of measure for the new entity from the **Units** drop-down list.
7. Select an **Icon** to represent the new entity.
8. If necessary, enter the **Calculation Script** using **Microsoft Visual Basic®** code.
9. Add the dependent data that you want generated from the **Available** list to the **Selected** list.
10. Select **Apply** to initiate the change(s).
11. Select **Quit** to exit the dialog.

Deleting a Data Entity from the Database

Delete a data entity from the **Profile** database using the **Entity Table** in the following way:

> **Warning:** Use caution when deleting a data entity from the database. This procedure could result in serious problems involving data accuracy throughout the database. Data cannot be recovered once it has been deleted. ADS strongly recommends leaving the current default data entity structure unchanged. Please consult your ADS Service Representative or Technical Support for assistance prior to removing any entities.

1. Select the **Edit > System > Entity Table** option from the **Profile** main screen to display the **Edit Entity Table** dialog.
2. Select the data entity you want to delete from the **Entity Name** drop-down list.

3. Select the **Delete** button to delete the data entity from the database.

4. Select **Quit** to exit the dialog.

Changing the Units of Measure

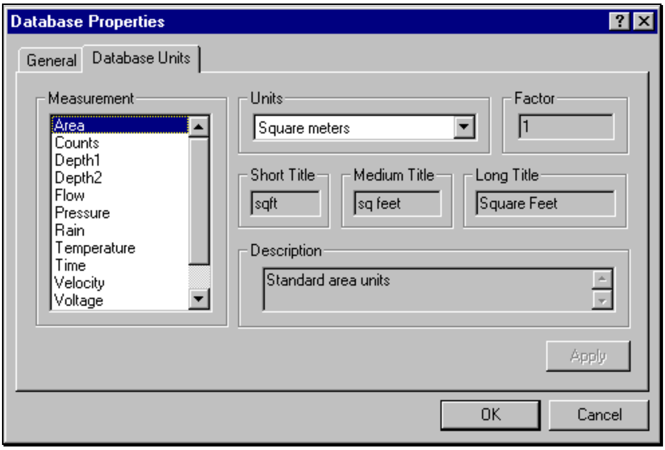
Change the system-wide unit of measure for any data entity in the database using the **Edit** > **Properties** option or the **Properties** toolbar button. **Profile** stores data in the imperial format—changing the units of measure only affects how **Profile** displays data on the screen or on reports and does not change the original data in the database.

1. Select the database from the main screen for which you want to change a unit of measure.

Properties button

2. With the database level highlighted, select the **Edit** > **Properties** option or the **Properties** toolbar button from the **Profile** main screen.

3. Select the **Database Units** tab.



Database Units

4. Select the measurement type that you want to change from the **Measurement** list.

> **Note:** ADS recommends changing a minimum of the following measurements: depth, flow, and velocity.

5. Select the new unit of measure from the **Units** drop-down list.
6. Select **Apply** to execute the change.
7. Select **Quit** to exit the dialog.

Editing a Data Entity Calculation Script

Edit the data entity calculation script using **Microsoft Visual Basic®** code in the following way:

> **Warning:** Any error introduced in writing this script could result in serious problems involving data accuracy throughout the database. Manually coding scripts also can significantly slow down the process of calculating the entity. Therefore, ADS strongly recommends leaving the current default scripts in place for each data entity. Please consult your ADS Service Representative or Technical Support for assistance prior to making any changes.

1. Select **Edit > System > Entity Table** from the **Profile** main screen to display the **Edit Entity Table** dialog.
2. Select the data entity for which you want to edit the calculation script from the **Entity Name** drop-down list.
3. Enter the new script using **Microsoft®Visual Basic** code in the **Calculation Script** field.
4. Select **Apply** to implement the change.
5. Select **Quit** to exit the dialog.

Changing the Profile System Date Format

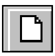
Profile uses the **Windows**-configured date format. Change the date format using the **Start > Settings > Control Panel > Regional Settings > Date** option.

Changing the Displayed Objects

Anytime you are using a **Profile** tool, you are viewing a *representation of data*. Any representation of flow data within a **Profile** tool is composed of the database objects, a time span, and any attributes assigned within the tool. For example, a hydrograph representation includes user-selected data entities and a user-specified data time span. Select the objects and the default time span for the representation from the **Profile** main screen or change the objects and time span within the software tools.

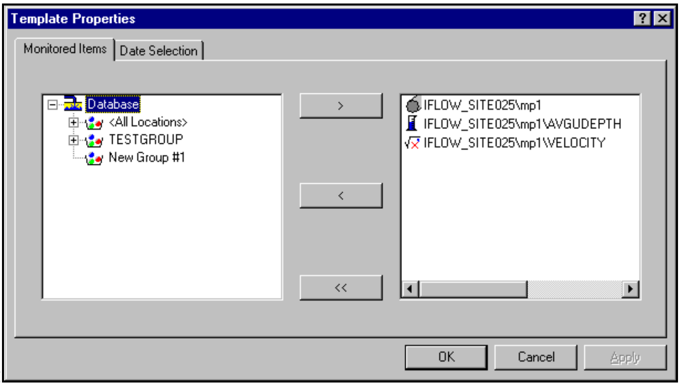
Changing the Selected Database Objects

Select the appropriate objects from the **Profile** main screen you want to include in a data representation. Access the **Profile** tool you want to use to display the selected objects. Use the **New** option from within the **Profile** application to change the selected objects. For example, select the *AVGUDEPTH* and *PDEPTH* data entities from the **Profile** main screen to include in the **Hydrograph Editor**. After accessing the **Hydrograph Editor**, you can change the selected data entity objects using the **New** option.



New button

Change the selected objects from within the **Profile** applications by selecting the **File > New** option or the **New** toolbar button to access the **Monitored Items** tab. The left side of the **Monitored Items** tab displays the available database objects. Objects displayed on the right side of the screen indicate selected database objects. Change the selected objects using the following options:



Monitored Items

Adding a Database Object to a View

Add an object to the current view by selecting the object from the left side of the screen and then selecting the > button to add it to the selected object list on the right side of the screen.

Removing a Database Object From a View

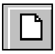
Remove a database object from the current view by selecting the object from the right side of the screen and then selecting the < button.

Removing All Database Objects From a View

Remove all selected objects from the current view by selecting the << button.

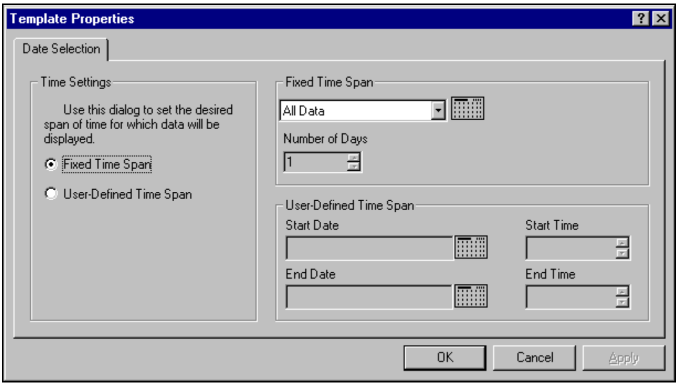
Changing the Time Span

Use the **Set Default Time Span** toolbar button on the **Profile** main screen or use the **New** option within the software tools to establish the system-wide default data time span. These options determine the time span of data accessed by each of the software tools. Perform the following steps to set the default time span:



New button

1. Select the **Set Default Time Span** toolbar button from the main screen or select the **File** > **New** option (or the **New** toolbar button) from within a software tool to access the **Date Selection** tab.



Date Selection

2. Select the **Fixed Time Span** or **User-Defined Time Span** radio button depending on which time span you want to use. Use the **Fixed Time Span** to select from pre-configured time spans, or use the **User-Defined Time Span** to manually enter a beginning and ending time span.

3. Select from one of the following time-span options:

Using a Fixed Time Span

1. Select the **Fixed Time Span** radio button under the **Time Settings** section of the **Date Selection** screen to enable the **Fixed Time Span** section.

2. Select a time span from the **Fixed Time Span** drop-down list. Choose from the following: **All Data**, **First Data**, **Last Week**, **Last Month**, or **Beginning On**.

> **Note:** If **Beginning On** is selected, you must manually select a beginning date from the calendar and the number of data days to be displayed.

3. Select **OK** to view the new time span.

Using a User-Defined Time Span

1. Select the **User-Defined Time Span** radio button under the **Time Settings** section of the **Date Selection** screen to access the **User-Defined Time Span**.
2. Manually enter the **Start Date** and **End Date** or double-click the calendar next to each date field to display the **Calendar** dialog.
3. Manually adjust the start end times to the desired values.
4. Select **OK** to apply the new time span to the current view.

Rescanning a Data Entity Time Span

Select any monitoring point from the left side of the main screen to display all of the associated data entity objects for that monitoring point on the right side of the screen. Each data entity object that displays has an associated data start and end date. If you suspect that the start or end dates for a data entity may not be up-to-date, use the **Rescan Entity Dates** option to refresh the view in the following way:

1. Right-click the data entity from the **Profile** main screen for which you want to update the date and time range.

Profile *displays the options menu.*

2. Select the **Rescan Entity Dates** option from the options menu to update the time range.

Dependent Data

A *dependent data* entity is any data entity generated only by using other data entities. For example, the **QContinuity** data entity is a dependent data entity generated by applying depth and velocity data to the continuity flow equation.

Generating Dependent Data Quality

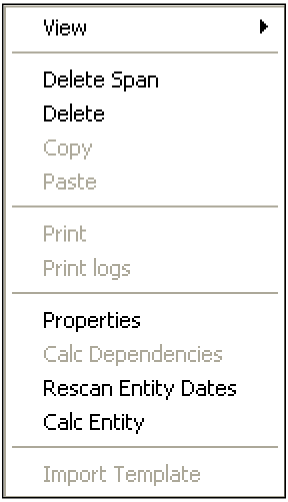
Profile produces quality statistics for dependent data primarily based on the quality statistics of all data entities required to generate the dependent data entity.

Regenerating Dependent Data

Profile allows you to regenerate data dependencies for any selected data entity. Perform the following steps to regenerate dependent data:

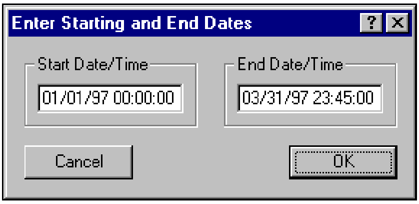
1. Right-click the data entity from the **Profile** main screen for which you want to regenerate dependent data.

Profile *displays the options menu.*



Options menu

2. Select **Calc Dependencies** to display the **Enter Starting and End Dates** dialog.



Enter Starting and End Dates dialog

3. Enter the time range for which you want to regenerate dependent data into the **Start Date/Time** and **End Date/Time** fields.

All dependent data regenerates and updates within the database.

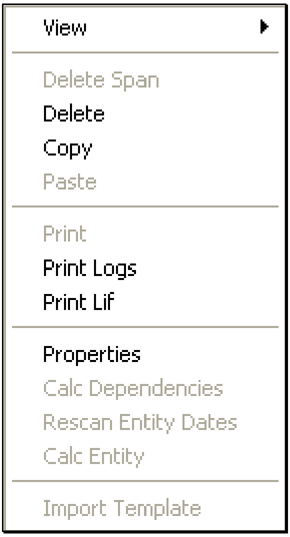
Printing Diagnostic Logs

Profile includes an option that allows users to print diagnostic activity logs for individual locations or groups of monitors. Print logs from monitor activations, data collects, and field confirmations for user-specified time spans, for example.

> **Note:** For more information on logs, refer to Chapter 6, *Diagnostics* or Chapter 9, *Log Viewer*.

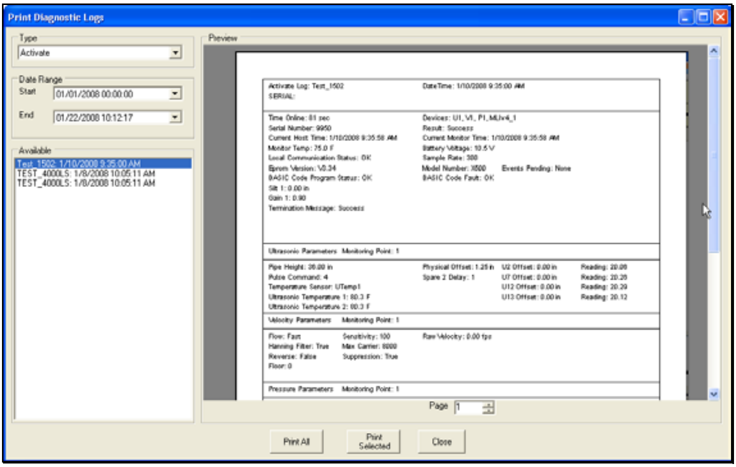
1. Right-click the group (or location) for which you want to print logs from the **Profile** main screen.

Profile *displays the options menu.*



Options menu

2. Select **Print Logs** from the options menu to display the **Print Diagnostics Logs** window.



Print Diagnostic Logs

3. Select the diagnostic log **Type** you want to review from the drop-down list. Logs types include activate, collect, PVD, calibration, depth confirmation, and velocity profiles.

4. Enter the **Start** and **End** date range of the logs you want to review.

5. Print the diagnostic logs by choosing one of the following:

   - ❑ **Print All** Select this to print the selected log **Type** for all the monitor locations in the **Available** list.

   - ❑ **Print Selected** Select this to print the log for the currently selected location only.

Note: Selecting **Print All** or **Print Selected** immediately sends the print request to the Windows-configured printer.

6. Select **Close** to exit after you have finished printing.

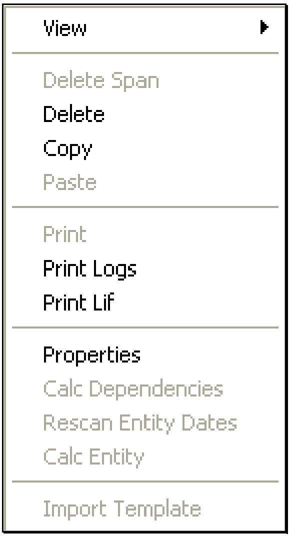
Printing LIFs

Profile includes an option that allows users to print Location Information Files (LIFs) for individual or groups of monitors. Each monitor in the **Profile** database has a LIF which contains specific location and configuration information such as phone number or IP address, monitor series, wakeup interval, and installation type. In addition, operating parameters for any associated device such as selected ultrasonic pairs or pressure sensor coefficients are stored in the LIF.

Select any group or location and print the associated LIFs.

1. Right-click the group (or location) you want to print LIFs for from the **Profile** main screen.

Profile *displays the options menu.*



Options menu

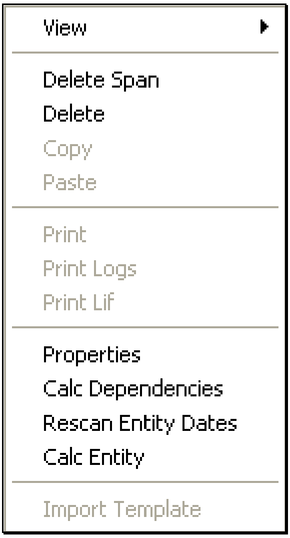
2. Select **Print LIF** from the options menu to print the LIF(s) for the selected group or location to the Windows-configured printer.

Calculating Entities for Missing Data

Profile allows you to calculate entities and run dependencies for missing data. Perform the following steps to calculate these entities:

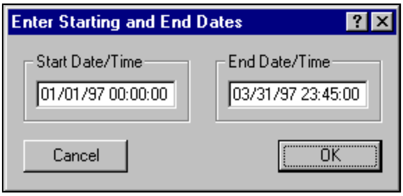
1. Right-click the entity you want to calculate from the **Profile** main screen.

Profile *displays the options menu.*



Options menu

2. Select **Calc Entity** from the options menu to display the **Enter Starting and End Dates** dialog.



Enter Starting and End Dates

3. Enter the date and time range for which you want to calculate entity data in the **Start Date/Time** and **End Date/Time** fields, and select **OK**.

Profile *calculates the entity and runs dependencies for the selected date and time range.*

Monitoring Point Schematics

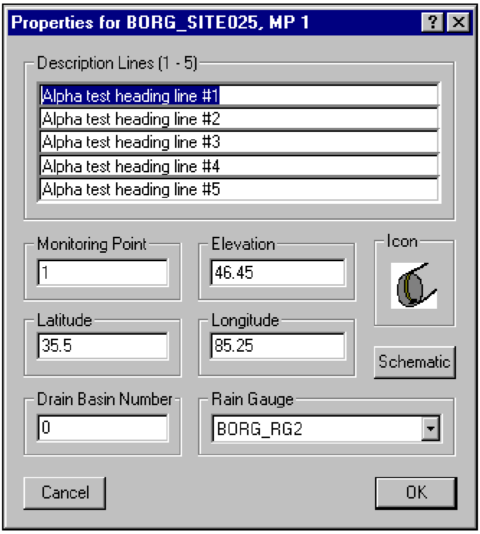
Flows should increase the further downstream you progress in a sewer system. *Flow balancing* is the process of comparing the flows from a downstream monitoring point to the sum of the flows from all upstream monitoring points from which it receives flow. **Profile** allows you to create *schematics* to specify all of the upstream monitoring points associated with a downstream monitoring point. The sum of the flows from the upstream monitoring points, called the *composite*, should equal the flow from the specified downstream monitoring point. Create schematics and save them to the database using the **Profile** main screen. Use the schematics in the **Balance Reporter** tool to perform flow balancing.

> **Note:** Remember to generate the **QFinal** data entity for each monitoring point you want to associate with a schematic prior to creating the schematic.

Use the **Profile** main screen to develop a schematic for each monitoring point. After the schematic is created on the **Profile** main screen, it becomes available each time you use the **Balance Reporter**. Perform the following steps to create a schematic:

1. From the **Profile** main screen, select the monitoring point for which you want to develop the schematic.

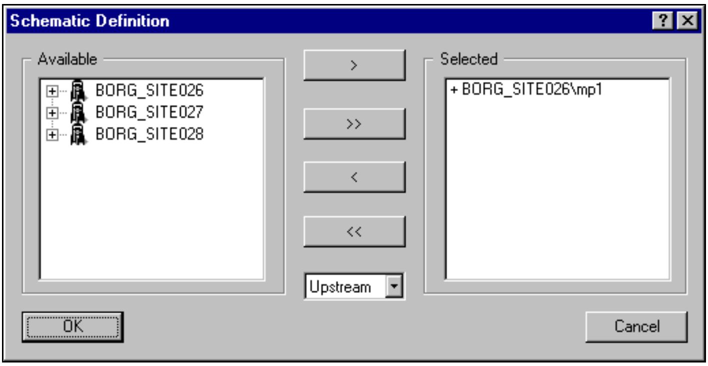
2. Select the **Edit > Properties** option to display the monitoring point **Properties** dialog.



Monitoring point **Properties** dialog

3. Select the **Schematic** button to display the **Schematic Definition** dialog.

> **Note:** The **Available** list only contains those monitoring points for which the QFinal data entity has been generated.



Schematic Definition dialog

4. Develop the schematic by selecting the upstream and overflow monitoring points from the **Available** list and adding them to

the **Selected** list using the **>** button. Each time you add a monitoring point to the **Selected** list, indicate the type of monitoring point you are adding by selecting **Upstream** or **Overflow** from the dialog. **QFinal** flows from **Upstream** monitoring points will be added to a flow composite. A "**+**" symbol next to the monitoring point in the **Selected** list indicates an **Upstream** monitoring point. **QFinal** flows from **Overflow** monitoring points will be subtracted from a flow composite. A "**–**" symbol next to the monitoring point in the **Selected** list indicates an **Overflow** monitoring point.

5. Select **OK** to close and exit the **Schematic Definition** dialog.

6. Select **OK** to close and exit the **Properties** dialog.

Exiting Profile

Select the **File > Exit** option to exit from the **Profile** software to the **Windows** desktop.

CHAPTER 3

Installation Generator

To learn about:	*See page:*

What is the Installation Generator?

Use the **Installation Generator** to define the size, shape, and physical characteristics of the monitoring point in order to allow the software to calculate the correct depths and corresponding quantities. The **Installation Generator** tool allows you to accomplish the following for each monitoring point:

- Generate and save an installation for each monitoring point in the database so that monitoring point quantities can be generated.
- Create **Average-to-Peak** tables either to specify average-to-peak velocity conversion factors for flow velocities which vary over depth or to specify an average-to-peak ratio other than the .90 default.
- Store quantity coefficients to the database for generating depth-based (Manning and Colebrook-White) flow quantities

Use the **Create Installation** wizard tool to successfully create the following installation types:

- **Standard Pipes, Weirs, Parshall Flumes** Standard Pipes are symmetrical pipes developed to most standard shapes and sizes. Use the **Create Installation** wizard to enter the physical dimensions to generate standard pipe installations, weir installations (for monitoring points involving a weir) and Parshall flume installations (for monitoring points involving a calibrated flume).
- **Non-Standard Pipes** These pipe types may not conform to any of the standard pipe shapes, yet they are symmetrical. Use the **Create Installation** wizard to define each segment of the pipe (line or arc) to produce an installation that matches the exact pipe dimensions.
- **Manual Entry** These tables are necessary only when the monitoring point is not symmetrical, requiring substantial manual calculation to complete the table. Create a *manual entry* table by entering the points that define the monitoring

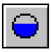
point's physical dimensions to the installation table (for pipes, weirs, or flumes). The installation table will generate from the manually entered points.

- **Lookup** Use the **Create Installation** wizard to create a table based on a designated number of depths and corresponding quantities. Generate lookup tables when any one of the following conditions exist at the monitoring point:
  - Manning and Colebrook-White equations cannot accurately represent the relationship between depth and quantity, but you must use a depth-based flow equation
  - Monitoring point hydraulics prohibit the use of the Manning equation in cases where free-flow conditions do not exist (e.g., reverse flows, upstream or downstream obstructions, or frequent backups)
  - Flume or weir installed at the monitoring point no longer meets factory specifications
- **Rain** Use the **Create Installation** wizard for any monitoring point only utilizing a rain gauge device.
- **Pumps** Use the **Create Installation** wizard when you need to create an installation for pump station monitors such as the ADS 5600 series. The installation wizard allows you to enter and store the pump ratings and wet well volume.
- **General** Use the **Create Installation** wizard when you need to create an installation with an empty table because no calculations are performed in the monitor. For example, create this kind of table for FlowAlert installations or analog input/output only installations.

When to Use the Installation Generator

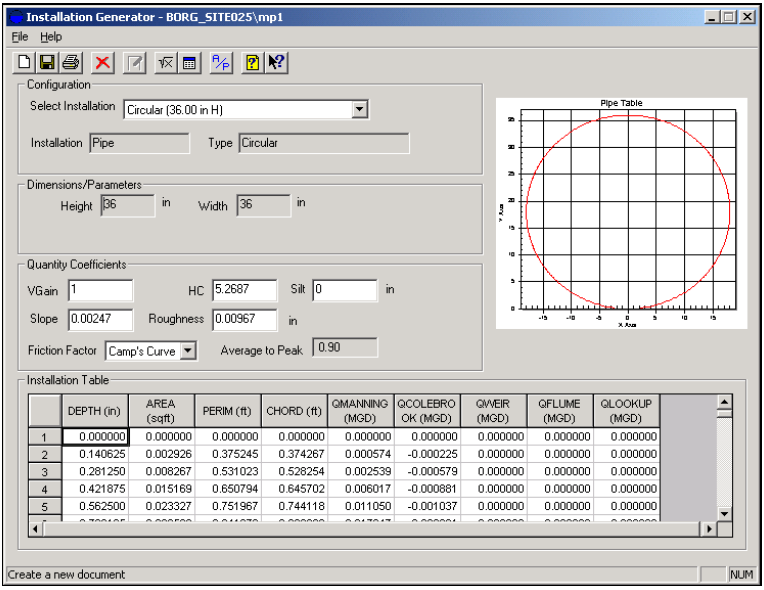
Create installations for each monitoring point typically during the *Project Setup* phase after setting up your **Profile** database. For more information, refer to the *Introduction,* Chapter 1.

How to Use the Installation Generator



Installation Generator button

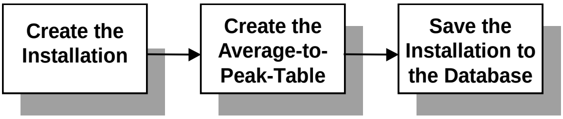
Access the **Installation Generator** by selecting the monitoring point for which you want to create an installation and the **Installation Generator** toolbar button from the **Profile** main screen.



Installation Generator main screen

Because monitoring point installations are unique, it is important to define them correctly when using the **Installation Generator** wizard. Improperly defining an installation variable can result in inaccurate flow quantity calculations.

Performing the following tasks ensures a successful installation creation:



The **Installation Generator** workflow process

- **Creating the Installation** Use the **Create Installation** wizard to create a new installation or retrieve a previously created installation when the monitoring point's physical dimensions exactly match a previously created installation.
- **Creating the Average-to-Peak Table** Create an **Average-to-Peak** table to use either a varying average-to-peak ratio or a ratio other than the .90 default. This table is used to convert peak velocities to average velocities.
- **Saving the Installation to the Database** After creating a new installation, save it to the monitoring point.

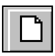
Creating an Installation

This is the first step to successfully generating an installation for a monitoring point. After accessing the **Installation Generator**, select and create (or retrieve) one of the following installations:

- Standard Pipe installation
- Weir installation
- Parshall Flume installation
- Non-Standard Pipe installation
- Manual Entry installation
- Lookup Table installation
- Rain installation
- Pump installation
- General installation

Creating Standard Pipe Installations

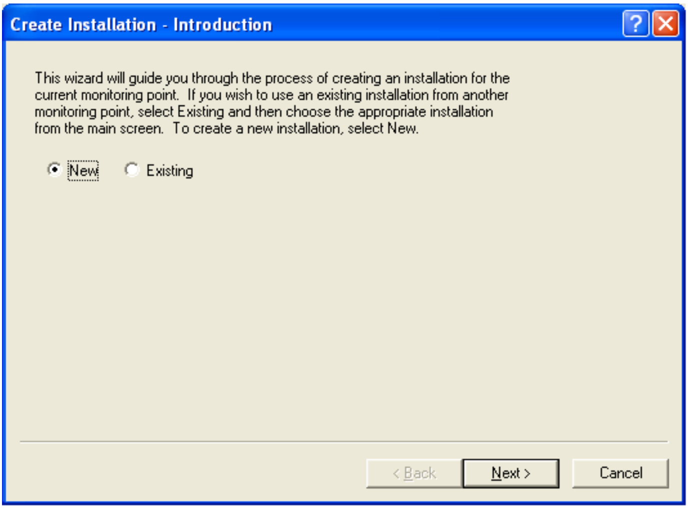
Create a *Standard Pipe* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to successfully develop the new installation.



New button

1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

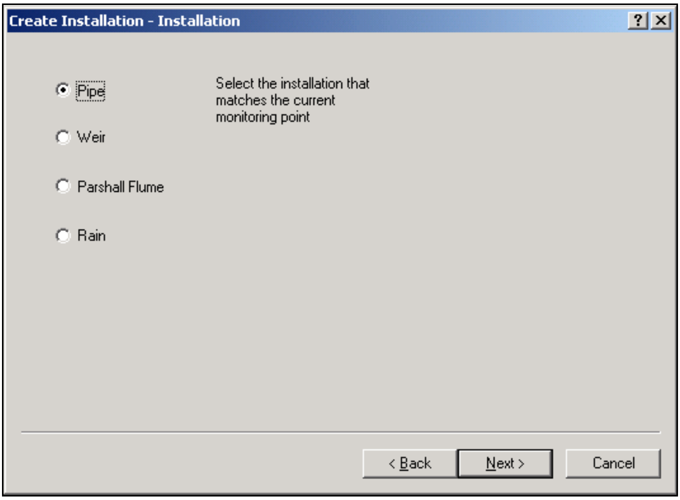
The **Create Installation – Introduction** *dialog will display.*



Introduction screen to the **Create Installation** wizard

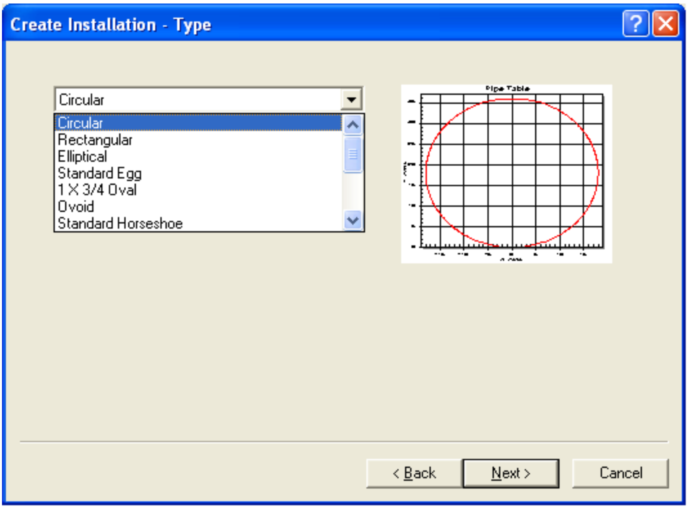
2. Select the **New** radio button and then **Next**.

3. Select the **Pipe** installation option.



4. Select **Next**.

5. Select the appropriate installation from the **Type** drop-down list.

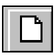


6. Select **Next**.
7. Continue responding to the wizard questions until the installation is completely defined.
8. When prompted to save the pipe table, select **Yes**.

The installation will be saved to the monitoring point. The ***Installation Generator*** *screen appears.*

Creating Weir Installations

Create a *Weir* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to successfully develop the new installation.

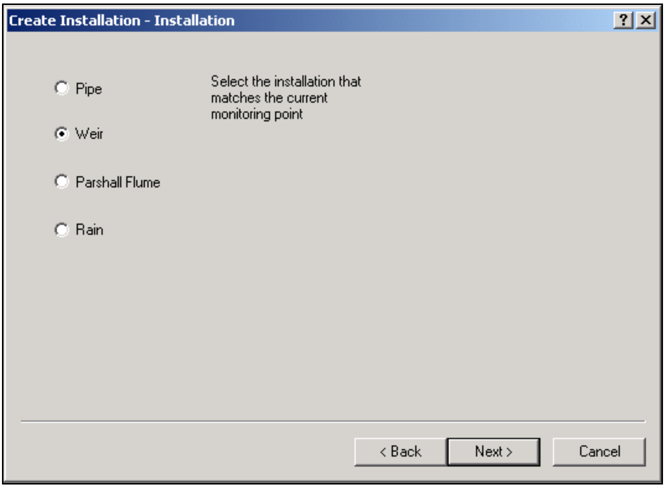

New button

1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog appears.*

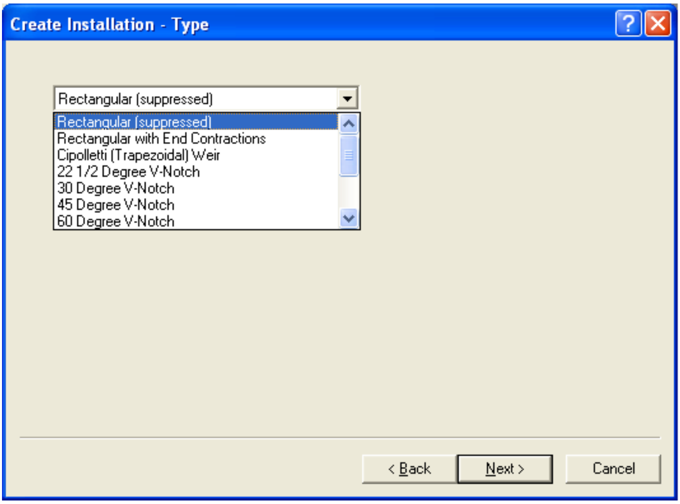
2. Select the **New** radio button and then **Next**.

3. Select the **Weir** option.



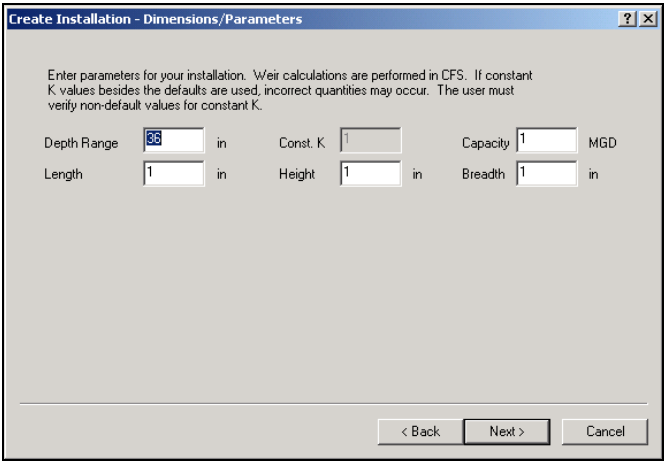
4. Select **Next**.

5. Select the appropriate installation from the **Type** drop-down list.



6. Select **Next**.

7. Enter the parameters for the weir installation.



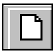
- **Depth Range** Enter the distance from the face of the bat to the channel floor if the ultrasonic sensor is installed upstream of the weir wall. Enter the distance from the face of the bat to the crest of the weir if the ultrasonic sensor is installed directly over the weir wall.
- **Const. K** This field is read-only for most weir installations except *Rectangular* or *Trapezoid* shaped weirs with *Constant K* values. The default Constant K value is used to convert weir flows to CFS and correctly calculate the quantities. **If you enter a different Constant K value, the weir equation will be modified and incorrect CFS quantities may result.** Verify any value manually entered to this field.
- **Capacity** Enter the maximum capacity of the weir with the given characteristics, as determined by you or by ADS.
- **Length** Enter the total length of the wall from one side of the chamber to the other.
- **Height** Enter the height of the crest from the channel floor to the top of the crest wall.
- **Breadth** Enter the breadth of the crest along the width of the crest wall from the upstream edge to the downstream edge (that is, the thickness of the wall).

8. After the weir parameters are entered, select **Next**.
9. Enter a descriptive name for this installation, and then select **Next**.
10. Review the data for the installation, and then select **Next**.
11. When prompted to save the pipe table, select **Yes**.

The installation will be saved to the monitoring point. The ***Installation Generator*** *screen appears.*

Creating Flume Installations

Create a *Flume* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to successfully develop the new installation.



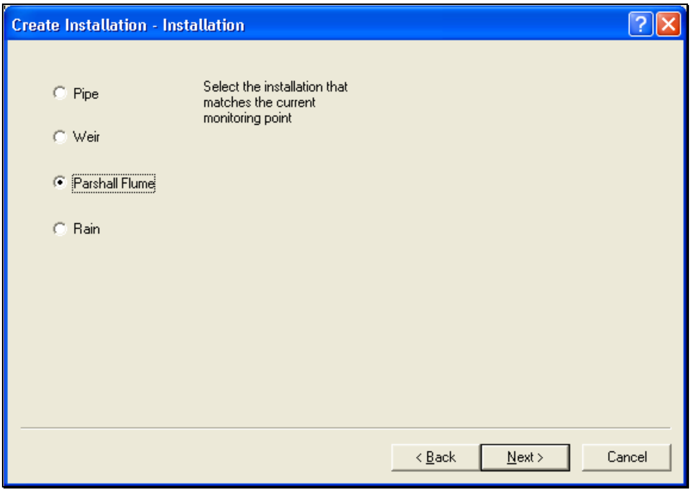
New button

1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog will display.*

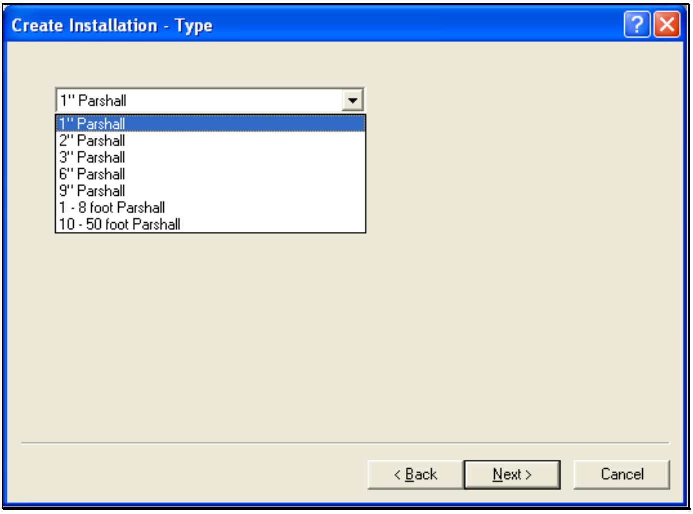
2. Select the **New** radio button and then **Next**.

3. Select the **Parshall Flume** option.

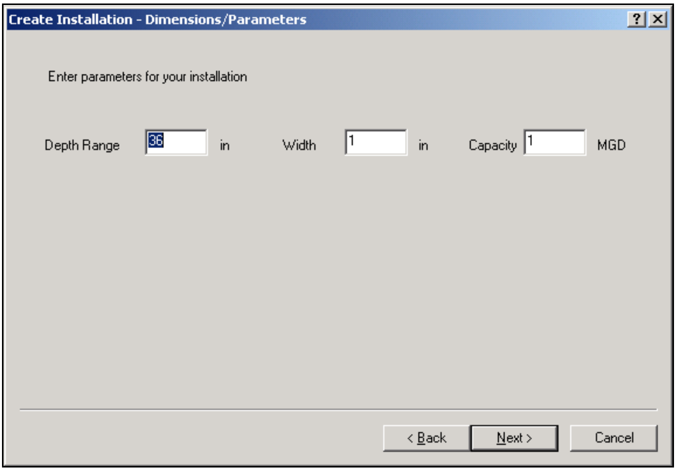


4. Select **Next**.

5. Select the appropriate installation type from the drop-down list.



6. Select **Next**.
7. Enter the parameters for the flume installation.



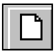
- **Depth Range** Enter the distance from the face of the bat to the floor of the flume at the designated measurement point for Parshall Flumes.
- **Width** Enter the width of the throat of the flume.
- **Capacity** Enter the maximum capacity of the flume with the given characteristics, as determined by you or by ADS.

8. After the flume parameters are entered, select **Next**.
9. Enter a descriptive name for this installation, and then select **Next**.
10. Review the data for the installation, and then select **Next**.
11. When prompted to save the pipe table, select **Yes**.

The installation will be saved to the monitoring point. The ***Installation Generator*** *screen appears.*

Creating Non-Standard Pipe Installations

Create a *Non-Standard* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to successfully develop the new installation.



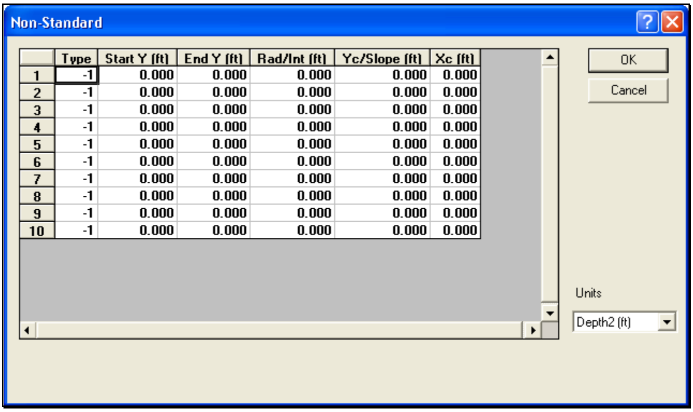
New button

1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog appears.*

2. Select the **New** option and then **Next**.
3. Select the **Pipe** option and then the **Next** button.
4. Select **Non-Standard** from the **Type** drop-down list, and select **Next**.
5. Enter the **Height** and **Width** of the installation, and select **Next**.
6. Enter a description as you want it to appear in the **Select Installation** drop-down list and select **Next**.
7. Review the wizard entries in the **Summary** dialog.
8. Select **Finish** to complete the wizard or **Back** to return to a previous screen to adjust or review an entry.

The **Non-Standard** *dialog appears.*



Non-Standard dialog

9. Define the pipe dimensions of the non-standard pipe by defining each straight line or arc segment. Assume that the bottom center of the pipe is at the (0,0) graph coordinate with the Y-axis dividing the pipe vertically in half and the X-axis running adjacent to the bottom-most point of the pipe. Define each segment falling to the right of the Y-axis and above the X-axis. Divide the pipe into segments defined by either arcs (of a circle) or straight lines. Each segment will fall between lines parallel to the X-axis. Enter the following information to the table:

   - ❑ **Type** Enter **0**, **1**, or **-1** to define each segment.
     - – **Arc Segments** Enter **0** to define an arc.
     - – **Line Segments** Enter **1** for a straight line.
     - – **Unused Segments** Enter **-1** to indicate if the line is *unused*.
   - ❑ **Start Y** Enter the value of the bottom-most coordinate of the segment. The first **Start Y** is **0**. The next **Start Y** will equal the **End Y** of the previous segment.
   - ❑ **End Y** Enter the value for the segment's top-most Y coordinate. The **End Y** of this segment will equal the **Start Y** of the next segment.
   - ❑ **Rad/Int** Enter one of the following:

- **Arc Segments** Enter the *radius* of the circle for an arc segment.
- **Line Segments** Enter the *x-intercept* value for a line segment.

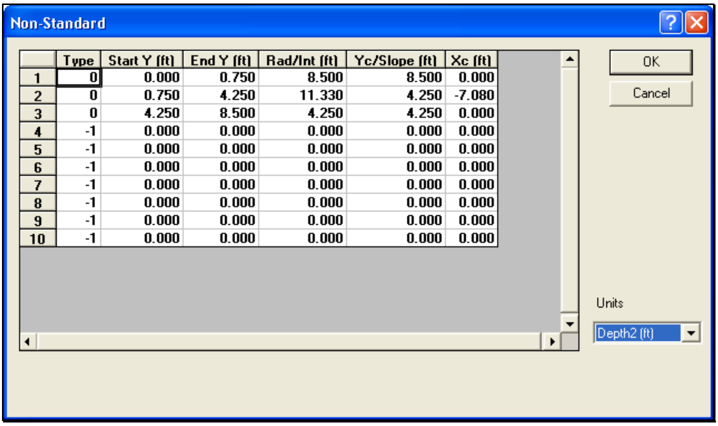
❑ **Yc/Slope** Enter one of the following:

- **Arc Segments** Enter the Y coordinate of the center of the circle *to which the arc belongs*.
- **Line Segments** Enter the slope. For horizontal lines use 0.000 and for vertical lines use 9999999.00.

❑ **XC** Enter one of the following:

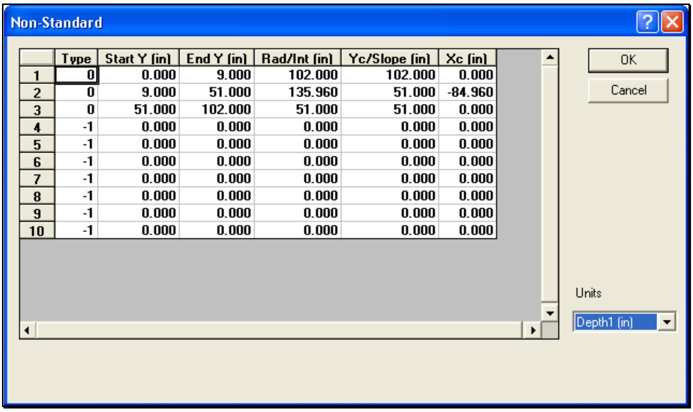
- **Arc Segments** Enter the X coordinate of the center of the circle to which the arc belongs.
- **Line Segments** Enter a **0** for this field.

❑ **Units** Choose the units which you want to use to enter the table coordinates: *inches* or *feet* from this drop-down list.



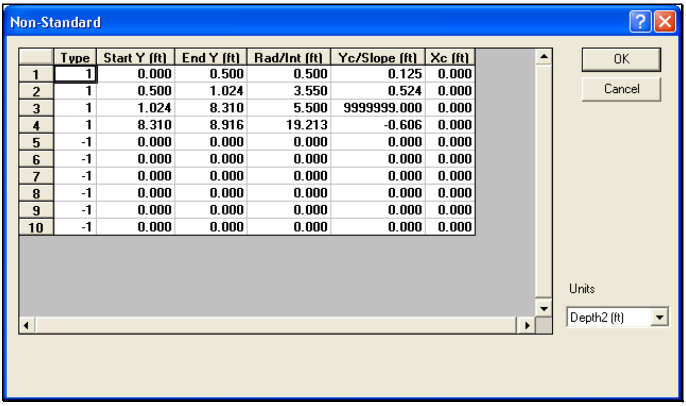
	Type	Start Y (ft)	End Y (ft)	Rad/Int (ft)	Yc/Slope (ft)	Xc (ft)
1	0	0.000	0.750	8.500	8.500	0.000
2	0	0.750	4.250	11.330	4.250	-7.080
3	0	4.250	8.500	4.250	4.250	0.000
4	-1	0.000	0.000	0.000	0.000	0.000
5	-1	0.000	0.000	0.000	0.000	0.000
6	-1	0.000	0.000	0.000	0.000	0.000
7	-1	0.000	0.000	0.000	0.000	0.000
8	-1	0.000	0.000	0.000	0.000	0.000
9	-1	0.000	0.000	0.000	0.000	0.000
10	-1	0.000	0.000	0.000	0.000	0.000

Sample Non-Standard pipe with arc segments entered in *feet*



	Type	Start Y (in)	End Y (in)	Rad/Int (in)	Yc/Slope (in)	Xc (in)
1	0	0.000	9.000	102.000	102.000	0.000
2	0	9.000	51.000	135.960	51.000	-84.960
3	0	51.000	102.000	51.000	51.000	0.000
4	-1	0.000	0.000	0.000	0.000	0.000
5	-1	0.000	0.000	0.000	0.000	0.000
6	-1	0.000	0.000	0.000	0.000	0.000
7	-1	0.000	0.000	0.000	0.000	0.000
8	-1	0.000	0.000	0.000	0.000	0.000
9	-1	0.000	0.000	0.000	0.000	0.000
10	-1	0.000	0.000	0.000	0.000	0.000

Sample *Non-Standard* pipe with arc segments entered in inches

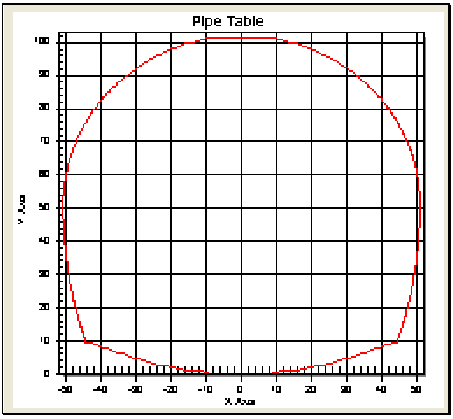


	Type	Start Y (ft)	End Y (ft)	Rad/Int (ft)	Yc/Slope (ft)	Xc (ft)
1	1	0.000	0.500	0.500	0.125	0.000
2	1	0.500	1.024	3.550	0.524	0.000
3	1	1.024	8.310	5.500	9999999.000	0.000
4	1	8.310	8.916	19.213	-0.606	0.000
5	-1	0.000	0.000	0.000	0.000	0.000
6	-1	0.000	0.000	0.000	0.000	0.000
7	-1	0.000	0.000	0.000	0.000	0.000
8	-1	0.000	0.000	0.000	0.000	0.000
9	-1	0.000	0.000	0.000	0.000	0.000
10	-1	0.000	0.000	0.000	0.000	0.000

Sample non-standard pipe with line segments

10. Select **OK** to save the non-standard pipe table.

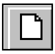
*The installation will be saved to the monitoring point and the **Installation Generator** screen appears.*



Sample **Installation Generator** non-standard pipe graphical display

Creating Manual Entry Installations

Create a *Manual Entry* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to successfully develop the new installation.



New button

1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog will display.*

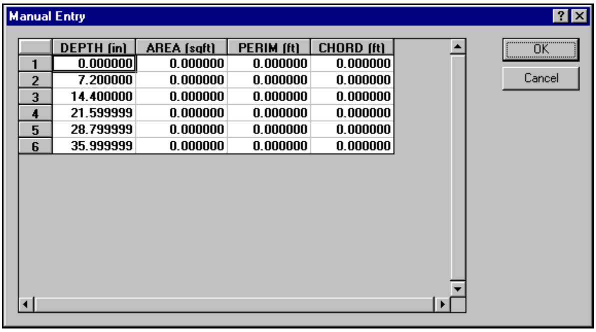
2. Select the **New** option and then **Next**.
3. Select the **Pipe** option and **Next**.
4. Select **Manual Entry** from the drop-down list as the installation type.
5. Enter the total number of manual entries you are going to make to the table, and then select **Next**.
6. Enter the **Height** and **Width** of the installation, and select **Next**.

7. Enter a description as you want it to appear in the **Select Installation** drop-down list, and select **Next**.

8. Review the wizard entries in the **Summary** dialog.

9. Select **Finish** to advance to the **Manual Entry** table or **Back** to return to a previous screen to review or correct an entry.

The **Manual Entry** *table will display.*



Manual Entry table

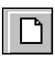
10. Enter the **Depth**, **Area**, **Perimeter**, and **Chord** for each point on the **Manual Entry** table.

11. Select **OK** to generate the installation.

12. When prompted to save the pipe table, select **Yes**.

Creating Lookup Table Installations

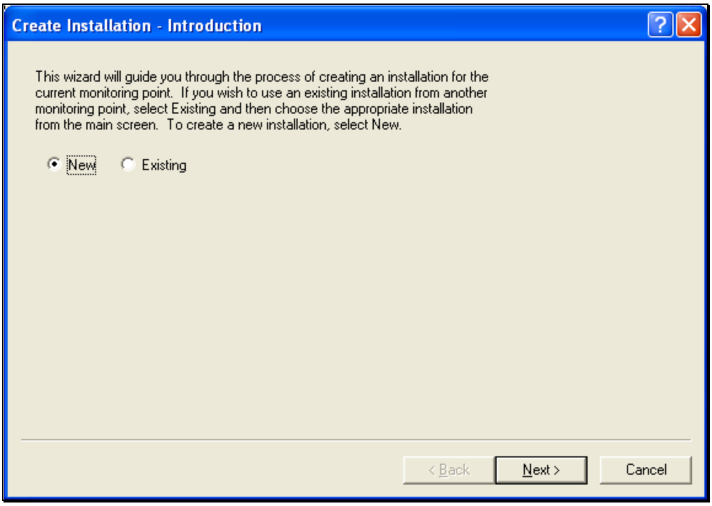
Create a *Lookup Table* installation for a monitoring point using the **Create Installation** wizard. Provide a response to each wizard question to develop the new installation successfully.



New button

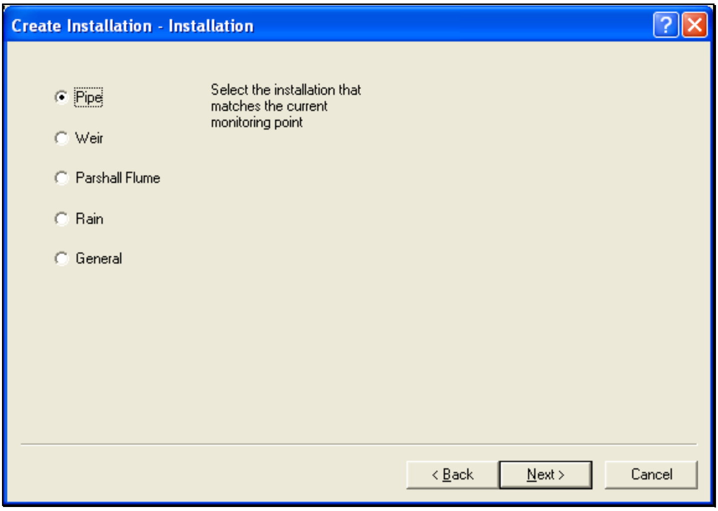
1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog will display.*



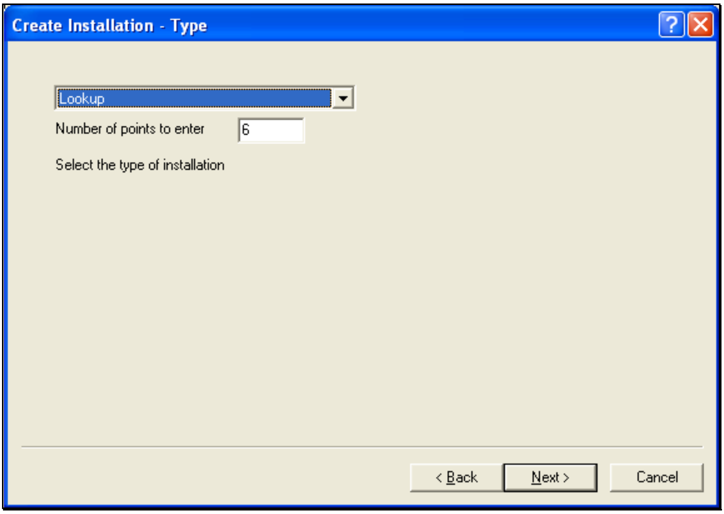
Introduction screen to the **Create Installation** wizard

2. Select the **New** radio button and then **Next**.



3. Select the **Pipe** radio button and then the **Next** button.

4. Select **Lookup** from the **Create Installation – Type** drop-down list.



5. Enter the total number of depths (*points*) for which you want to designate quantities (i.e., lookup entries), and then select **Next**.

> **Note:** Designate as many points and corresponding quantities as possible. The **Installation Generator** creates the table by dividing the pipe into *equivalent* increments of depth based on the pipe height and number of points (or *depths*). The accuracy of the table increases with the number of designated points.

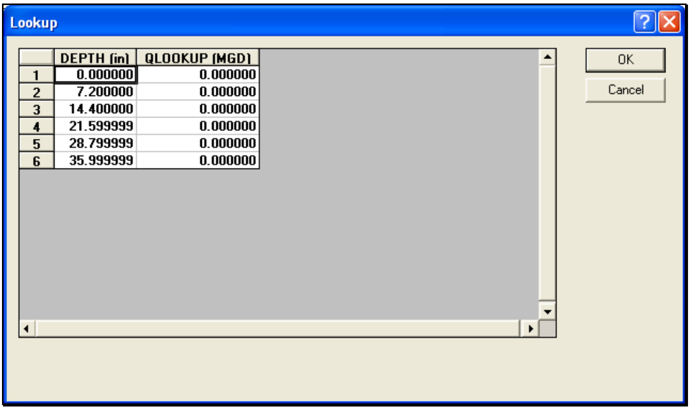
6. Enter the **Height** of the installation, and then select **Next**.

7. Edit the description for the lookup table as you want it to appear in the **Select Installation** drop-down list, and then select **Next**.

8. Review the wizard entries on the **Create Installation – Summary** dialog.

9. Select **Finish** to display the **Lookup** table *or* **Back** to return to a previous dialog to modify an entry.

The **Lookup** *dialog will display.*



Lookup dialog

10. Enter the quantity corresponding to each depth point on the **Lookup** table, and then select **OK**.

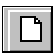
> **Note:** Do not modify the depth values in the lookup table. These values are incremented automatically by the Installation Generator based on the pipe height and number of points.

11. After the installation generates successfully, save it to the monitoring point.

Creating Rain Installations

Create a *Rain* installation for a monitoring point using the **Create Installation** wizard. Create *Rain* installation types for monitoring points using *only* a rain gauge tipping bucket device.

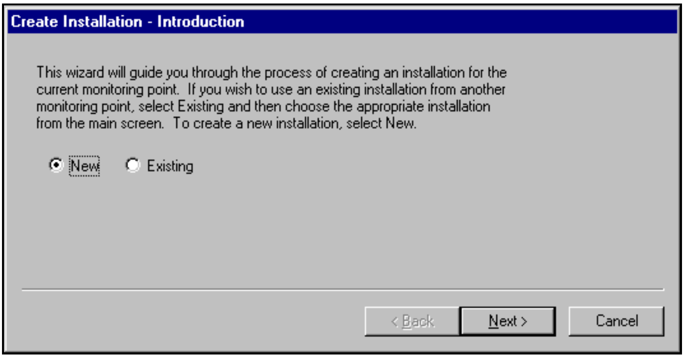
> **Note:** **Profile** creates a *Rain* installation type automatically for **Rain Alert** series monitors.



New button

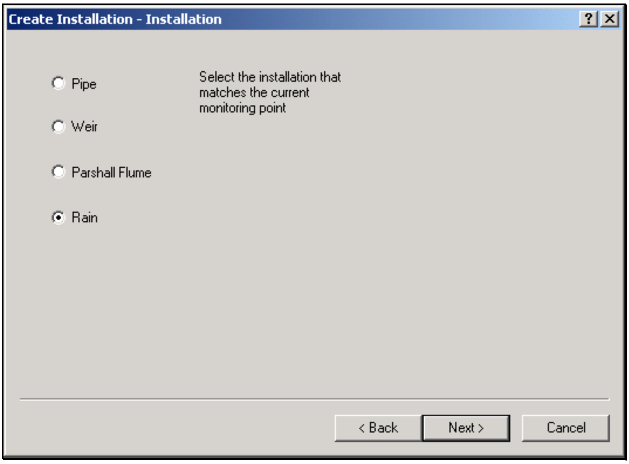
1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog displays.*

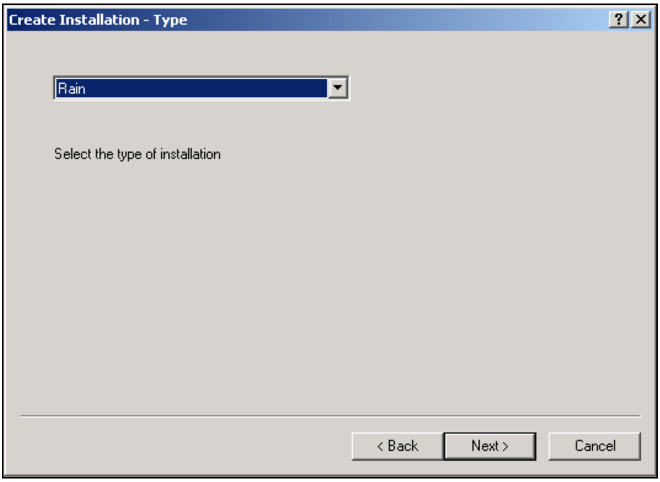


Introduction screen to the **Create Installation** wizard

2. Select the **New** radio button and then **Next**.



3. Select the **Rain** radio button and then the **Next** button.



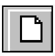
4. Select the **Rain** type and **Next**.

5. Follow the wizard to completion and then review the entries on the **Summary** dialog.

6. Select **Finish** and **Yes** to save to complete the *Rain* installation or **Back** to return to a previous screen to correct an entry.

Creating a Pump Installation

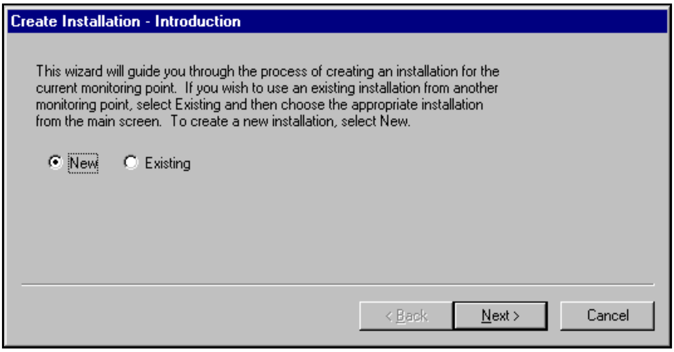
Create a *Pump* installation for a monitoring point using the **Create Installation** wizard. Create *Pump* installation types typically for the ADS 5600 series monitors using a pump device.



New button

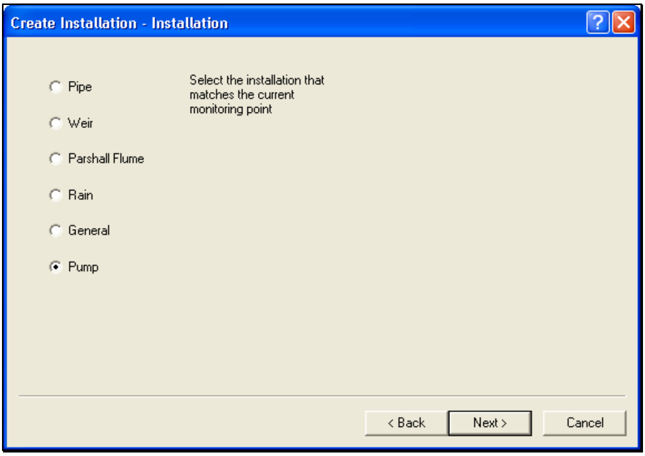
1. Access the **Create Installation** wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog displays.*



Introduction screen to the **Create Installation** wizard

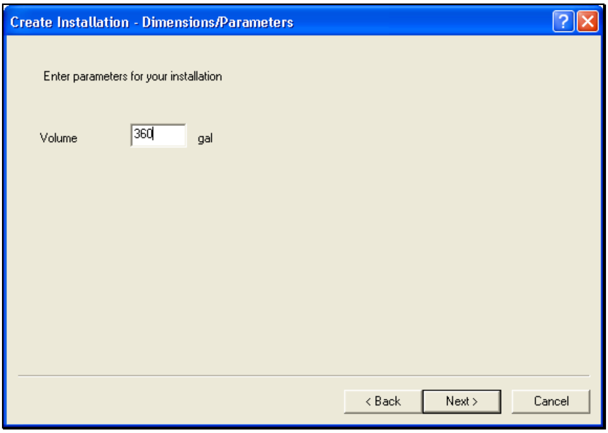
2. Select the **New** radio button and then **Next**.



3. Select the **Pump** radio button and then the **Next** button.

4. Select **Pump** as the **Type** and **Next**.

Profile displays the ***Create Installation – Dimensions/Parameters*** *window.*



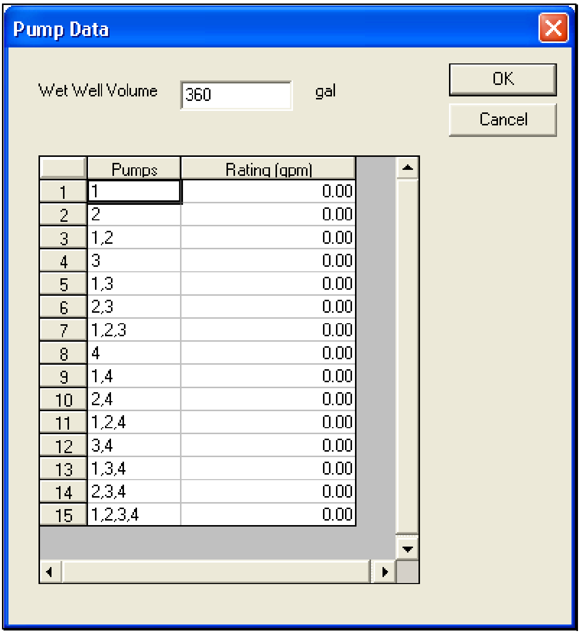
5. Enter the **Wet Well** capacity and select **Next**.

6. Enter the pump table description as you want it to appear in the **Select Installation** drop-down list, and then select **Next**.

7. Review the wizard entries on the **Summary** dialog and select **Next**.

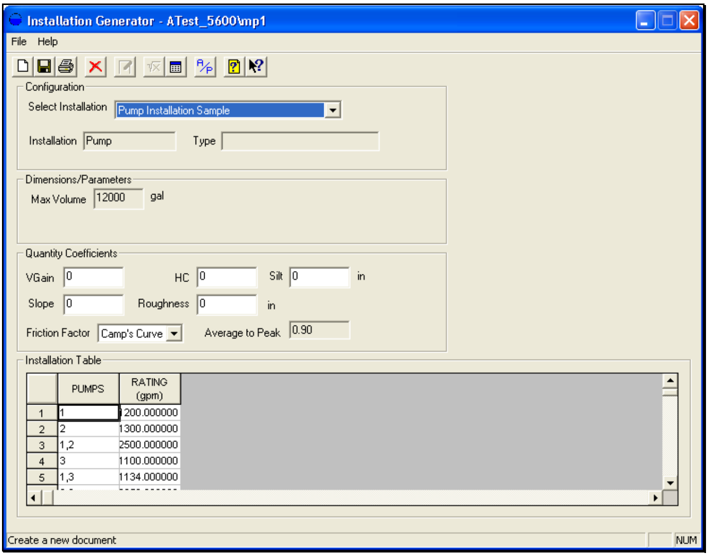
8. Enter the pump ratings (how many gallons the pump can pump per unit of time) for each pump on the **Pump Data** window. For accuracy, these numbers should be based on actual measurements performed at the pump station and not on the posted pump ratings. Enter zeros for all unused pumps.

9. If necessary, enter the wet well capacity in the **Wet Well Volume** field.



Pump Data window

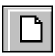
10. Select **Next**.
11. Select **OK** to save the current *Pump* installation table.



Completed *Pump* installation

Creating a General Installation

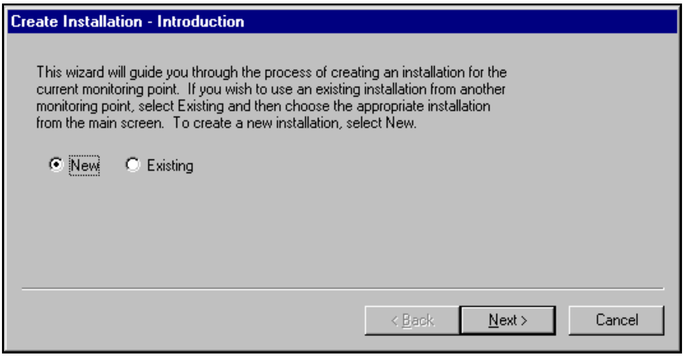
Create a *General* installation for a monitoring point using the **Create Installation** wizard. Create *General* installation types for monitoring points that do not require a pipe table. For example, create a *General* installation for the ADS FlowAlert monitor or any monitoring point reporting only analog inputs.



New button

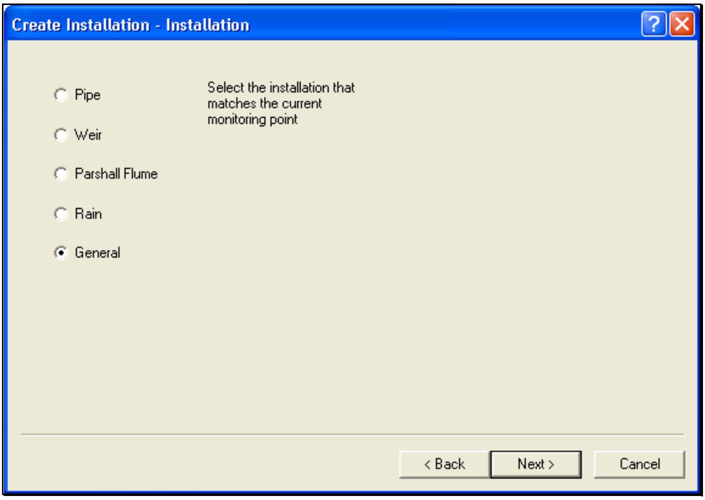
1. Access the wizard by selecting the **New** toolbar button from the **Installation Generator** screen.

The **Create Installation – Introduction** *dialog displays.*



Introduction screen to the **Create Installation** wizard

2. Select the **New** radio button and then **Next**.



Create a *General* installation

3. Select the **General** radio button and then the **Next** button.

4. Select the **General** type and **Next**.

5. Follow the wizard to completion and then review the entries on the **Summary** dialog.

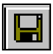
6. Select **Finish** and **Yes** to save to complete the *General* installation or **Back** to return to a previous screen to correct an entry.

Retrieving a Previously Created Installation

Retrieve and use previously created installations to save time when you are developing an installation for a new monitoring point that has the same physical dimensions as a previously created installation.

1. Select the previously created installation from the **Select Installation** drop-down list located in the **Configuration** section of the **Installation Generator** screen.

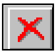
2. Review and update the **Quantity Coefficients** section as necessary. The **Quantity Coefficients** section of the **Installation Generator** screen displays the most current quantity coefficients from the database for the selected monitoring point.



Save button

3. Save the installation to the monitoring point by selecting the **Save** button.

Deleting an Installation



Delete button

Delete an installation from the **Select Installation** drop-down list using the **Delete** toolbar button. The currently selected installation will be deleted from both the **Select Installation** list and the **Profile** database.

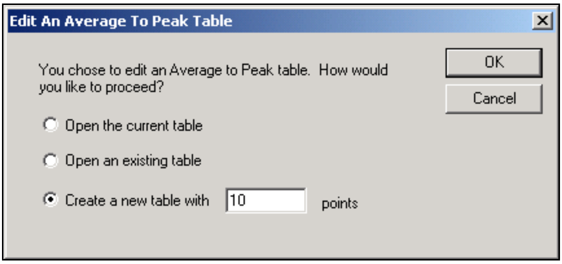
Creating an Average-to-Peak Table

If a velocity profile performed at the monitoring location indicates the need to use an average-to-peak ratio other than the default (0.90), **Profile** allows users to create an average-to-peak table. Utilize the table to input a user-defined average-to-peak ratio across all depths or input varying average-to-peak ratios with depth. Select the **Average-to-Peak** toolbar button to create and save **Average-to-Peak** tables.

Perform the following steps (after generating the monitoring point installation successfully) to generate an **Average-to-Peak** table:

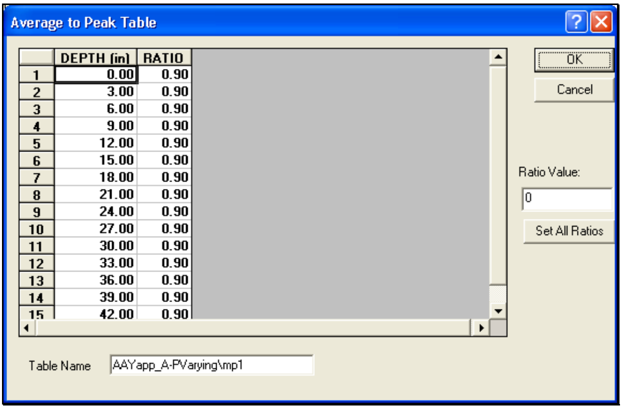
Average-to-Peak Table button

1. Select the **Average-to-Peak Table** toolbar button.



Edit an Average-to-Peak Table

2. Select the **Create a New Table with ____ points** radio button, enter the total number of depth points you want to use to define the final **Average to Peak table** (or use the default value of **30**), and select **OK** to display the **Average-to-Peak Table** with the selected number of depth points.



Average-to-Peak Table dialog

3. Enter new depth and ratio values to the table using either of the following methods:

   - Enter individual depths and corresponding ratios in the **Depth** and **Ratio** columns to allow **Profile** to interpolate the depth/ratios. The greater the number of known points, the more accurate and complete the **Average-to-Peak** table will be.

   - Set the entire **Ratio** column to a specific ratio by entering the value in the **Ratio Value** field and then selecting the **Set All Ratios** button.

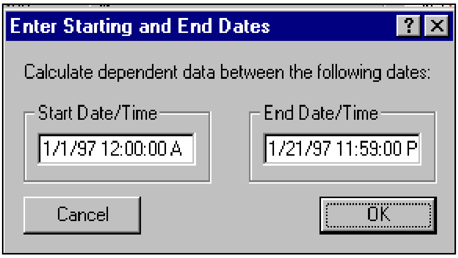
Note: The first depth value in the table must always equal zero and the last value in the table must always equal the pipe height.

4. Enter a unique name for the table into the **Table Name** field.

5. Select **OK** to save the new table.

Note: You can save multiple tables for the same location using different names.

The **Enter Starting and End Dates** *dialog will display.*



Enter Starting and End Dates dialog

6. Regenerate any dependent data affected by the depth and/or ratio change(s) by entering the dates of the affected time period into the **Start Date/Time** and **End Date/Time** fields and then selecting **OK**.

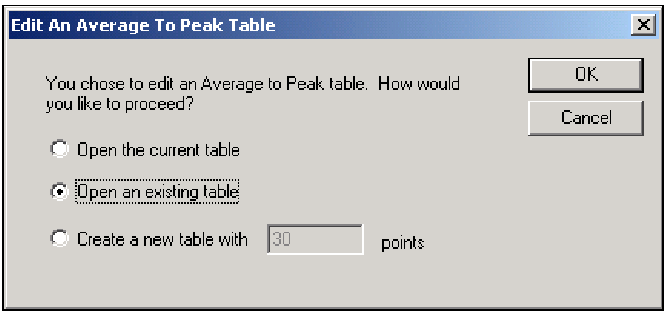
The dependent data regenerates.

Change the Assigned Average-to-Peak Table

Average-to-Peak button

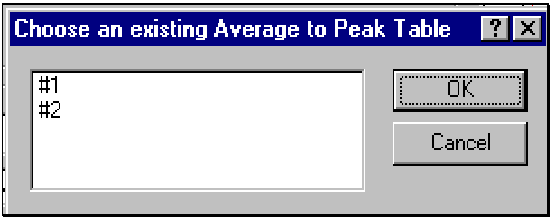
Change the currently assigned **Average-to-Peak** table to another previously created table as necessary by performing the following steps:

1. Select the **Average-to-Peak** toolbar button to display the **Edit an Average-to-Peak Table** dialog.



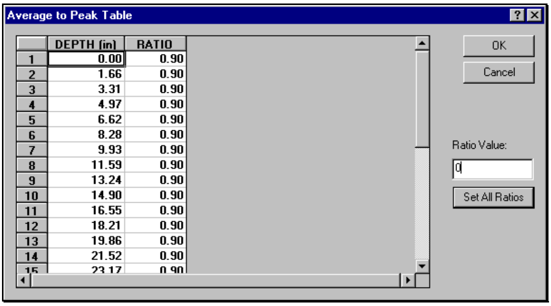
Edit An Average to Peak Table dialog

2. Select **Open an existing table** to open a previously created table.



Choose an existing Average-to-Peak Table dialog

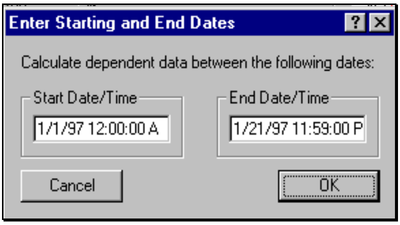
3. Select an **Average-to-Peak** table from the list and then **OK** to display the selected table.



Average-to-Peak Table dialog

4. Select **OK** from the **Average to Peak Table** window to save the displayed average-to-peak table as the current table.

The **Enter Starting and End Dates** *dialog displays.*



Enter Starting and End Dates dialog

5. Regenerate any dependent data affected by depth and ratio change(s) by entering the dates of the affected time period into the **Start Date/Time** and **End Date/Time** fields.

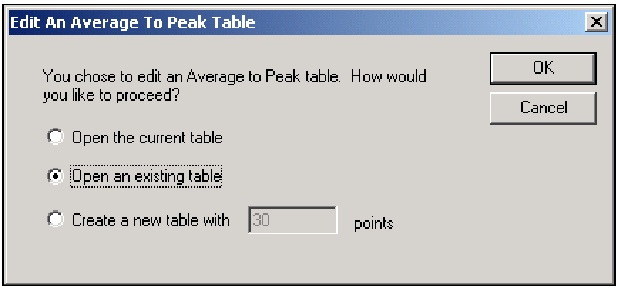
The dependent data regenerates.

Editing an Average-to-Peak Table

Average-to-Peak button

Edit the depth and ratio values from an existing **Average-to-Peak** table as necessary by performing the following steps:

1. Select the **Average-to-Peak** toolbar button to display the **Edit an Average-to-Peak Table** dialog.

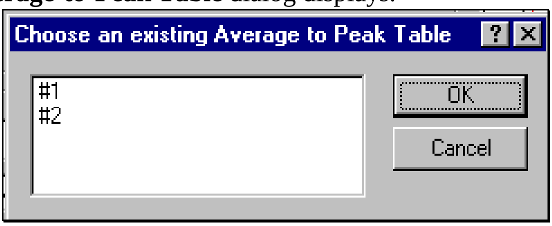


Edit an Average-to-Peak Table dialog

2. Select either the **Open the current table** radio button to open the **Average-to-Peak** table currently assigned to the location or select the **Open an existing table** to open a previously created table (for this or any other location in the database).

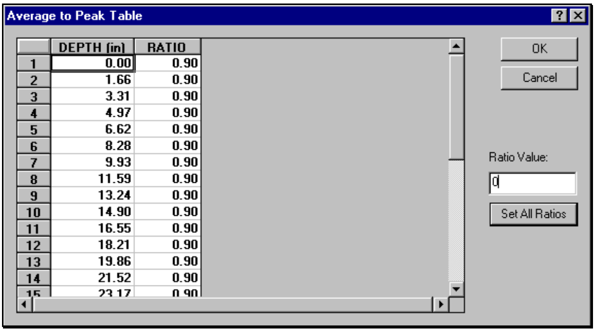
3. If you chose **Open the Current table**, then the current selected **Average-to-Peak** table displays. Proceed to Step #6 for editing information.

4. If you chose **Open an existing table**, the **Choose an existing Average-to-Peak Table** dialog displays.



Choose an existing Average-to-Peak Table dialog

5. Select an **Average-to-Peak** table from the list and then **OK** to display the selected table.

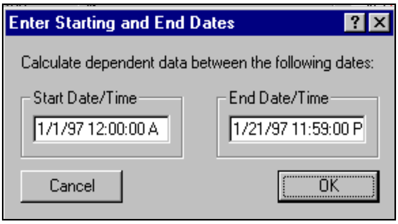


Average-to-Peak Table dialog

6. Edit the table either by entering individual depth and corresponding ratio values directly to the table or setting all of the ratios in the table to a single value. To set all of the ratios to a single value, enter a value into the **Ratio Value** field and then select the **Set All Ratios** button.

7. Select **OK** to close and exit the **Average-to-Peak Table** window.

The **Enter Starting and End Dates** *dialog displays.*



Enter Starting and End Dates dialog

8. Regenerate any dependent data affected by depth and ratio change(s) by entering the dates of the affected time period into the **Start Date/Time** and **End Date/Time** fields.

The dependent data regenerates.

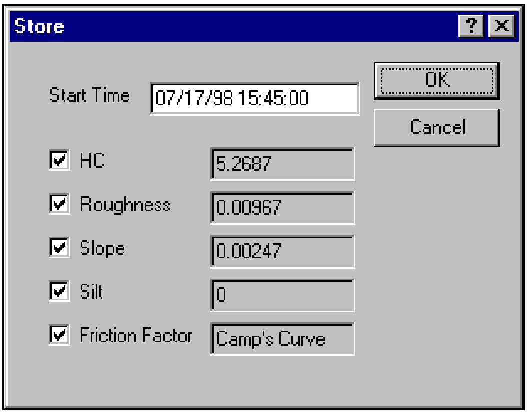
Storing Changes to Quantity Coefficients

Save any changes to quantity coefficients using the **Store** toolbar button. The **Store t**oolbar button accesses the **Store** dialog which displays the quantity coefficient values. Any quantity coefficient changes that are not stored to the database will be lost and will not be applied to the installation.

Store button

Note: Storing *any* quantity coefficient changes will affect all monitoring point information.

1. Select the **Store** toolbar button to display the **Store** dialog.



Store dialog

2. Enter the date and time you want to begin using the new quantity coefficients in the **Start Time** field.

Note: Any previously generated flow quantities will regenerate when you save new coefficient values.

3. Select the checkbox next to all quantity coefficient values you want to save.

4. Select **OK** to save the selected changes to the database.

Saving an Installation

Save button

After generating an installation successfully, use the **Save** toolbar button to save the installation to the currently selected monitoring point. Saving the installation to the monitoring point saves the depth, perimeter, and chord information to the database, which allows correct generation of data dependencies and accurate data edits.

> **Note:** Save any changes made to the **Quantity Coefficients** using the **Store** option; otherwise, the coefficient changes will not be saved.

Exiting the Installation Generator

Close and exit the **Installation Generator** by selecting the **File > Exit** option.

CHAPTER 4

Quantity Coefficient Generator

To learn about:	*See page:*

What is the Quantity Coefficient Generator?

A field confirmation is a manual depth, velocity, or quantity measurement taken at a monitoring point. Field confirmations are used to verify the accuracy of flow monitor data and are necessary when developing the coefficient variables of the flow quantification equations, Manning and Colebrook-White. **Profile** uses field confirmations and the **Quantity Coefficient Generator** to solve for the following equation coefficients:

- **Hydraulic Coefficient (HC)** The HC is used in the modified Manning's flow equation and represents the interaction between pipe slope and friction—factors related to the velocity of the flow.
- **Roughness and Slope** These coefficients are used in the modified Colebrook-White flow equation and are an indication of the pipe roughness and slope values at the monitoring point.

When you want to quantify flow based on depth-only data, use the **Quantity Coefficient Generator** to solve for one or all of the flow equation coefficients.

You also can use the **Quantity Coefficient Generator** to enter and store **Silt** and **Offset/Gain** coefficients.

The **Quantity Coefficient Generator** provides a historical record of the field confirmations for a location and monitoring point and can be used to track trends and flow characteristics over time.

When to Use the Quantity Coefficient Generator

The **Quantity Coefficient Generator** typically is used during the project setup phase, simultaneously with the **Installation Generator**, for any monitoring point for which you want to generate depth-based Manning and/or Colebrook-White flow quantities. Use the **Quantity Coefficient Generator** to solve for the *Hydraulic Coefficient* (HC) used in the Manning or the *roughness* and *slope* coefficients used in the Colebrook-White flow equations.

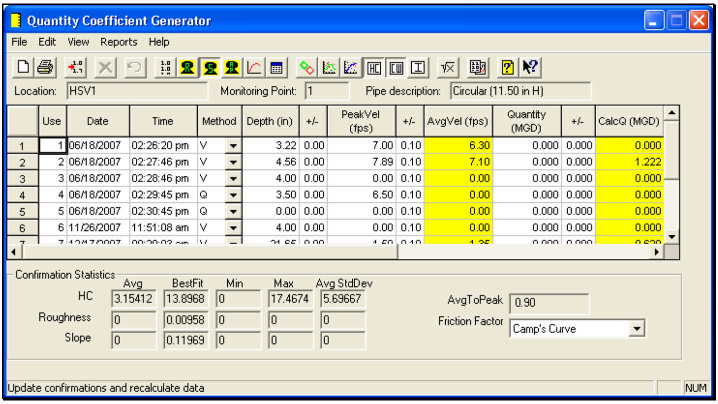
Refer to the project life cycle in the *Introduction* section for more information.

How to Use the Quantity Coefficient Generator

The **Profile** database must contain an installation table and monitor data for a specific monitoring point in order to determine the HC, roughness, and slope using the **Quantity Coefficient Generator**.

Quantity Coefficient Generator button

After confirming the database contains this information, access the **Quantity Coefficient Generator** from the **Profile** main screen by selecting a monitoring point and then the **Quantity Coefficient Generator** toolbar button.

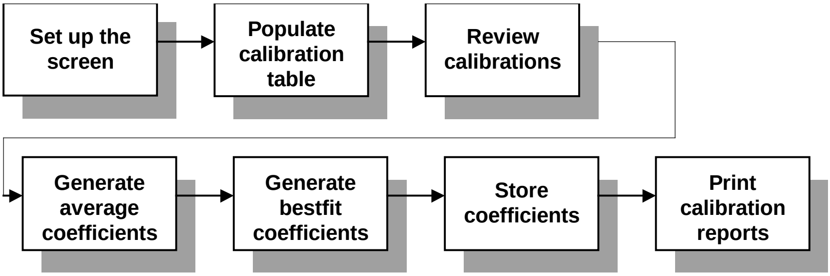


Quantity Coefficient Generator main screen

The **Quantity Coefficient Generator** screen information is organized and grouped into two sections:

- **Confirmation Table** This table displays the field confirmations for the selected monitoring point.
- **Confirmation Statistics** This section displays the various calculated statistics based on the qualifying field confirmations.

Generate accurate quantity coefficients by performing the following steps:



Steps for generating accurate quantity coefficients

- **Set up the screen** Verify the currently selected monitoring point and time span.
- **Populate the confirmation table** Populate the **Quantity Coefficient Generator** table with confirmation data by manually entering field confirmations. Database confirmations may originate from **QuadraScan** data imported using the **QS5 Importer** or **Profile** data imported using the **Data Transfer Utility**.
- **Review the confirmations** Compare the field confirmations to actual flow data using scattergraphs and hydrographs.
- **Generate average coefficients** An **Average HC** value is generated and displayed as field confirmations are entered to the **Quantity Coefficient Generator** table. Use the **Quantity Coefficient Generator** to generate the roughness or slope coefficients when at least one of the two coefficients is known.
- **Generate bestfit coefficients** When the average coefficient values for HC, roughness, or slope do not accurately reflect the true coefficients for the monitoring point, generate a bestfit coefficient which minimizes the mathematical error through the span of the coefficients.
- **Store the quantity coefficients** After generating and reviewing average or bestfit coefficients, save the new coefficients to the database.

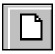
- **Print the confirmation reports** Produce on-screen and printed confirmation reports.

> **Note:** Display specific information about any object or field within **Profile** by selecting the **What's This?** help button followed by the object or field in question.

Setting Up the Screen

After accessing the **Quantity Coefficient Generator** tool, verify the selected monitoring point and time span.

Verifying the Selected Monitoring Point

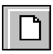


New button

Verify the selected monitoring point for which you want to generate quantity coefficients. Use the **New** toolbar button to access the **Monitored Items** tab for changing the selected monitoring point.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Verifying the Time Span



New button

Verify the selected beginning and ending dates for the **Quantity Coefficient Generator**. This time span will apply to any scattergraphs and/or hydrographs viewed through the **Quantity Coefficient Generator**. Use the **New** toolbar button to access the **Date Selection** tab for changing the selected time span.

> **Note:** The time span will display the last configuration entered until an update is performed.

Refer to *Changing the Time Span* in Chapter 2 for more information.

Entering Field Confirmations

After setting up the view, begin entering the field confirmations into the **Quantity Coefficient Generator** table. Manually enter field confirmations to the confirmation table or populate the confirmation table with data available in the **Profile** database. Refer to the *Confirmation Table Reference* to verify the proper field entries.

Confirmation Table Reference

Use the confirmation table to enter and record manually performed field confirmations. The following information defines each column of the confirmation table (from left to right):

- **Use** A *number* in this column indicates that the confirmation in the corresponding row will be included in the hydraulic coefficient calculations. Change the number to an *I* to ignore the confirmation in the hydraulic coefficient calculations.

  Note: The same number entered in the **Use** column for two or more confirmations on the table will average the results of the calculations.

- **Date** Enter the date of the field confirmation.
- **Time** Enter the time of the field confirmation.
- **Method** Select **Q** or **V** to indicate the type of confirmation you are entering: select **Q** for a quantity confirmation (such as a weir or bucket confirmation); select **V** for a velocity/depth confirmation.
- **Depth** Enter the field confirmation manual depth measurement (for velocity confirmations).

- **+/-** Enter the accuracy (plus/minus) for the measured depth. This is the level of accuracy of the depth reading based on the field crew's ability to obtain accurate measurements. For example, a factor that could influence accuracy may be a choppy flow surface.
- **PeakVel** Enter the manually obtained peak velocity of the flow.
- **+/-** Enter the plus/minus accuracy of the peak velocity.
- **AvgVel** This field displays the results of the **PeakVel** multiplied by the **Average-to-Peak** ratio (from the **Average-to-Peak** table created in the **Installation Generator** or using the *.90* default ratio).
- **Quantity** Use this column to enter the field-measured quantity for a quantity confirmation.
- **+/-** Enter the plus/minus accuracy of the quantity confirmation.
- **Calc/Q** This field displays the calculated quantity based on the confirmation information.
- **Silt** Enter the silt depth, if any, at the monitoring point as measured during the field confirmation. The default value is 0 inches. This field can be widened to accommodate larger numbers, if necessary.
- **HC** This field displays the calculated hydraulic coefficient derived from the field confirmation.
- **Roughness** This field displays the calculated roughness derived from the field confirmation or a manually set roughness.
- **Slope** This field displays the calculated slope derived from field confirmations or a manually set slope.
- **Crew** Enter the name or identification of the field crew who performed the confirmation.
- **Comments** Enter any information relevant to the field confirmation, such as unusual or unique conditions at the

monitoring location which may affect the hydraulics of the flow.

Manually Entering a Confirmation

Manually enter field confirmations on the confirmation table in the **Quantity Coefficient Generator** in the following way. Widen or narrow the columns on the table, as necessary, by positioning the mouse cursor between the columns and dragging the field to the left or right:

Insert button

1. Select the **Insert** toolbar button to position the cursor at the first field of a new row on the confirmation table.

2. Enter the field confirmation information: **Date**, **Time**, **Method**, **Depth**, **+/-**, **PeakVel**, **+/-**, **Quantity**, **+/-**, **Silt**, **Crew**, and **Comments**. Refer to the *Confirmation Table Reference* on page 4-9 for more information on the individual columns of the confirmation table.

   Note: You must enter at least a **Depth** and **PeakVel** measurement (velocity confirmation) or a **Depth** and **Quantity** measurement (quantity confirmation) to generate coefficients.

3. Review the default **Friction Factor** value from the database, and if necessary, enter new values.

   Note: It is recommended that the **Friction Factor** remain at the system default until enough independent information is gathered to justify a change.

Recalculate button

4. Select the **Recalculate** toolbar button to regenerate the confirmation statistics.

The **Quantity Coefficient Generator** *calculates and displays the confirmations.*

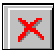
5. Review the **Confirmation Statistics** section. Refer to *Reviewing the Confirmations* on page 4-13 for more information.

6. Continue entering field confirmations, as necessary, until all available confirmations are entered in the confirmation table.

Deleting a Confirmation

Remove a confirmation from the **Quantity Coefficient Generator** table using the **Delete** option.

1. With the mouse cursor, select the confirmation from the table you want to remove.



Delete button

2. Select the **Edit > Delete** option or the **Delete** toolbar button to delete the selected confirmation.

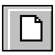
Reviewing the Confirmations

After entering the field confirmations to the **Quantity Coefficient Generator**, review the confirmations. Determine which confirmations should be included or ignored in the final coefficient calculation by reviewing any questionable confirmations on the confirmation table or in a hydrograph, scattergraph, or tabular view.

Performing a complete review of the confirmations involves the following activities:

- Specifying the time span of confirmations to include in the hydrograph or scattergraph
- Displaying the pipe height and silt depth on the selected graph
- Reviewing the confirmations and coefficients in the table
- Reviewing the confirmations on a hydrograph
- Reviewing the confirmations on a scattergraph

Specifying the Time Span



New button

Use the **Date Selection** tab to specify the beginning and ending dates for the time period of confirmations you want to review in a hydrograph or scattergraph. Select the **File** > **New** option or the **New** toolbar button to access the **Date Selection** tab. Select a **Fixed Time Span** or enter a **User-Defined Time Span**.

Displaying Pipe Height and Silt Depth on a Graph

Display the pipe height and silt depth for the current monitoring point on the scattergraph or hydrograph by selecting the **View** > **Plot Pipe Height** and/or the **View** > **Plot Silt** options. The pipe height will display as a dashed gray line and the silt depth will display as a dashed yellow line on the selected graph (as identified by the graph legend).

Reviewing the Confirmations in the Table

Review the confirmations in the **Quantity Coefficient Generator** table for consistency. For example, verify that the velocity values for each confirmation are roughly consistent for all similar depth values. Determine if any of the field confirmations were taken in non-free flow conditions. If they were, they should be ignored. Only confirmations taken during free-flow conditions should be included in the calculation of the hydraulic coefficient and roughness and slope.

Marking a Confirmation as Ignored

Ignore a confirmation from the coefficient calculations in the following way:

1. Enter an **I** into the **Use** column of the confirmation you want to ignore.

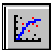
Recalculate button

2. Select the **Recalculate** toolbar button to recalculate and display the new confirmation statistics.

Reviewing the Confirmations on a Scattergraph

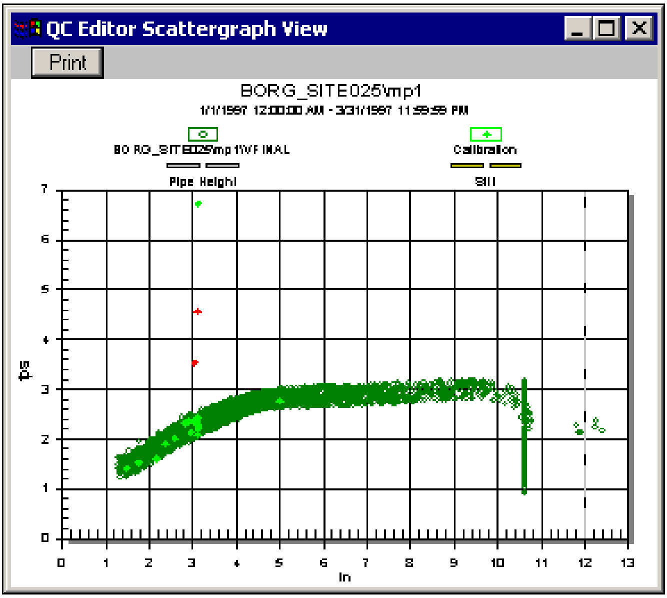
Compare the field confirmations in the **Quantity Coefficient Generator** table to actual flow monitor data for the selected monitoring point using an on-screen scattergraph view.

> **Note:** You must perform a preliminary data collect from your monitor prior to reviewing confirmations on hydrographs or scattergraphs.



Scattergraph button

Select the **Scattergraph** toolbar button from the **Quantity Coefficient Generator** main screen to display depth data on the X axis versus velocity data on the Y axis. The data time span is specified on the **Date Selection** tab and should be updated to include the confirmations you want to review.



Reviewing confirmations on a scattergraph

Confirmations display on the scattergraph as diamonds representing manual depth versus manual velocity confirmations. *Green* symbols indicate good confirmations included in the coefficient calculation; *red* symbols indicate ignored confirmations.

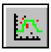
Marking a Scattergraph Confirmation as Ignored

Review the scattergraph confirmations, and mark any invalid confirmations as ignored. Position the mouse cursor over the confirmation (a hand symbol displays) and click the mouse button. The confirmation symbol turns from green (included) to red (ignored), and the confirmation statistics will regenerate and display the new coefficient values.

Reviewing the Confirmations on a Hydrograph

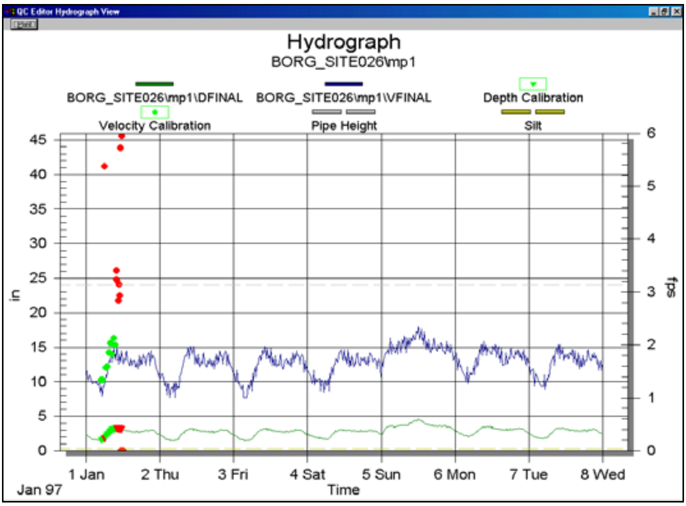
Compare the field confirmations in the **Quantity Coefficient Generator** table to actual flow monitor data using an on-screen hydrograph.

> **Note:** You must perform a preliminary data collect from your monitor prior to reviewing confirmations on a hydrograph or scattergraph plot.



Hydrograph button

Select the **Hydrograph** toolbar button from the **Quantity Coefficient Generator** main screen to display depth and velocity flow data. The data time span is specified on the **Date Selection** tab (accessed by selecting the **New** toolbar button) and should be updated to include the confirmations you want to review.



Reviewing confirmations on a hydrograph

The confirmations entered to the table display on the hydrograph as symbols: *diamonds* represent depth confirmations and *circles* represent velocity confirmations. *Green* symbols indicate confirmations included in the coefficient calculation, and *red* symbols indicate an ignored confirmation.

Marking a Hydrograph Confirmation as Ignored

Review the confirmations on the hydrograph and ignore any confirmation that may be invalid. Mark a confirmation as ignored by positioning the mouse cursor over the confirmation (a hand symbol displays) and clicking the mouse button. The confirmation symbol will turn from green (included confirmation) to red (ignored confirmation), and the confirmation statistics will regenerate and display the new coefficient values.

Generating Average Coefficients

After entering and reviewing the field confirmations, choose which coefficient variables you want to generate: the hydraulic coefficient or the roughness and slope coefficients. Base your decision on which flow quantities you want to generate: Manning or Colebrook-White. Generate an *HC* for Manning quantities, and generate *roughness* and *slope* coefficients for Colebrook-White quantities.

Generating the Hydraulic Coefficient

When you want to generate Manning quantities, use the **Quantity Coefficient Generator** to develop an **Average HC** from all of the selected field confirmations. An **HC** automatically generates for each individual field confirmation after the confirmation information is entered into the **Quantity Coefficient Generator** table.

Perform the following steps to generate and review an **Average HC**:

1. Enter all field confirmations.
2. Review the **Confirmation Statistics** section of the screen to determine how accurately the **Average HC** value quantifies flow.
3. Specify which confirmations are included in the **Average HC** calculation. Place an **I** in the **Use** field of any confirmation you want to ignore from the **Average HC** calculation. Ignore any field confirmations taken during non free-flow conditions or when the manual measurement may have been in error.

If you are still dissatisfied with the **Average HC**, you can generate a **Bestfit HC**. Refer to *Generating Bestfit Coefficients* on page 4-21 for more information.

Generating Roughness and Slope

When you want to generate Colebrook-White quantities, use the **Quantity Coefficient Generator** to develop roughness and slope values from all of the selected confirmations. You must know at least one of the variables, roughness or slope, to solve for the other unknown variable.

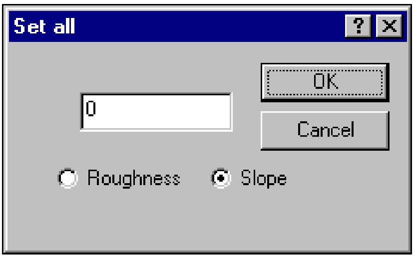
Slope is typically a fixed value and can be measured or obtained from engineering drawings. Roughness values typically can be determined from published sources containing descriptions and pictures of pipes with different roughness values. If you can determine either of these values, you can solve for the other using the following procedures:

Solving for an Unknown Roughness

Set button

If you know the pipe slope, the **Quantity Coefficient Generator** can solve for the unknown roughness. Perform the following steps to solve for an unknown roughness:

1. Select the **Set** toolbar button to display the **Set All** dialog.



Set all dialog

2. Select the **Slope** radio button.
3. Enter the known slope value to the dialog.
4. Select **OK** to exit the dialog.

The **Quantity Coefficient Generator** *calculates roughness values for each of the confirmations.*

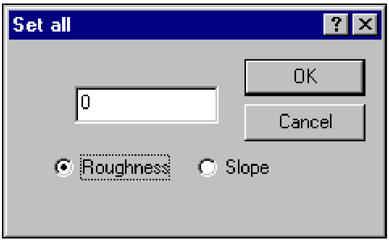
After solving for the roughness coefficient, review the **Average Roughness** value in the **Confirmation Statistics** section of the **Quantity Coefficient Generator**. If you are satisfied with the results, **Store** the new coefficient. If you are not satisfied with the results, you can generate **Bestfit Roughness** and **Bestfit Slope** values. Refer to *Generating Bestfit Coefficients* on page 4-21, for more information.

Solving for an Unknown Slope

If you know the pipe roughness, the **Quantity Coefficient Generator** can solve for the unknown slope. Perform the following steps to solve for an unknown slope:

Set Button

1. Select the **Set** toolbar button to display the **Set All** dialog.



Set all dialog

2. Select the **Roughness** radio button.

3. Enter the known roughness value to the dialog.

4. Select **OK** to exit the dialog.

The **Quantity Coefficient Generator** *calculates slope values for each of the confirmations.*

After solving for the slope coefficient, review the **Average Slope** value in the **Confirmation Statistics** section of the **Quantity Coefficient Generator**. If you are satisfied with the results, **Store** the new coefficient. If you are not satisfied with the results, you can generate **Bestfit Roughness** and **Bestfit Slope** values. Refer to *Generating Bestfit Coefficients* on page 4-21, for more information.

Generating Bestfit Coefficients

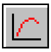
When the average coefficient values (**HC**, **Roughness,** or **Slope**) do not accurately reflect the true coefficients for the monitoring point, you can generate a bestfit coefficient which minimizes the mathematical error through the span of the coefficients.

> **Note:** You must have at least five field confirmations at varying depths to use this option.

Performing the following steps ensures the successful generation of a **Bestfit HC** or **Bestfit Roughness and Slope** coefficients:

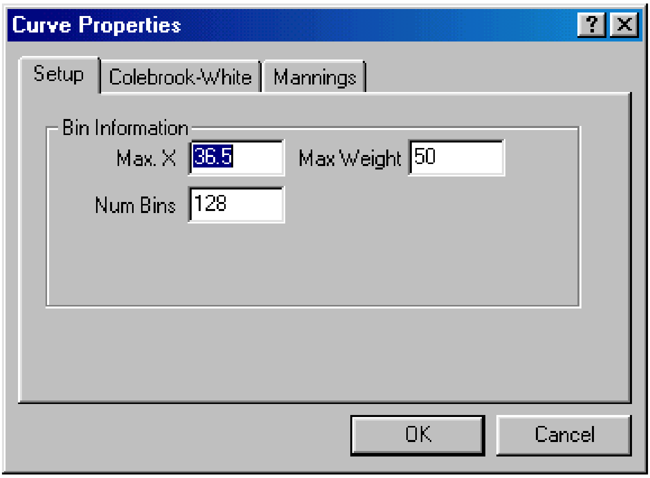
- Selecting the bestfit parameters
- Generating a **Bestfit HC**
- Generating a **Bestfit Roughness** and **Slope**

Selecting the Bestfit Parameters



Curve Properties button

Select the **Curve Properties** toolbar button to access the **Setup** tab. Verify and update any fields on the **Setup** tab that may require new information prior to generating **Bestfit** coefficients.



Curve Properties dialog, **Setup** tab

1. In the **Max X** field, use the default value of the pipe height or adjust this value to use only the scattergraph points below the **Max X** value to generate a curve.

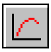
2. In the **Num Bins** field, use the default value or enter the number of vertical bins (points) you want to use to generate the curve.

3. In the **Max Weight** field, use the default value or enter another weighting value to use for all bins when generating the curve.

Note: The weight of each bin is equal to the number of points in the bin up to Max Weight.

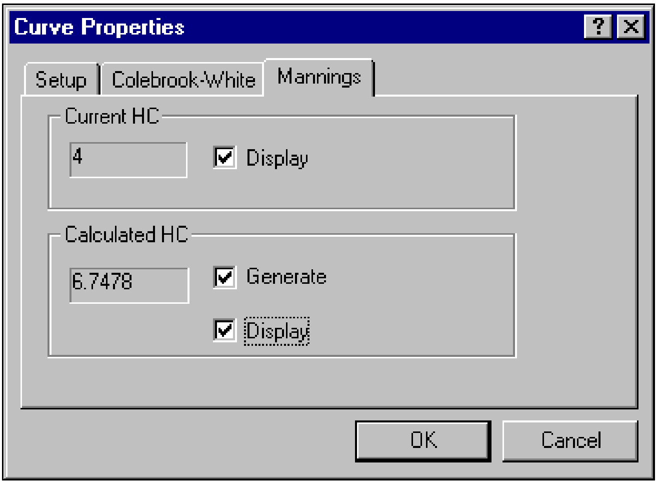
4. Generate a Bestfit HC or a Bestfit Roughness and Slope. Refer to *Generating a Bestfit HC* on page 4-23 or *Quantity Coefficient Generator* on page 4-24 for more information.

Generating a Bestfit HC



Curve Properties button

A **Bestfit HC** is based on the confirmations that best fit a curve to produce the overall lowest error through the span of the hydraulic coefficients. Select the **Curve Properties** toolbar button to access the **Manning's** tab (after establishing the parameters on the **Setup** tab) to generate a **Bestfit HC** for the current confirmation data.



Curve Properties dialog, **Mannings** tab

1. Select the **Display** checkbox in the **Current** section of the screen to display the Manning's curve based on the most current HC stored in the database (for the selected monitoring point) for the Y axis data entity.

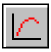
2. Select the **Generate** checkbox in the **Calculated** section of the screen to generate a Manning's curve based on a calculated hydraulic coefficient. Use the **Display** checkbox to draw the curve on the scattergraph.

3. Select **OK**.

4. Review the **Bestfit HC** from the **Confirmation Statistics** section.

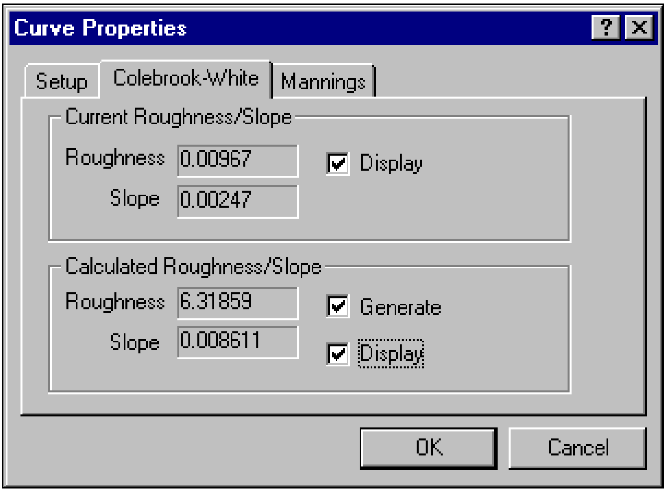
5. Save the **Bestfit HC** using the **Store** button. Refer to *Storing the Coefficients* on page 4-26, for more information on how to save the **Bestfit HC** to the database.

Generating a Bestfit Roughness and Slope



Curve Properties button

Select the **Colebrook-White** tab, accessed by selecting the **Curve Properties** toolbar button (after establishing the parameters on the **Setup** tab), to generate a curve for the current confirmation data based on the Colebrook-White equation.



Curve Properties dialog, **Colebrook-White** tab

1. Select the **Display** checkbox in the **Current** section of the tab to display the Colebrook-White curve (under the **Current Scattergraph** section) based on the most current database **Roughness** and **Slope** values.

2. Select the **Generate** checkbox in the **Calculated** section of the screen to generate a Colebrook-White curve based on the calculated **Roughness** and **Slope** factors for the current scattergraph data.

3. Select **OK**.
4. Review the **Bestfit Roughness** and **Bestfit Slope** from the **Confirmation Statistics** section.
5. Save the **Bestfit Roughness** and **Bestfit Slope** using the **Store** button. Refer to *Storing the Coefficients* on page 4-26, for more information on saving these coefficients to the database.

Storing the Coefficients

After generating and reviewing the hydraulic coefficients, save them to the database. Store the calculated statistics using the **Store** toolbar button or store manually defined **HC**, **Roughness and Slope**, **Silt**, and **Offset and Gain** values using the **Edit** options.

Refer to the following for information on storing coefficients to the database:

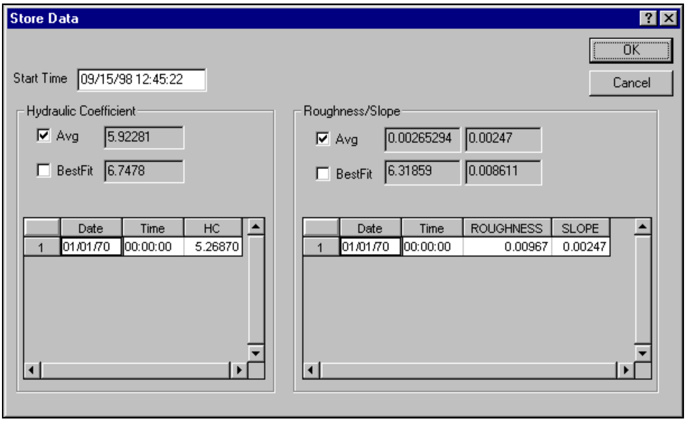
- Storing calculated coefficients
- Storing manually entered coefficients

Storing Calculated Coefficients

Store the generated **HC**, **Roughness**, and **Slope** coefficients to the database using the **Store** toolbar button. Use this option after generating satisfactory **HC**, **Roughness**, and **Slope** values.

Store button

1. Select the **Store** toolbar button to display the **Store Data** dialog. The **Store Data** dialog will display the calculated average and bestfit (if generated) coefficients.



Store Data dialog

2. Enter the date and time of the first data point to which you want to begin applying the coefficient values in the **Start Time** field.

3. Select the **Avg** or **Bestfit** radio button from the **Hydraulic Coefficient** section to indicate which hydraulic coefficient you want to save.

4. Select the **Avg** or **Bestfit** radio button from the **Roughness/Slope** section to indicate which **Roughness** and **Slope** values you want to save.

5. Select the **OK** button to save the coefficients to the database. **Profile** automatically regenerates all dependent data.

Storing Manually Entered Coefficients

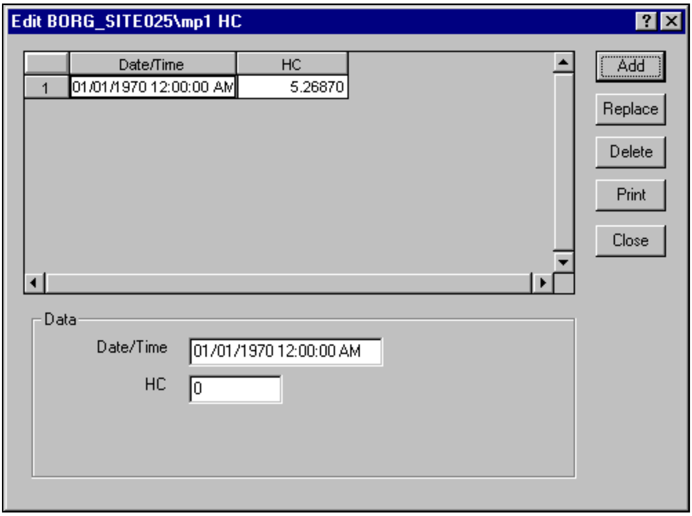
Select a specific **Edit** command to manually enter **HC**, **Roughness/Slope**, **Silt**, or **Offset and Gain** values to the database. A dialog will display to allow you to enter and store the coefficient(s). You also can use the **Edit** command to replace, delete, or print coefficient entries.

Warning: Changing (adding, replacing, or deleting) a coefficient will cause all applicable dependent data to regenerate.

Storing a Manual Entry Coefficient to the Database

1. Select the **Edit** command and then the appropriate option: **HC**, **Roughness/Slope**, **Silt**, or **Offset/Gain**.

The **Edit** *dialog for the selected coefficient will display.*



Edit > HC dialog

2. Enter the date and time in the **Data** section at which you would like **Profile** to begin generating data based on the new coefficient. The **Date/Time** value represents the first data point to which you want to apply the new coefficient.

3. Enter the new coefficient value you want to apply in the database into the **Data** section.

4. Select **Add** to add the new coefficient to the database.

5. Select **Close** exit the dialog.

Replacing a Coefficient in the Database

1. Select the **Edit** command and then the appropriate option: **HC**, **Roughness/Slope**, **Silt**, or **Offset/Gain**.

The **Edit** *dialog for the selected coefficient will display.*

2. Select the row with the coefficient you would like to replace in the database.
3. Enter the new value you would like to apply following the given date in the **Data** section.
4. Select the **Replace** button.

Profile *runs dependencies based on the new coefficient.*

5. Select **Close** to exit the dialog.

Deleting a Coefficient from the Database

1. Select the **Edit** command and then the appropriate option: **HC**, **Roughness/Slope**, **Silt**, or **Offset/Gain**.

The **Edit** *dialog for the selected coefficient will display.*

2. Select the row containing the coefficient you want to delete from the table.
3. Select the **Delete** button.

The coefficient is deleted from the table.

4. Select **Close** to exit the dialog.

Printing a Coefficient Table

1. Select the **Edit** command and then the appropriate option: **HC**, **Roughness/Slope**, **Silt**, or **Offset/Gain**.

The **Edit** *dialog for the selected coefficient will display.*

2. Select the **Print** button to print the current coefficient table to the ***Windows***-configured printer.
3. Select **Close** to exit the dialog.

Printing Confirmation Reports

The **Quantity Coefficient Generator** allows you to produce a variety of confirmation reports, both on-screen and printed. It also includes a special feature for printing multiple reports at the same time. The following confirmation report formats are available:

- **Confirmation Tables** Print a copy of the confirmation table for a permanent record.
- **Scattergraph Reports** Generate both on-screen and printed scattergraph reports of monitor depth data compared to the calculated coefficients.
- **Tabular Reports** Generate on-screen and printed copies of reports that display manual field measurements compared to monitor-generated data.

Printing the Confirmation Table

Print button

Select the **File > Print** option or the **Print** toolbar button to print a copy of the confirmation table and statistics information (**Standard** report).

Generating Scattergraph Confirmation Reports

Scattergraph confirmation reports compare depth data (X-axis entity) to the HC, roughness, or slope (Y-axis entity). Generate on-screen scattergraph confirmation reports and then print them to keep as permanent records of the confirmation information.

> **Note:** Green points on the scattergraph indicate *included* confirmations. Red points indicate *ignored* confirmations.

1. Select the **Reports > Graphical** option to access the graphical confirmation report types.
2. Select a scattergraph report type to generate:
   - ❑ **Depth vs. HC** This scattergraph report compares actual monitor depth data on the X axis to the calculated HC on the Y axis.
   - ❑ **Depth vs. Roughness** This scattergraph report compares actual monitor depth data on the X axis to the calculated roughness on the Y axis.
   - ❑ **Depth vs. Slope** This scattergraph report compares actual monitor depth data on the X axis to the calculated slope on the Y axis.

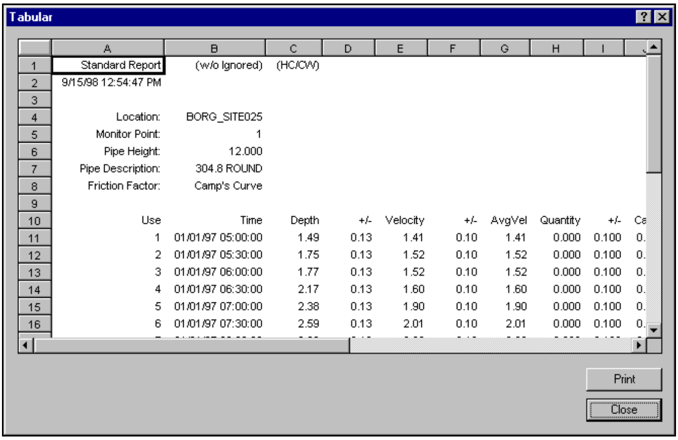
Note: Anytime a graph displays on the screen, access a graphical customization menu by positioning the mouse cursor over the graph and right-clicking the mouse button.

3. Select the **Print** button to generate a hard copy.

Generating Tabular Confirmation Reports

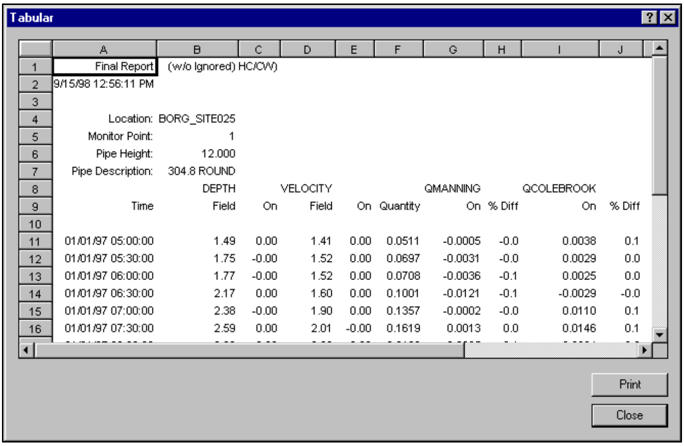
Tabular reports compare a variety of monitor statistics to the manual field confirmations. Generate on-screen tabular confirmation reports and then print them to keep as permanent records of the confirmation information.

1. Select **Reports > Tabular** to access the tabular confirmation reports to compare actual monitor flow data to manual field confirmations. Select from the following report types:
   - ❑ **Standard** Select this report to generate a tabular report which includes all field confirmations used in the coefficient calculations (those entries not ignored) and the resulting coefficients.



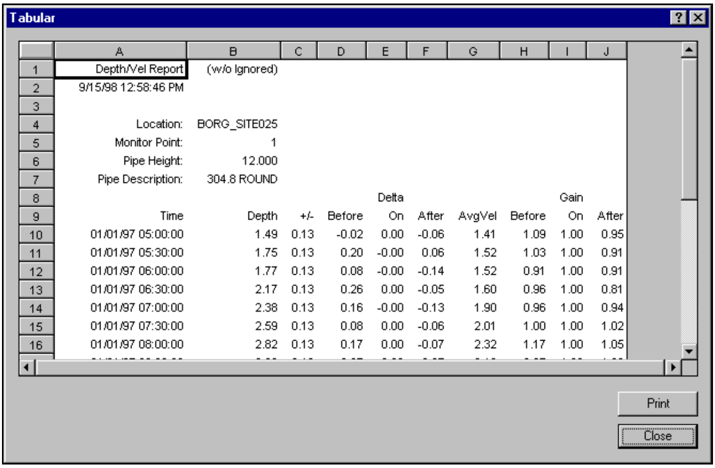
Standard tabular report

- **Final** Select this to generate a tabular report which lists the differences between the field-measured depth, velocity, and quantities and the corresponding monitor measurements.



Final tabular report

- **Depth/Velocity** Select this to generate a tabular report which lists the differences between the depths and velocities manually measured in the field and the corresponding monitor depth and velocity measurements on, before, and after the time of the manual confirmation.



	A	B	C	D	E	F	G	H	I	J
1	Depth/Vel Report	(w/o Ignored)								
2	9/15/98 12:58:46 PM									
3										
4	Location:	BORG_SITE025								
5	Monitor Point:	1								
6	Pipe Height:	12.000								
7	Pipe Description:	304.8 ROUND								
8					Delta				Gain	
9	Time	Depth	+/-	Before	On	After	AvgVel	Before	On	After
10	01/01/97 05:00:00	1.49	0.13	-0.02	0.00	-0.06	1.41	1.09	1.00	0.95
11	01/01/97 05:30:00	1.75	0.13	0.20	-0.00	0.06	1.52	1.03	1.00	0.91
12	01/01/97 06:00:00	1.77	0.13	0.08	-0.00	-0.14	1.52	0.91	1.00	0.91
13	01/01/97 06:30:00	2.17	0.13	0.26	0.00	-0.05	1.60	0.96	1.00	0.81
14	01/01/97 07:00:00	2.38	0.13	0.16	-0.00	-0.13	1.90	0.96	1.00	0.94
15	01/01/97 07:30:00	2.59	0.13	0.08	0.00	-0.06	2.01	1.00	1.00	1.02
16	01/01/97 08:00:00	2.82	0.13	0.17	0.00	-0.07	2.32	1.17	1.00	1.05

Depth/Velocity tabular report

2. After the tabular report displays on the screen, select the **Print** button to generate a hardcopy.

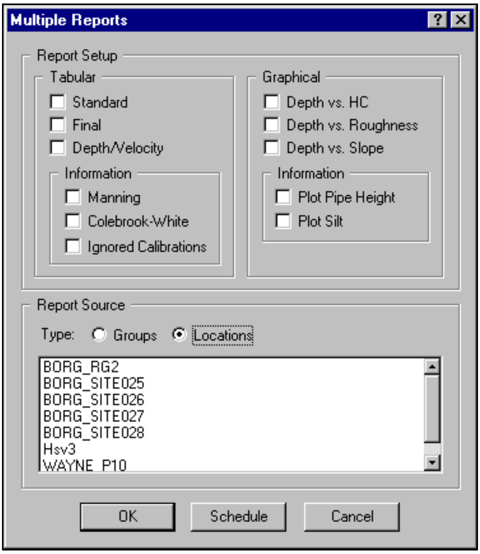
Printing Multiple Confirmation Reports

This special feature enables the user to print tabular and graphical confirmation reports for multiple groups or locations consecutively. Print multiple reports in the following way:

Multiple Reports button

1. Select **Reports > Multiple** or the **Multiple Reports** toolbar button.

The **Multiple Reports** *dialog displays.*



Multiple Reports dialog

2. Select the **Group** or **Location** radio button in the **Report Source** section to display the groups or monitor locations available in the **Profile** database.

3. Select the groups or monitor locations from the list box for which you desire to print reports.

4. Select the checkboxes for the types of **Tabular** reports you want to print for the selected groups or monitor locations, and select the checkboxes for any additional **Information** (**Manning**, **Colebrook-White**, and **Ignored Confirmations**) you want to include on those reports.

5. Select the checkboxes for the types of **Graphical** reports you want to print for the selected groups or monitor locations, and select the checkboxes for any additional **Information** (**Plot Pipe Height** or **Plot Silt**) you want to include on those reports.

6. Choose from one of the following options:

   - ❑ Select the **OK** button to print the reports selected in the **Multiple Reports** dialog.

- ❑ Select the **Schedule** button to schedule the reports selected in the **Multiple Reports** dialog to print at a later time or at a user-defined interval.

The **Save As** *dialog displays.*

7. Complete the **Save As** dialog to save the template to the desired database, group, monitor location, or monitoring point.

The **Schedule Task** *dialog displays.*

8. Select **New** on the **Schedule** tab, complete the appropriate fields, and select **Apply** to schedule the reports to print. Then, complete the **Settings** tab to set the task management options and select **OK**.

Profile *prints the reports at the scheduled time or on the desired interval.*

Exiting the Quantity Coefficient Generator

Select the **File > Exit** option to close and exit the **Quantity Coefficient Generator**.

CHAPTER 5

Communications

To learn about:	See page:

What is the Communications Tool?

The **Communications Tool** is a **Profile** tool that enables you to activate, set the time of, and collect data from ADS flow monitors as a group or individually. You can perform these activities on-demand or use the **Task Scheduler** to delay the activities until a later, more convenient time. The data collection capability also enables you to collect all or only a portion of the monitor data at one time.

Monitor activation involves generating the activation data and downloading the data, which includes the BASIC code for most ADS monitor series, to the monitor memory. The activation data includes the relevant portions of the LIF necessary to ensure monitoring activities reflect the specific configuration parameters entered by the user.

When to Use the Communications Tool

Use the **Communications tool** to perform group activities, including monitor activation, data collection, or monitor time setting. Collecting data from a group of monitors may occur during the *Data Retrieval* phase of the weekly routine. For more information on the weekly routine, refer to *Chapter 1, Introduction*. Setting the monitor time for a group of monitors would be appropriate during *Day Light Savings* for regions observing the semi-annual time change process.

> **Note:** For activating monitors individually at project startup or during typical site maintenance activities, ADS recommends using the **Diagnostics** tool in **Profile**. Refer to *Chapter 6, Diagnostics*, for more information.

How to Use the Communications Tool

Use the **Communications** tool to accomplish the following activities:

- Set up for initial communication
- Review communication parameters
- Activate monitors
- Set monitor time
- Collect monitor data

Setting Up for Initial Communication

Performing the following initial configuration steps helps ensure successful communication with ADS monitors. Complete the following activities through **Profile** prior to communicating with monitors for the first time:

- Select the computer's modem
- Select the computer's serial port

Select the Computer's Modem

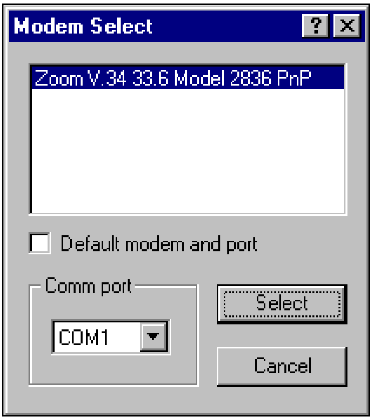
Select the parameters necessary to successfully perform modem communication in the following way:

Comm. button

1. Access the **Communications** tool from the **Profile** main screen by selecting a group or monitor location and then selecting the **Communications** toolbar button.

Modem Select button

2. Choose the **Modem Select** toolbar button to display the **Modem Select** dialog.



Modem Select dialog

3. Select your computer's modem from the list.
4. Select your computer's modem communication port from the **Comm port** drop-down list.
5. (*optional*) Select the **Default modem and port** checkbox to designate the selected modem and serial port as the defaults for all modem communications.
6. Choose the **Select** button to close the dialog and save the changes.

Select the Computer's Serial Port

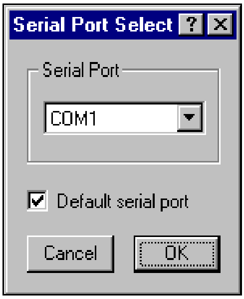
Select the proper serial port for connecting directly to monitors on site in the following way:

Comm. button

1. Access the **Communications** tool from the **Profile** main screen by selecting a group or monitor location and then selecting the **Communications** toolbar button.

Serial Port Select button

2. Choose the **Serial Port Select** toolbar button to display the **Serial Port Select** dialog.



Serial Port Select dialog

3. Select your computer's serial port from the **Serial Port** drop-down list.
4. (*optional*) Select the **Default serial port** checkbox to designate the selected serial port as the default port for all serial communication.
5. Choose the **OK** button to close the dialog and save the changes.

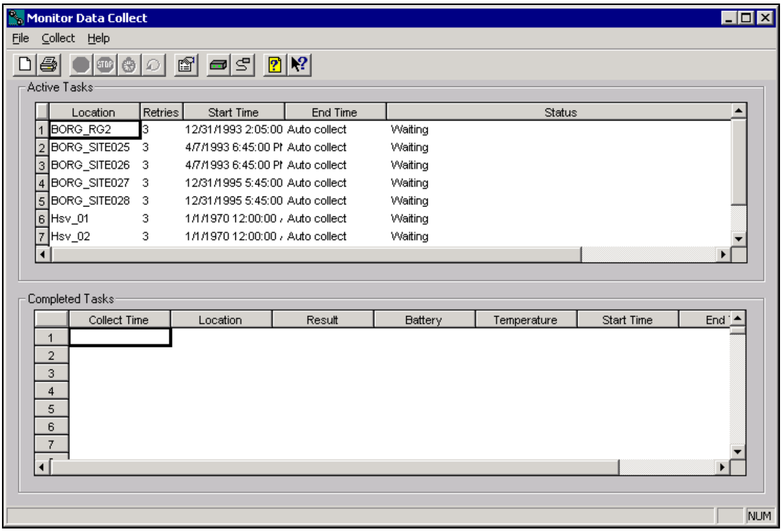
Reviewing the Communication Parameters

The **Communications** tool allows you to modify specific communication parameters, as necessary. These parameters determine the way **Profile** handles communication, temperature, and voltage issues and problems encountered during data collection, monitor activation, and monitor time setting. Perform the following steps when you want to review or the update communication parameters:

> **Note:** Any changes made to the communication parameters through the **Communications** tool will extend to the communications parameters available through **Diagnostics**.

Comm. button

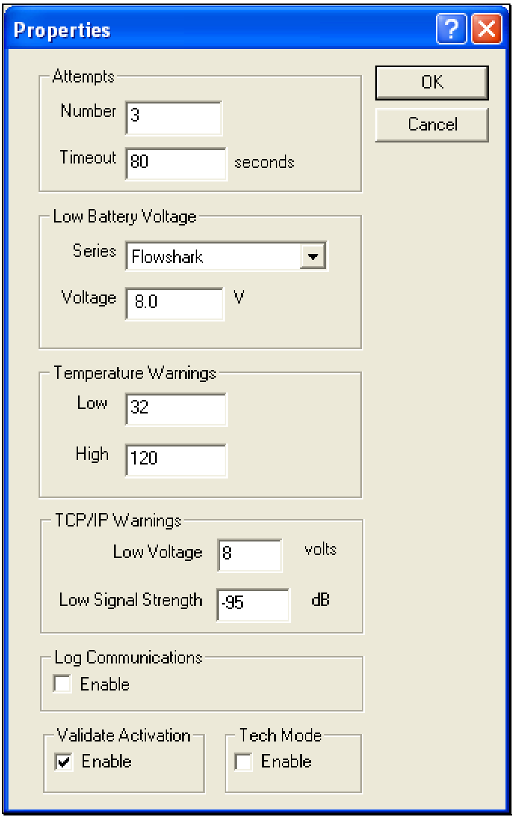
1. Access the **Communications** tool from the **Profile** main screen by selecting the group or monitor location with which you want to communicate and then selecting the **Communications** toolbar button.



Monitor Communications screen

Properties button

2. Select the **Communicate** > **Properties** option or the **Properties** toolbar button to access the **Properties** dialog.



Properties dialog

3. Review and change any of the collect parameters on the **Properties** dialog as necessary.

- ❑ **Attempts** Enter the total number of collect attempts you want the computer to try into the **Number** field. Enter the amount of time you want to delay between retries in the **Timeout** field.

- ❑ **Low Battery Voltage** Select the monitor series for which you want to designate the minimum voltage prior to initiating notification in the **Series** field. Enter the voltage below which you want **Profile** to provide notification for the selected monitor series in the **Voltage** field. *ADS recommends leaving the default voltage unchanged.*

- ❑ **Temperature Warnings** Enter the temperature readings from the monitor below and above which you want **Profile** to provide notification in the **Low** and **High** fields.
- ❑ **TCP/IP Warnings** Enter the voltage of the wireless communication modem below which you want **Profile** to provide notification in the **Low Voltage** field. Enter the dBm (decibels above 1 milliwatt) below which you want **Profile** to provide notification of low signal strength for the wireless communication modem in the **Low Signal Strength** field. *ADS recommends leaving the default voltage and signal strength unchanged.*
- ❑ **Log Communications** Select the **Enable** checkbox to log communication activities with the monitor. Access the log file through the *Log* folder in your **Profile** directory.
- ❑ **Validate Activation** Select the **Enable** checkbox to ensure the monitor returns a message confirming and validating the BASIC code in the monitor during activation.
- ❑ **Tech Mode** Select the **Enable** checkbox to use this data collect and monitor activate mode. This mode is quicker than the standard mode: no sensor information or monitor status are retrieved.

4. Select **OK** to close and exit the dialog.

Activating a Monitor

After *completing the configuration parameters* and *setting up the communication parameters*, you can activate the monitor or a group of monitors. Monitor activation involves generating the activation data, downloading this data to the monitor, and initiating flow data measurement and logging. The activation data includes the current LIF (Location Information File) and other configuration parameters necessary to ensure monitoring activities reflect the specific site conditions and project requirements. Following monitor activation, you can upload the LIF from the monitor at any time using the ADS **Q*start***™ software.

Perform the following steps in the **Communications** tool to activate a monitor or group of monitors:

> **Warning:** Do not attempt to reactivate a FlowShark monitor using the **Communications** tool if you are adding any devices to or removing any devices from the configuration. Reactivating the monitor after making changes to the devices selected will render all data stored in the monitor memory inaccessible. ADS recommends using the **Diagnostics** tool to reactivate monitors receiving a new configuration including a modified device selection. *Reactivate a monitor using the* ***Communications*** *tool only when the device selection remains unchanged.*

Comm. button

1. Access the **Communications** tool from the **Profile** main screen by selecting the group or monitor location with which you want to communicate and then selecting the **Communications** toolbar button.

Activate button

2. Select the **Activate** button from the **Communications** toolbar.

Go button

Schedule button

3. Either choose the **Go** toolbar button to initiate activation for the selected locations, or choose the **Schedule** toolbar button to delay activation for a later, more convenient time.

Profile *schedules activation for or activates the selected location(s).*

> **Warning:** If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate scheduled activations. Therefore, *do not* log off from the network when activations are scheduled to occur.

> **Note:** Logs indicating the success or failure of all monitor communication activities are accessible through **Log Viewer** and the **Diagnostics** tool.

Setting the Monitor Time

The **Communications** tool enables you to set the time for a monitor or a group of monitors directly without going through the entire activation process. This feature is useful for setting the monitor clock to compensate for daylight savings time. Perform the following steps to set the clock in a monitor or group of monitors:

Comm. button

1. Access the **Communications** tool from the **Profile** main screen by selecting the group or monitor location with which you want to communicate and then selecting the **Communications** toolbar button.

Set Time button

2. Select the **Set Time** button from the **Communications** toolbar.

Go button

Schedule button

3. Either choose the **Go** toolbar button to set the time for the selected locations, or choose the **Schedule** toolbar button to delay time setting for a later, more convenient time.

> **Warning:** If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled activity. Therefore, *do not* log off from the network when activities are scheduled to occur.
>
> **Note:** Logs indicating the success or failure of all monitor communication activities are accessible through **Log Viewer** and the **Diagnostics** tool.

Collecting Monitor Data

After *setting up for initial communication* and *reviewing the communication parameters*, you can collect the monitor data. Perform the following steps from the **Communications** tool to successfully collect monitor data:

1. Verify the selected location(s) listed in the **Active Tasks** section. The monitors listed in this section are the monitor locations that will be collected. Change them using the **New** toolbar button, if necessary.

Collect Monitors button

2. Select the **Collect Monitors** button from the **Communications** toolbar.

Go button

Schedule button

3. Either choose the **Go** toolbar button to immediately begin the data collect for the selected locations, or choose the **Schedule** toolbar button to delay the collect activity for a later, more convenient time.

Warning: If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled collect. Therefore, *do not* log off from the network when collects are scheduled to occur.

Note: Logs indicating the success or failure of all monitor communication activities are accessible through **Log Viewer** and the **Diagnostics** tool.

Collecting a Specific Portion of Monitor Data

When you only want to collect a limited time span of monitor data, **Profile** allows you to specify the beginning and ending dates. Use the **Profile** main screen to manually enter the specific starting and ending dates and times.

> **Note:** Previously collected and edited data could potentially be overwritten by using this option.

1. From the **Profile** main screen, select the monitor location from which you want to collect a specific time span of data.

Properties button

2. Select the **Edit > Properties** option or the **Properties** toolbar button to display the **Properties for location** dialog.
3. From the **Autocollect** section, remove the check from the **Autocollect** checkbox, if necessary.
4. From the **Manual Collection** section of the dialog, enter the appropriate **Start Time** and **End Time** corresponding to the time span of data you want to collect.
5. Select **OK** to close and exit the dialog.
6. Perform the steps to *Collecting Monitor Data* to collect the data. After the partial collect is completed, the monitor configuration automatically returns to the **Autocollect** status based on the last data point in the database.

Exiting the Communications Tool

Select the **File > Exit** option to close and exit the **Communications** tool.

CHAPTER 6

Diagnostics

To learn about:	See page:

What is the Diagnostics Tool?

The **Diagnostics** tool allows users to communicate with ADS monitors to perform several critical tasks, such as generating activation data, activating and deactivating monitors, collecting data, uploading monitor parameters, setting the monitor time, and checking the hardware status. It also allows you to set the communication parameters, view historical diagnostic logs, diagnose devices, perform confirmations, and perform offline site data reviews.

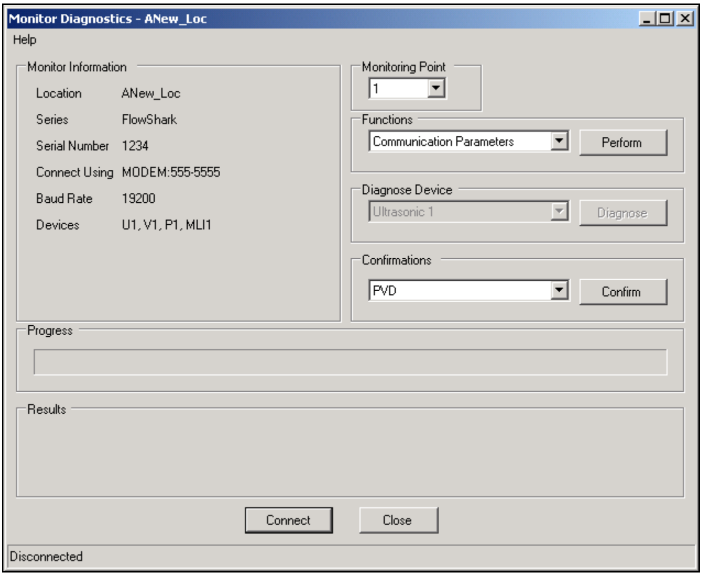
When to Use the Diagnostics Tool

Use the **Diagnostics** tool during the *Monitor Configuration and Activation* phases of the project to activate monitors and perform confirmations and throughout many other phases of the project to conduct system operation and maintenance activities. It is the primary tool for running diagnostic tests on system devices, collecting data in the field, obtaining current system status and sensor readings, and performing many other system-related operations. Refer to Chapter 1, *Introduction*, for more information.

How to Use the Diagnostics Tool

Diagnostics button

Access the **Diagnostics** tool by first selecting a monitor location from the **Profile** main screen and then selecting the **Diagnostics** toolbar button.



Monitor Diagnostics tool

Exercising the Diagnostic Functions

The functions available through the **Diagnostics** tool allow you to perform several activities such as activating/deactivating monitors, setting communication parameters, collecting data, uploading/ downloading essential information, upgrading firmware, viewing logs, and retrieving current system status and readings. While some functions are accessible and functional without communicating with the monitor, others require communication with the monitor to accomplish the specific task.

The following sections identify and instruct you how to access and perform the *offline* and *online* **Diagnostics** functions.

Performing Offline Functions

The **Diagnostics** tool enables you to perform the following functions without establishing communication with the monitor:

> **Note:** The list of functions available for operation in **Diagnostics** will vary based on the selected monitor series.

- Generate activation data
- View activity logs
- View (historical) waveforms
- Set the communication parameters
- Review location data through Site DR
- Enter information offline for PVD, Velocity Profile, or Weir Confirmations

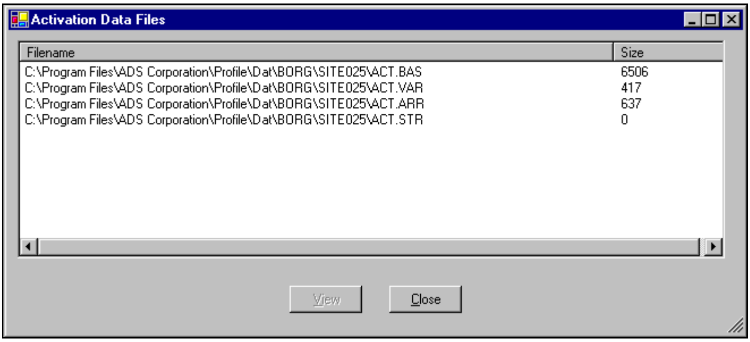
Generating Activation Data

Profile enables you to generate the activation data for the monitor and view the sizes of the files that comprise the data when necessary. Verifying the file sizes before activating the monitor prevents you from downloading code that exceeds the limits of the monitor memory. Generate the activation data in the following way:

> **Note:** This feature is not applicable to all monitors.

1. Select **Generate Activation Data** from the **Functions** drop-down list, and then select **Perform**.

*The **Activation Data Files** dialog displays.*



Activation Data Files dialog

2. Select a file, and then select **View** to display the contents of the file.

Print button

3. (*optional*) Select the **Print** button to print the contents of the file.

Viewing Logs

Profile generates detailed logs for many activities performed through **Diagnostics**, such as monitor activation, data collection, confirmations, sensor firing, and firmware downloading. These logs are available immediately following the activity and for future access to historical information. The following logs are available for viewing using the **Diagnostics** tool:

- **Activate** This log contains information pertaining to a specific monitor activation. It includes the name of the monitor location, the date/time at which activation occurred, monitor status details, and the device parameters for all devices configured for the monitor. *Note: If the **Tech Activate** function was used to perform the monitor activation, no monitor status or current device information will be included in the activate log.*
- **Analog Input** This log contains the date, time, and scaled analog reading recorded while obtaining a current analog device reading in **Diagnostics**.
- **Confirmation** This log contains the date, time, location field measurements, monitor measurements, and differences between these measurements for the selected confirmation.
- **Checklist** This log includes the date, time, and location of the confirmation; the specific actions performed during the confirmation; and the conditions observed at the location.
- **Collect** This log contains specific information regarding a particular data collection activity, the monitor location collected, and the range of data collected and available for collection. It includes the date/time range of the collected data, the monitor status, location information, specific entities collected, number of datapoints, data quality, Site DR results (usually found on second page of log), and other collection-related information. Two fields on the collect log, **Data Word 1** and **Diag Word 1** are specific to ADS technicians diagnosing monitors. *Note: If the **Tech Collect** function was used to retrieve monitor data, no monitor status or current device information will be included in the collect log.*
- **Comments** This log contains any comments entered during a specific confirmation visit.
- **Configuration** This log generates anytime the **Upload Configuration** diagnostic function is performed and includes monitor specific information.

- **Deactivate** This log is created anytime the **Deactivate** monitor function is performed. Log details include the name of the monitor location, date and time the deactivation occurred, and the resulting success or failure of the deactivation process.
- **Depth Confirmation** This log contains the information gathered after confirming depth at a specific monitor location. It includes the monitor location name, the field measurements taken, the firings used in the confirmation, and the associated depth sensor readings.
- **Firmware Download** This log is created anytime a monitor firmware upgrade is performed and includes the name of the monitor location receiving the firmware download, date/time at which the download occurred, the firmware update version, and success or failure of the download process.
- **Monitor Status** This log generates each time the **Monitor Status** function is initiated in the **Diagnostics** function and contains details of the current state of the monitor.
- **Power Saving** This log records details each time the **Power Saving** function is used and contains details on the days and times the monitor modem battery power is on or off.
- **Pressure** This log contains the specific information recorded after taking a pressure depth reading during an activity such as a confirmation or device diagnostic procedure. It includes the monitor location name, the date on which the reading was taken, the current pressure depth sensor configuration parameters, and the depth and temperature readings recorded from the sensor.
- **PVD** This log contains specific information concerning a selected peak velocity and depth (PVD) confirmation event. It includes the field measurements, monitor measurements, differences between measurements, checklist results, and any comments entered during the confirmation.
- **Rain** This log provides the details concerning a reading taken involving the rain device. It includes the name of the rain gauge location, the date/time at which the reading occurred, the rain device parameters, and reading obtained.

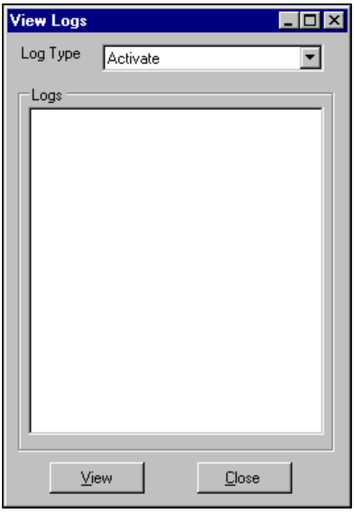
- **Set Time** This log includes the name of the monitor for which the time was set, the date/time at which the time was set, and the success of the action.
- **Smart Bat** This log contains specific information obtained after taking a depth reading during an activity such as a confirmation or device diagnostic procedure. It includes the associated monitor location name, the date/time on which the reading occurred, the current device parameters, and the depth reading.
- **TCP/IP Modem Status** This log contains details recorded after performing the **TCP/IP Modem Status** function in **Diagnostics** including the current battery voltage, firmware version, and signal strength for the TCP/IP modem in a monitor equipped for wireless communication.
- **Ultrasonic/Upward Ultrasonic** This log contains specific information recorded after taking an ultrasonic/upward ultrasonic depth reading during an activity such as a confirmation or device diagnostic procedure. It includes the associated monitor location name, date/time on which the reading occurred, device parameters, temperature readings, and depth readings. The readings include the depth, range, and quality from the individual pairs (when applicable).
- **Velocity** This log contains the specific information recorded after taking a velocity reading during an activity such as a confirmation or device diagnostic procedure. It includes the monitor location name, the date/time on which the reading was taken, the velocity sensor configuration parameters, the sensor reading, and other sensor statistics.
- **Velocity Profile** This log contains specific information gathered when a velocity profile was performed. It includes the monitor location and date/time at which the profile occurred, field measurements, monitor measurements, differences between measurements, velocity profile readings, profile assessment, and any comments entered during the profile.

- **Weir Confirmation** This log contains specific information regarding confirmation activities involving a weir. It includes the monitor location and date/time at which the confirmation occurred, the initial and final field measurements, the weir readings, the monitor measurements, the checklist actions performed during the confirmation, the physical conditions observed at the location, and any corresponding comments entered concerning the confirmation.

View a log in the following way:

1. Select the monitoring point for which you want to view a log from the **Monitoring Point** drop-down list.
2. Select **Logs** from the **Functions** drop-down list.
3. Select the **Perform** button.

*The **View Logs** dialog displays.*



View Logs dialog

4. Select the type of logs you want to view from the **Log Type** drop-down list.

*The **Logs** section displays all logs available for the selected location and log type.*

5. Select the specific log you want to view, and select the **View button**.

*The **View Logs** dialog displays the logs available for viewing corresponding to the selected log type.*

Print button

6. (*optional*) Select the **Print** button to print the log file contents.

Viewing Group Diagnostic Logs

See *Chapter 2* - Profile *Main Screen* for information on viewing diagnostic activity logs for monitor groups.

Reviewing Waveforms

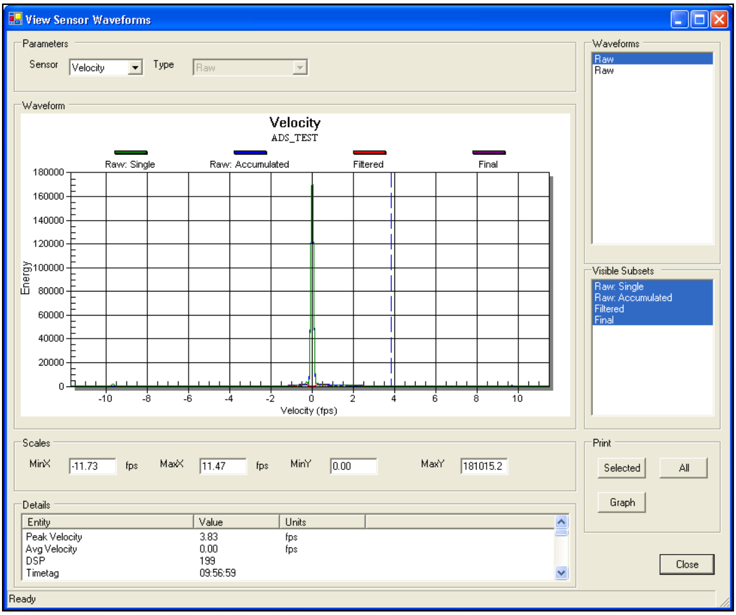
> **Note:** See *View Sensor Waveforms* page 6-42 for more information on capturing waveforms.

Profile enables you to capture ultrasonic and velocity waveforms for some monitor series in order to review the signals returned after firing the sensors. The monitor interprets and converts these signals to produce sensor readings. Review previously captured graphical waveforms using the **Waveform** function.

Review historical ultrasonic and velocity waveforms in the following way:

1. Select **Waveforms** from the **Functions** drop-down list, and then select the **Perform** button.

*The **View Sensor Waveforms** dialog displays. The* **Waveforms** *list box contains all historical ultrasonic and velocity waveforms.*



View Sensor Waveforms dialog

2. Select the appropriate options from the **Parameters** section:

- **Sensor** Select the sensor from which you want to review a historical waveform: **Ultrasonic** or **Velocity**.
- **Pair** (For ultrasonic waveforms) Select the ultrasonic pair for which you want to view the historical waveform.
- **Type** Select the format of the waveform data you want to review.
- **MinX** Use the default or designate your minimum horizontal graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
- **MaxX** Use the default or designate the maximum horizontal graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.

- **MinY** Use the default or designate the minimum vertical graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
- **MaxY** Use the default or designate the maximum vertical graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
- **Details** This section is populated with the waveform details and is used by ADS personnel.
- **Waveforms** Choose a previously generated waveform to review from this list.
- **Visible Subsets** Choose a previously generated waveform subset for the selected waveform during a waveform review.
- **Print** This section contains the waveform print options. Choose **Selected** to print graphs selected from the **Waveforms** list. Choose **All** to print all waveforms from the **Waveforms** list or choose **Graph** to print the current waveform.

3. Repeat steps 3 and 4 for each additional type of waveform you want to review.
4. Select **Close** to exit the **Waveform** function.

Setting the Communication Parameters

Setting the communication parameters involves designating the modem, communication ports, and temperature, battery, and signal thresholds to ensure proper communication, measurement, and maintenance of ADS monitoring equipment. Modify the communication parameters as necessary. Typically, the default settings should not require modification.

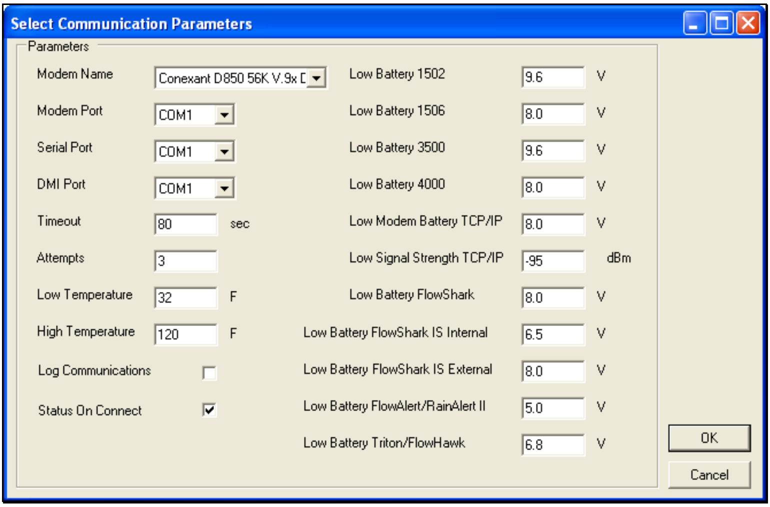
> **Note:** Any changes made to the communication parameters through the **Diagnostics** tool will extend to the communications parameters available through **Communications**. The same is true when modifying the

communication parameters in the **Communications** tool; these changes will occur in the **Diagnostics** tool.

Note: For laptop computers not equipped with serial ports, use a *USB to Serial adapter* for serial communications. For more information, contact your ADS Client Services representative.

1. Select **Communication Parameters** from the **Functions** drop-down list.

*The **Select Communication Parameters** dialog displays.*



Select Communication Parameters dialog

2. Select or enter the communication parameters as necessary:

- ❑ **Modem Name** Select the modem you want to use during modem communication from the drop-down list. This list should include all available modems on your computer.

- ❑ **Modem Port** Select the proper port for modem communication from this drop-down list. This list should include all available ports on your computer.

- **Serial Port** Select the proper port for serial communication from this drop-down list. This list should include all available ports on your computer.
- **DMI Port** Select the proper port for communication using the DMI cable from this drop-down list. This list should include all available ports on your computer.
- **Timeout** Enter the number of seconds you want your local computer to wait for a response from the monitor once communication has been initiated. (Default value is 80.)
- **Retries** Enter the number of times you want your local PC to request data from the monitor following failed attempts while the monitor is still on line. (Default value is 3.)
- **Low Temperature** Enter the temperature reading from the monitor, ultrasonic depth sensor, and pressure depth sensor below which you want **Profile** to provide notification. (Default value is 32° F.)
- **High Temperature** Enter the temperature reading from the monitor, ultrasonic depth sensor, and pressure depth sensor above which you want **Profile** to provide notification. (Default value is 120° F.)
- **Log Communications** Select this checkbox to record all communication activities with the monitor.
- **Status on Connect** Select this checkbox to view details of the current state of the monitor when monitor communications are established. If you do not want to view the monitor status details at connect, do not select this checkbox.
- **Low Battery** Enter the voltage below which you want **Profile** to provide notification for each designated monitor series. *ADS recommends leaving the default battery settings unchanged.*

Note: Notification of low battery voltage or signal strength occurs during the data collection process, during monitor activation, and when receiving TCP/IP communication status.

View the associated logs through the **Diagnostics** tool and **Log Viewer**.

- **Low Modem Battery TCP/IP** Enter the voltage below which you want **Profile** to provide notification for the wireless communication unit. *ADS recommends leaving the default battery setting (8.0) unchanged.*
- **Low Signal Strength TCP/IP** Enter the signal strength (in dBm) below which you want **Profile** to provide notification for the wire communication unit. *ADS recommends using the default -95 dBm for the low signal strength.*
- **Low Battery FlowShark** Enter the voltage below which you want **Profile** to provide notification for FlowShark monitors. *ADS recommends leaving the default battery voltage (8.0) unchanged.*
- **Low Battery FlowShark IS Internal** Enter the voltage below which you want **Profile** to provide notification for FlowShark IS monitors. This is the voltage available to the monitor; either from a battery internal to the monitor or the amount of voltage supplied (and available) by an external source. *ADS recommends leaving the default battery voltage (6.5) unchanged.*
- **Low Battery FlowShark IS External** Enter the voltage (this is the voltage supplied by an external power source that may be powering both radio communications as well as the monitor, or just the radio communications by itself) below which you want **Profile** to provide notification for FlowShark IS monitors. *ADS recommends leaving the default battery voltage (8.0) unchanged.*
- **Low Battery FlowAlert/RainAlert II** Enter the voltage below which you want **Profile** to provide notification for FlowAlert and RainAlert II monitors. *ADS recommends leaving the default battery voltage (5.0) unchanged.*

- **Low Battery Triton/FlowHawk** Enter the voltage below which you want **Profile** to provide notification for Triton and FlowHawk monitors. *ADS recommends leaving the default battery voltage (6.8) unchanged.*

3. Select the **OK** button.

Performing Offline Site DR Analysis

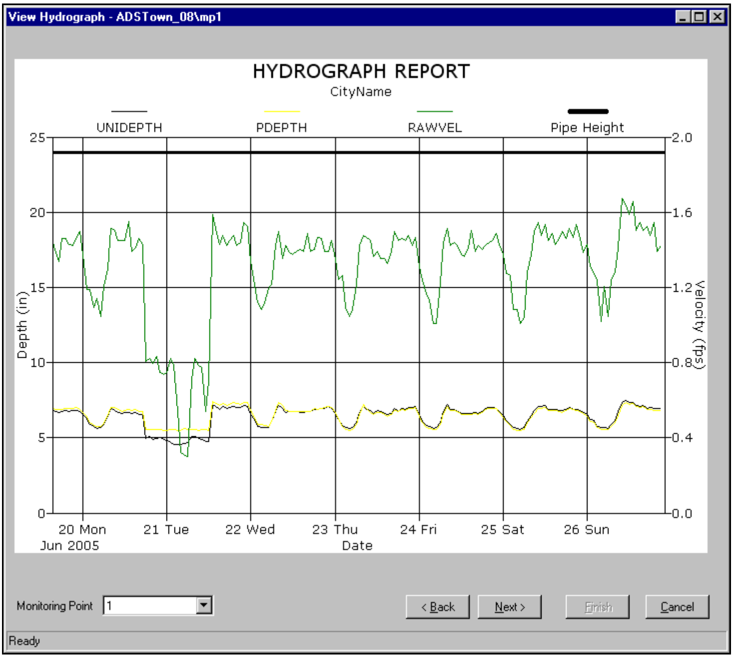
Use the offline Site DR analysis tool to identify potential issues on data that already exists in your Profile database. Select a monitor location and specify a time span of data to allow Site DR to automatically analyze for specific problems. Site DR displays the analysis results and offers recommendations (when necessary) for conducting further review, investigation, or analysis.

1. From the **Profile** main screen, select the monitor location on which you want to perform the Site DR analysis.
2. Select the **Diagnostics** toolbar button to access and display the **Diagnostics** tool.
3. Select **Site DR** from the **Functions** drop-down list and select the **Perform** button.

The **Site DR** *window displays.*

4. Designate the range of data you want Site DR to analyze by editing the **Start** and **End Time** fields in the **Collect Information**. Edit these fields directly by selecting the portion of the date or time stamp you want to change and then entering the appropriate designation or using the arrows to scroll up and down in the range. *If you do not edit the range, the start date and time automatically default to the* ***Auto Collect Start Date*** *in the LIF.*
5. Click on the **Next** button.

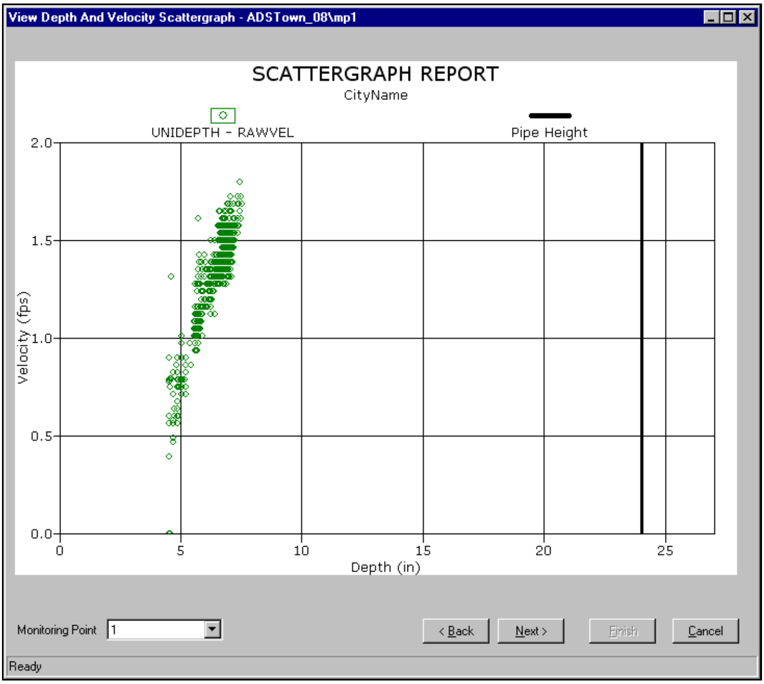
The ***View Hydrograph – [location name]*** *dialog displays the specified data in hydrograph format.*



View Hydrograph – [*location name*] dialog

6. Review the data on the hydrograph, and click the **Next** button. Under optimal conditions, the depth and velocity data should reflect a consistent diurnal pattern.

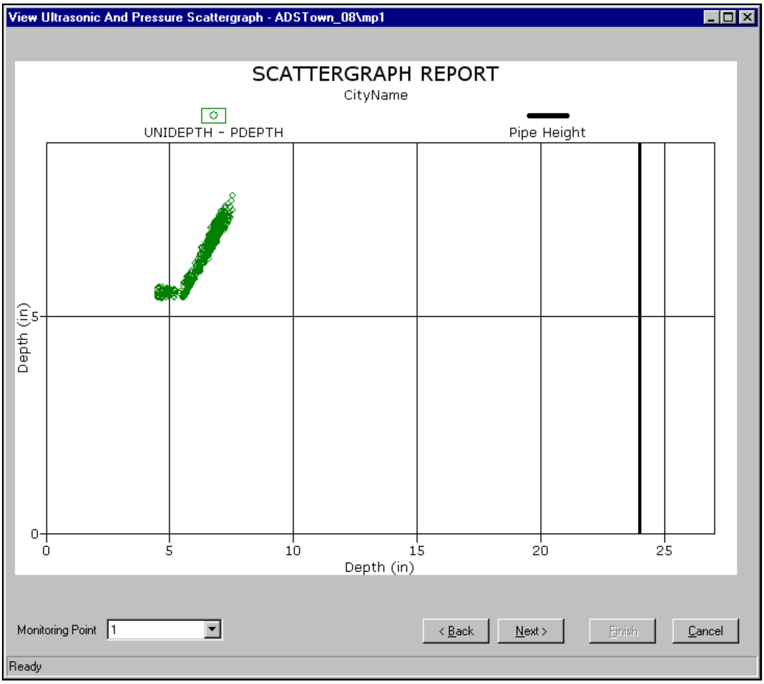
The ***View Depth and Velocity Scattergraph – [location name]*** *dialog displays the specified depth and velocity data in scattergraph format.*



View Depth and Velocity Scattergraph – [*location name*] dialog

7. Review the data on the scattergraph and click the **Next** button. Under optimal conditions, the scattergraph data should reveal velocity increasing with depth.

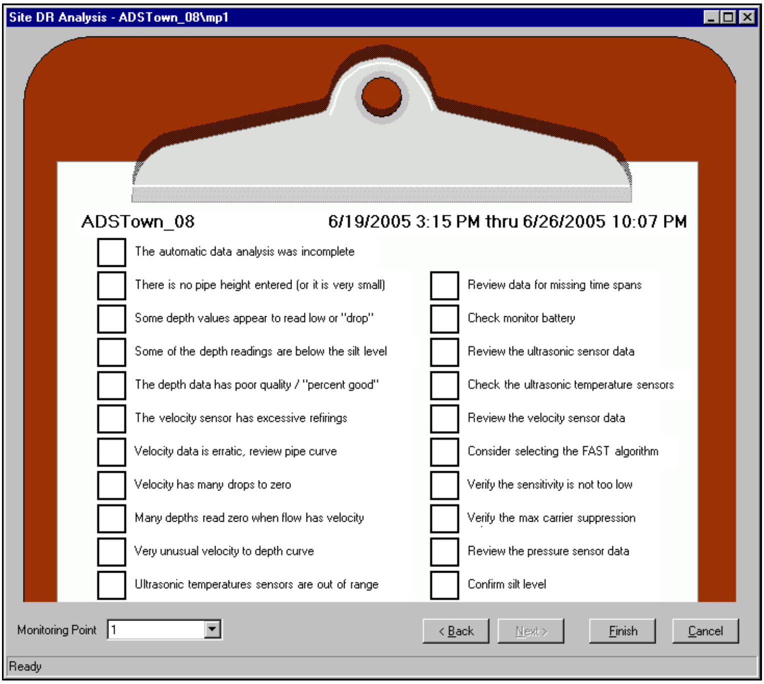
*The **View Ultrasonic and Pressure Scattergraph – [location name]** dialog displays the specified ultrasonic and pressure depth data in scattergraph format.*



View Ultrasonic and Pressure Scattergraph – [*location name*] dialog

8. Review the scattergraph data and click the **Next** button. A properly performing pressure depth sensor should display a one-to-one relationship with the UNIDEPTH data.

*The **Site DR Analysis – [location name]** dialog displays the results of the site data review analysis of the data and any recommendations for resolving identified issues.*



Site DR Analysis – [*location name*] dialog

9. Review any Site DR identified issues and suggested actions and select **Finish**.
10. Select **Close**.

Entering Information Offline for PVD, Velocity Profile, or Weir Confirmation

It is sometimes necessary to record PVD, velocity profile, and weir confirmations without actually establishing a communication link with the monitor. Use this function for example, when an ADS field employee relays confirmation information to you so that you can enter the confirmation information to create a detailed record.

> **Note:** Since no link to the monitor actually occurs, all confirmation information is recorded *except* the monitor reading.

1. From the **Profile** main screen, select the monitor location on which you want to enter the PVD, Velocity Profile, or Weir Confirmation information offline.
2. Select the **Diagnostics** toolbar button to access and display the **Diagnostics** tool.
3. Select the desired offline function from the **Confirmations** drop-down list. Choose from **PVD**, **Velocity Profile**, or **Weir Confirmation** depending on the type of field information being recorded.

For additional details on how to enter the information for each of these, see *Confirming Peak Velocity and Depth* page 6-55, *Confirming the Velocity Profile* page 6-65, or *Confirming Flow Quantity Using a Weir* page 6-74.

Performing Online Functions

The **Diagnostics** tool provides the capability to accomplish the following functions while communicating with a monitor:

> **Note:** The list of functions available for operation in **Diagnostics** varies based on the monitor series and the method of communication supported by the monitor.

- Activate
- Collect Data
- Communication Type
- Current Readings
- Deactivate
- Monitor Status

- Power Saving
- Program Wireless
- Set Time
- Tech Activate (See *Activate)*
- Tech Collect (See *Collect Data*)
- TCP/IP Modem Status
- Update Connection Type (See *Communication Type*)
- Update Firmware
- Update Modem Port
- Upload Arrays
- Upload BASIC code
- Upload Configuration
- Upload String Arrays
- Upload Variable
- Waveforms

Activate (Tech Activate)

Monitor activation involves generating the activation data, downloading this data to the monitor, and initiating flow data measurement and logging. The activation data includes the current LIF (Location Information File) and other configuration parameters necessary to ensure monitoring activities reflect the specific site conditions and project requirements. Following monitor activation, you can upload the LIF from the monitor at any time using the ADS **Q*start***™ software.

Profile includes two **Diagnostics** monitor activation functions: **Activate** or **Tech Activate**. Under normal conditions, users should choose the **Activate** function so that current sensor information is generated and recorded to the activation log. The **Tech Activate**

function can be used to expedite the activation process; however, no sensor information is generated or logged.

Activate a monitor in the following way:

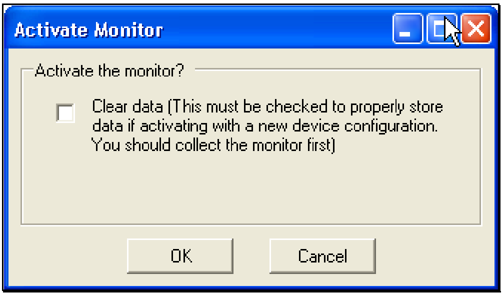
> **Note:** ADS recommends collecting all the data from the monitor before performing an activation.

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select **Activate** (or **Tech Activate)** from the **Functions** drop-down list, and then select the **Perform** button.

*The **Activate Monitor** dialog displays.*



Activate Monitor dialog

3. Following are variations of the **Activate Monitor** window.

   - ❑ **(optional)** Select the **Clear Data** checkbox (not available for all monitor series) to clear the monitor memory of existing data during the activation. For some monitors, if there are differences between the current monitor configuration and the LIF, this option is automatically selected.

- ❑ **(optional)** Select the **Perform download validation** checkbox (not available for all monitors) to ensure the monitor returns a message confirming and validating the BASIC code in the monitor during activation. ADS recommends using this option.

4. Select the **OK** button.

***Profile** activates the monitor, downloading the configuration and installation information, and generates a log.*

Collect Data (Tech Collect)

The data collection functions available through **Diagnostics** provide enhanced features for viewing and analysis. Once the collection process is complete, **Profile** displays the data in both hydrograph and scattergraph formats based on the entities collected. In addition to the scattergraph displaying the depth-to-velocity relationship, it also displays a scattergraph illustrating the correlation between depth entities.

For analysis purposes, the **Diagnostics** tool automatically processes the data using **Site DR** (data review). This feature identifies issues concerning data quality or missing information and offers recommendations (when necessary) for conducting further review, investigation, or analysis.

Two **Diagnostics** data collect functions include **Collect** and **Tech Collect**. Under most conditions, users should choose the **Collect** function. Using this collect function allows active sensor information and current monitor status information to be generated and recorded to the collect log. The **Tech Collect** function can be used to expedite the collect process. If using this function, no sensor information or monitor status information is generated or logged.

Collect data from the monitor in the following way:

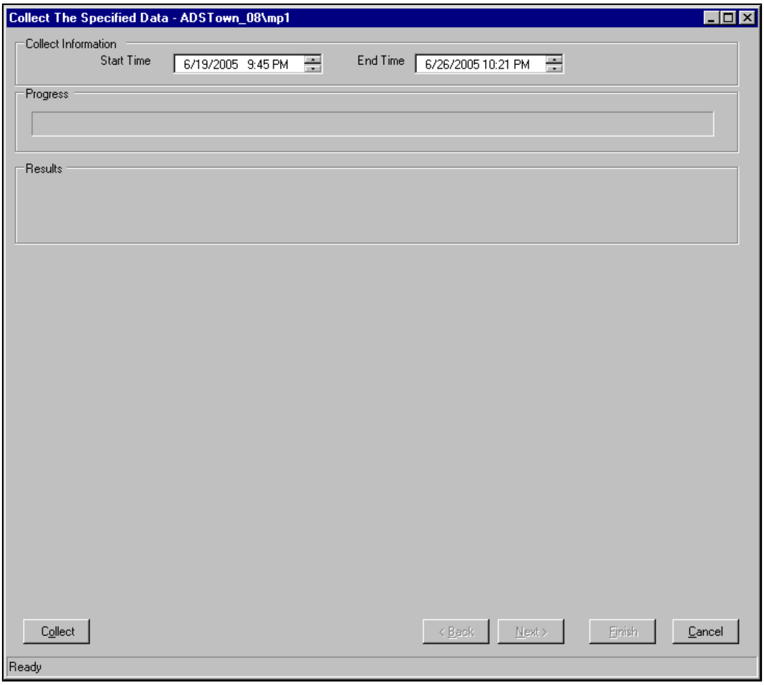
> **Note:** You can perform group and scheduled collects using the **Communications** tool.

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select **Collect** (or **Tech Collect**) from the **Functions** drop-down list and then select the **Perform** button.

***Profile** displays the **Collect the Specified Data** dialog.*



Collect the Specified Data dialog

3. Designate the range of data you want to collect from the monitor by editing the **Start** and **End Time** fields in the **Collect Information** in the section. Edit these fields directly by selecting the portion of the date or time stamp you want to change and then entering the appropriate designation or using the arrows to scroll up and down in the range. *If you do not edit the range, the start*

date and time automatically default to the ***Auto Collect Start Date*** *in the LIF.*

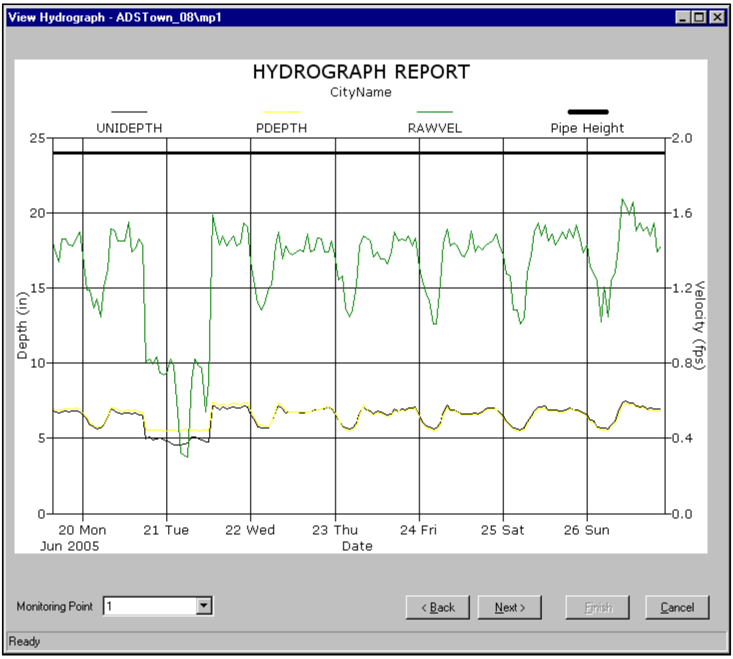
4. Select the **Collect** button.

Note: Select **Abort** button at anytime during the collect to stop the collect and process the partial information.

The ***Results*** *section displays the status of the collect.* ***Profile*** *collects all entity data from the monitor for the selected date/time range and stores it in the currently selected database.*

5. Click on the **Next** button.

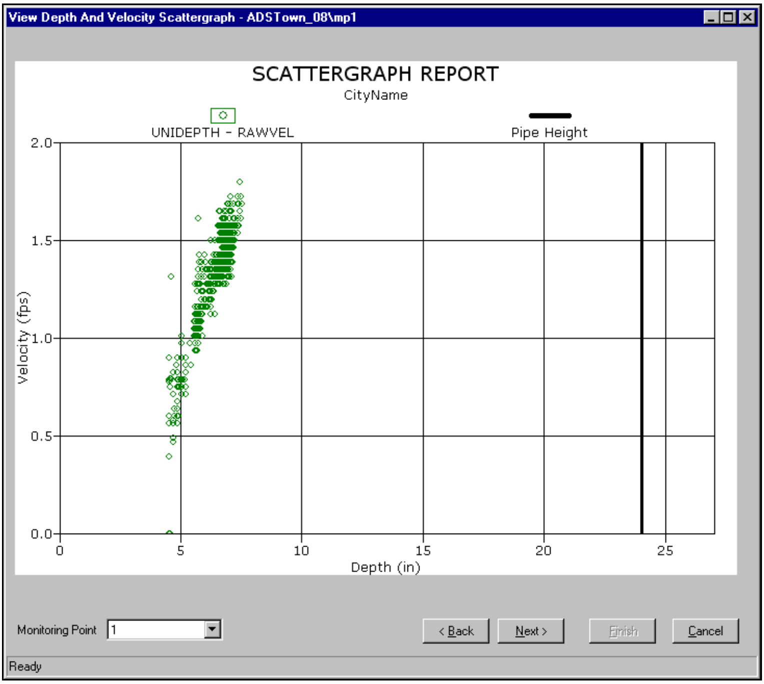
The ***View Hydrograph – [location name]*** *dialog displays the collected data in hydrograph format.*



View Hydrograph – [*location name*] dialog

6. Review the data on the hydrograph, and then click on the **Next** button. Under optimal conditions, the depth and velocity data should reflect a consistent diurnal pattern.

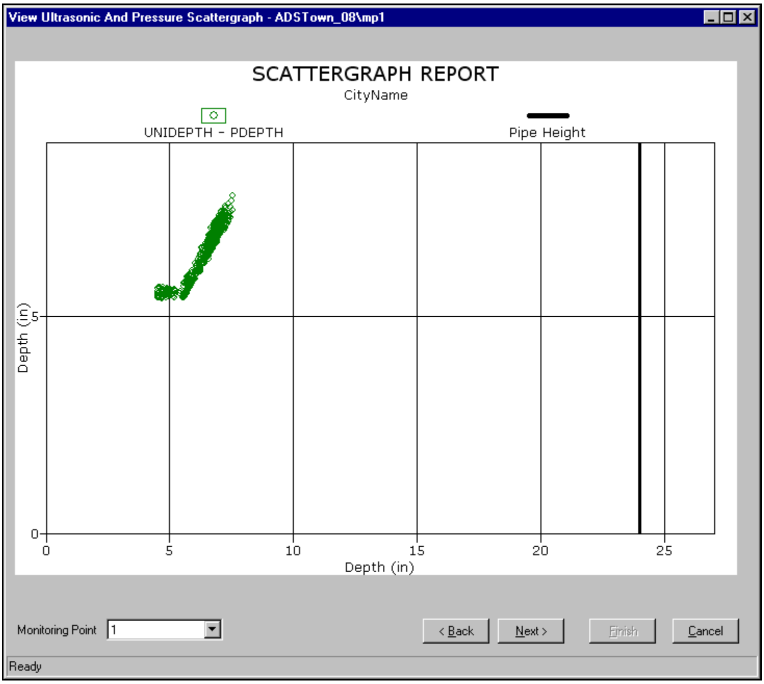
*The **View Depth and Velocity Scattergraph – [location name]** dialog displays the collected depth and velocity data in scattergraph format.*



View Depth and Velocity Scattergraph – [*location name*] dialog

7. Review the data on the scattergraph, and then click on the **Next** button. Under optimal conditions, the data on the graph should reveal velocity increasing with depth.

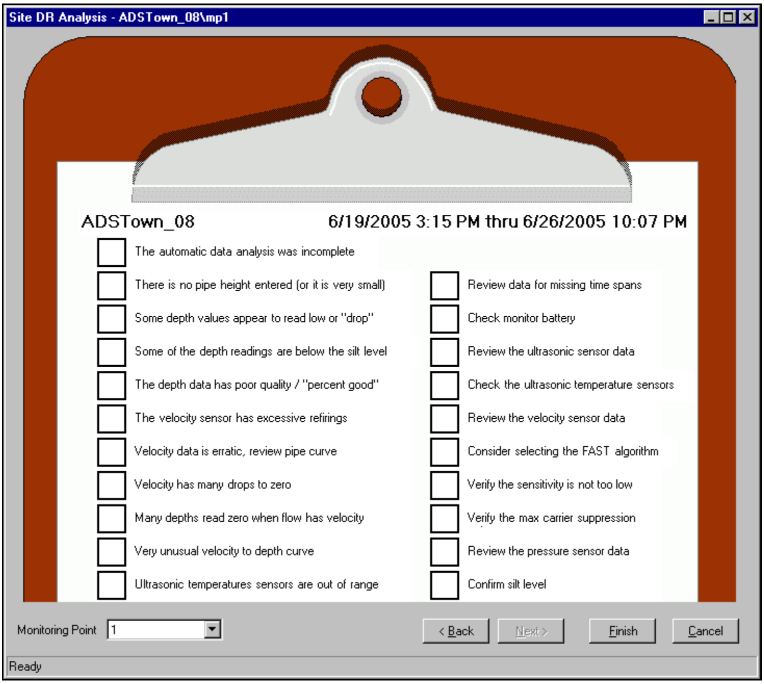
*The **View Ultrasonic and Pressure Scattergraph – [location name]** dialog displays the collected ultrasonic and pressure depth data in scattergraph format.*



View Ultrasonic and Pressure Scattergraph – [*location name*] dialog

8. Review the data on the scattergraph, and then click on the **Next** button. A properly performing pressure depth sensor should display a one-to-one relationship with the UNIDEPTH data.

The ***Site DR Analysis – [location name]*** *dialog displays the results of the site data review analysis of the collected data and any recommendations for resolving identified issues.*



Site DR Analysis – [*location name*] dialog

9. Review any Site DR identified issues and the suggested actions, and then click the **Finish** button.

10. Click the **Close** button.

*The **Diagnostics** dialog displays. The **Results** section displays the recommendations from **Site DR Analysis**.*

Communication Type (Update Connection Type)

When necessary, **Profile** allows you to change the selected method used to communicate with your monitor. The **Communication Type** or **Update Connection Type** functions determine the way the monitor *must* be communicated with. Designate the communication type if it becomes necessary to change from the current method to another method.

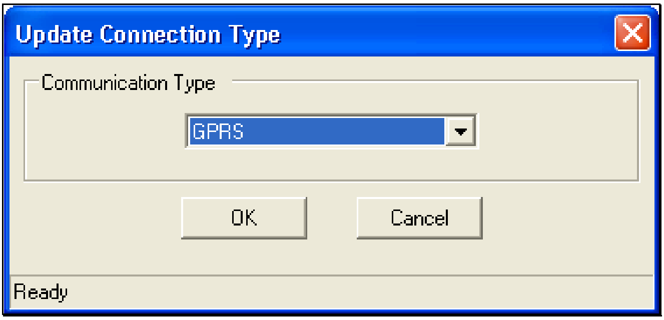
> **Note:** This function is typically used when changing from **Serial** to **Wireless** or **Landline** communication types.

Change the communication connection method in the following way:

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select **Communication Type** or **Update Connection Type** from the **Functions** drop-down list, and then select the **Perform** button.



Diagnostics > Communication Type window

3. Choose the appropriate communication method from the **Communication Type** drop-down list and select **OK**.

   - **Serial** Select when the monitor communications will be performed using *only* a serial connection.
   - **Wireless/GPRS** Select when the monitor communications will be performed using TCP/IP wireless or serial connections.
   - **GSM-CSD** Select for monitors using GSM circuit switch data (GSM-CSD).

- ❑ **Landline** Select when the monitor communications will be performed using landline or serial connections.

The monitor's communication type is now set to the new selection.

Current Readings

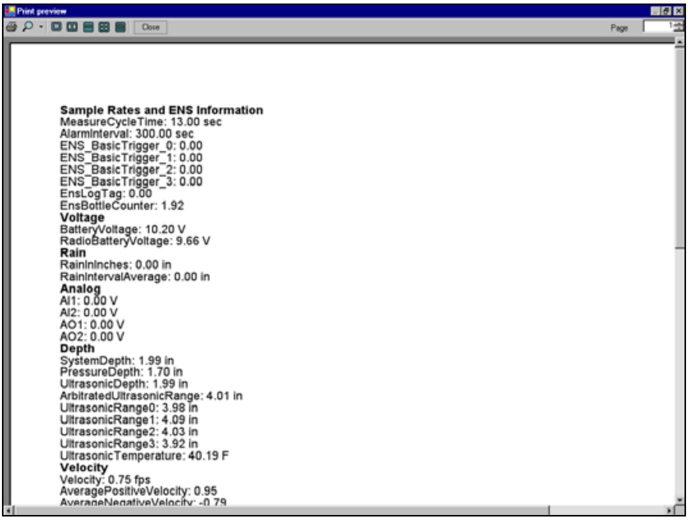
The **Diagnostics** tool enables you to acquire current readings from some monitors for battery voltage, rain, analog devices, depth, velocity, flow quantity, volume, diagnostics, and other devices as available. Obtain current readings from a monitor in the following way:

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

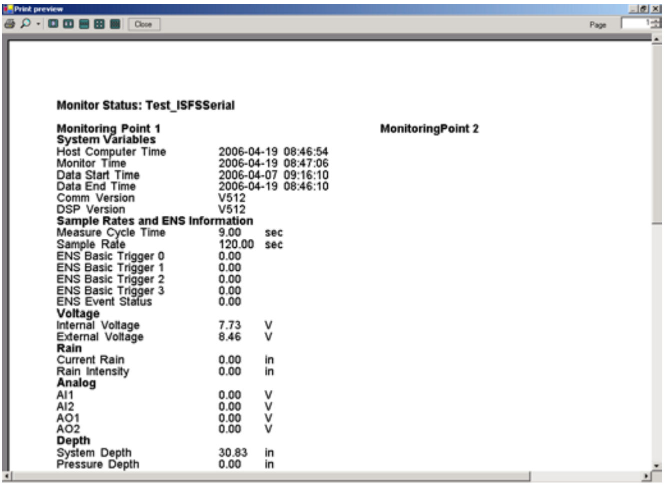
2. Select **Current Readings** from the **Functions** drop-down list, and then select the **Perform** button.

*The **Print Preview** dialog displays the current readings from the selected monitor in printable format.*



Sample Rates and ENS Information
MeasureCycleTime: 13.00 sec
AlarmInterval: 300.00 sec
ENS_BasicTrigger_0: 0.00
ENS_BasicTrigger_1: 0.00
ENS_BasicTrigger_2: 0.00
ENS_BasicTrigger_3: 0.00
EnsLogTag: 0.00
EnsBottleCounter: 1.92
Voltage
BatteryVoltage: 10.20 V
RadioBatteryVoltage: 9.66 V
Rain
RainInches: 0.00 in
RainIntervalAverage: 0.00 in
Analog
AI1: 0.00 V
AI2: 0.00 V
AO1: 0.00 V
AO2: 0.00 V
Depth
SystemDepth: 1.99 in
PressureDepth: 1.70 in
UltrasonicDepth: 1.99 in
ArbitratedUltrasonicRange: 4.01 in
UltrasonicRange0: 3.98 in
UltrasonicRange1: 4.09 in
UltrasonicRange2: 4.03 in
UltrasonicRange3: 3.92 in
UltrasonicTemperature: 40.19 F
Velocity
Velocity: 0.75 fps
AveragePositiveVelocity: 0.95
AverageNegativeVelocity: -0.79

Current readings from a FlowShark monitor



Monitor Status: Test_ISFSSerial

Monitoring Point 1 MonitoringPoint 2
System Variables

Host Computer Time	2006-04-19 08:46:54	
Monitor Time	2006-04-19 08:47:06	
Data Start Time	2006-04-07 09:16:10	
Data End Time	2006-04-19 08:46:10	
Comm Version	V512	
DSP Version	V512	
Sample Rates and ENS Information		
Measure Cycle Time	9.00	sec
Sample Rate	120.00	sec
ENS Basic Trigger 0	0.00	
ENS Basic Trigger 1	0.00	
ENS Basic Trigger 2	0.00	
ENS Basic Trigger 3	0.00	
ENS Event Status	0.00	
Voltage		
Internal Voltage	7.73	V
External Voltage	8.46	V
Rain		
Current Rain	0.00	in
Rain Intensity	0.00	in
Analog		
AI1	0.00	V
AI2	0.00	V
AO1	0.00	V
AO2	0.00	V
Depth		
System Depth	30.83	in
Pressure Depth	0.00	in

Current readings from a FlowShark IS monitor

Print button

3. (*optional*) Select the **Print** button to print the report contents.

Deactivate

Deactivating a monitor occurs when **Profile** sends a message to the monitor to discontinue measuring and logging flow data. ADS recommends deactivating a monitor upon completion of a project and/or when removing a monitor from service for an extended period of time. Deactivate a monitor in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection.*

2. Select **Deactivate** from the **Functions** drop-down list, and then select the **Perform** button.

Profile *deactivates the monitor.*

Monitor Status

Check the monitor status to access the current system information regarding the available stored flow data, current sensor readings, communication status, hardware versions, data log rate, and battery voltage in the following way:

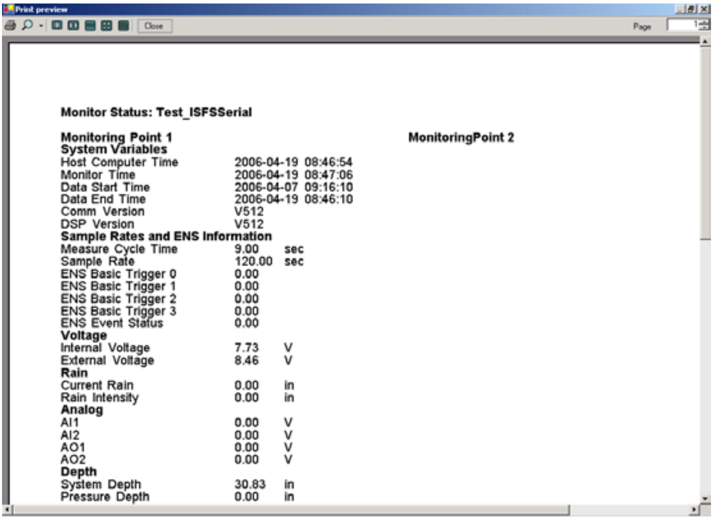
> **Note:** The content of the status report varies based on the monitor series and communication method.

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Monitor Status** from the **Functions** drop-down list, and then select the **Perform** button.

The ***Print Preview*** *dialog displays the current system information in printable format.*



Monitor Status: Test_ISFSSerial

Monitoring Point 1			MonitoringPoint 2
System Variables			
Host Computer Time	2006-04-19 08:46:54		
Monitor Time	2006-04-19 08:47:06		
Data Start Time	2006-04-07 09:16:10		
Data End Time	2006-04-19 08:46:10		
Comm Version	V512		
DSP Version	V512		
Sample Rates and ENS Information			
Measure Cycle Time	9.00	sec	
Sample Rate	120.00	sec	
ENS Basic Trigger 0	0.00		
ENS Basic Trigger 1	0.00		
ENS Basic Trigger 2	0.00		
ENS Basic Trigger 3	0.00		
ENS Event Status	0.00		
Voltage			
Internal Voltage	7.73	V	
External Voltage	8.46	V	
Rain			
Current Rain	0.00	in	
Rain Intensity	0.00	in	
Analog			
AI1	0.00	V	
AI2	0.00	V	
AO1	0.00	V	
AO2	0.00	V	
Depth			
System Depth	30.83	in	
Pressure Depth	0.00	in	

Print preview dialog of FlowShark IS monitor status information

Print button

3. (*optional*) Select the **Print** button to print the report contents.

Power Saving

Use the **Power Saving** function when you want to configure the monitor to conserve modem battery power. Modem battery power is conserved by powering down the wireless modem during specific hours of the day. Configure each day of the week uniquely for specific on/off times, or set the monitor to the most conservative mode to only power the wireless modem between 11 AM and 12 PM.

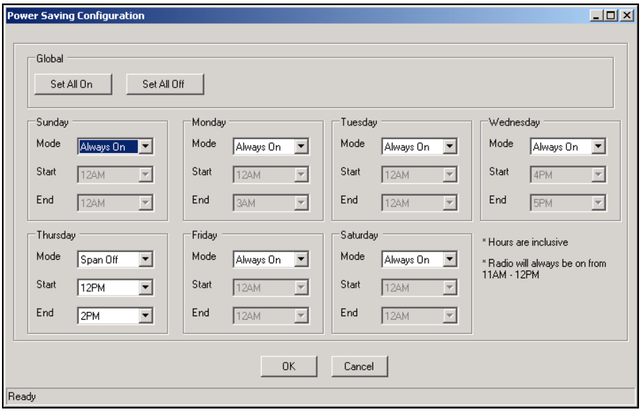
> **Note:** This function is not available for all monitor series.

Complete the parameters of the **Power Saving Configuration** window according to the schedule best suited to your project.

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select **Power Saving** from the **Functions** drop-down list and then select the **Perform** button to display the **Power Saving Configuration** window.

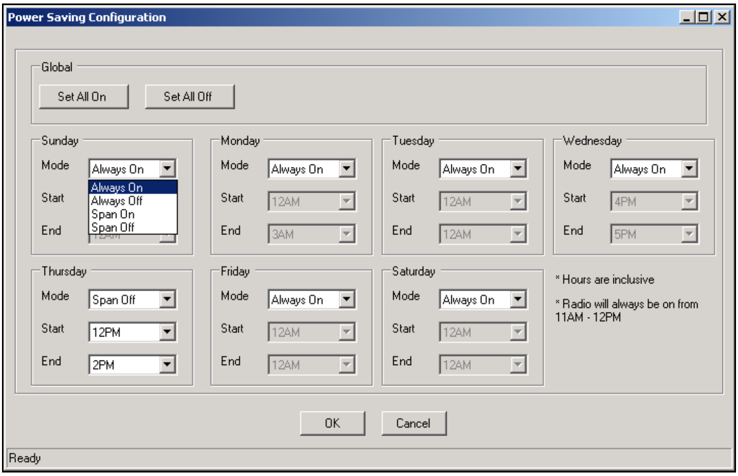


Power Saving Configuration window

3. Choose a *Global* setting when you want all 7 days of the week to be set to the same on or off mode.

- **Set All On** Choose this *Global* settings button to configure all 7 days of the week to **Always On** or no power saving periods. The wireless modem will be set for uninterrupted power.

- **Set All Off** Choose this *Global* setting to configure all 7 days of the week to **Always Off** to facilitate maximum battery savings. Wireless modem communications can be performed only during the hour of 11 AM to 12 PM and will be turned off all other hours of the day.



Power Saving Configuration window

4. Use the **Mode**, **Start**, and **End** fields to program each day of the week uniquely for power savings. Repeat the instructions for each day of the week you want to program and select **OK** to save and exit the **Power Saving Configuration** window.

   - ❑ **Always On** Choose this setting for uninterrupted wireless modem communications and no power savings for the selected day of the week.

   - ❑ **Always Off** Choose this setting to allow wireless service only during the hour of 11AM to 12 PM. This setting is the maximum battery conservation mode for the selected day of the week.

   - ❑ **Span On** Choose this option to specify the span of time you want the wireless modem to be available (powered) during the selected day. If you choose this mode, specify values in the **Start** and **End** fields for the beginning and ending time for the span you want the wireless modem to be active.

- **Span Off** Choose this option to specify the span of time you want the wireless modem to be unavailable (powered down) during the selected day. If you choose this mode, specify values in the **Start** and **End** fields for the beginning and ending time for the wireless modem to be powered down.
- **Start** This field is enabled when you choose **Span On** or **Span Off** mode selections and allows you to specify the beginning time for the selected span.
- **End** This field is enabled for **Span On** or **Span Off** mode selections and allows you to specify the ending time for the selected span.

Program Wireless

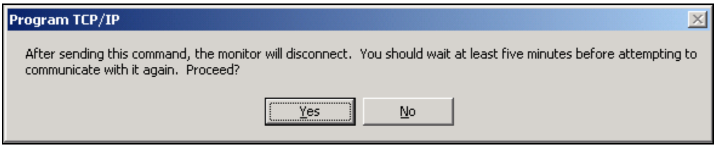
Use the **Program Wireless** function when you need to update the configuration of the wireless modem to ensure reliable communications. Use this function, for example after performing a modem board upgrade or modem board swap to program the wireless modem to ensure successful wireless communications.

Program the wireless modem in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Program Wireless** from the **Functions** drop-down list, and then select the **Perform** button to display the **Program TCP/IP** window.



3. Select **Yes** to begin the wireless programming function and disconnect from the monitor.

> **Note:** You must wait at least 5 minutes before attempting to reestablish communication with the monitor after performing the **Program Wireless** function.

Set Time

The time setting feature in **Diagnostics** enables you to update the monitor time without reactivating the monitor. This feature is useful under circumstances such as adjusting the monitor clock to compensate for daylight savings time. Set the monitor time in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Set Time** from the **Functions** drop-down list, and then select the **Perform** button.

Profile *sets the time on the monitor based on the clock in your local computer and generates a log of the communication activity.*

TCP/IP Modem Status

Profile enables you to obtain the current battery voltage, firmware version, and signal strength for the TCP/IP modem in a monitor equipped for wireless communication. Check the status of the TCP/IP modem in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **TCP/IP Modem Status** from the **Functions** drop-down list, and then select the **Perform** button.

*The **TCP/IP Modem Status** dialog displays the current status of the wireless communication device.*

3. Review the alarm IP address, signal strength, and battery voltage to verify proper configuration and operation. A signal strength registering between -51 and -90 dBm indicates adequate communication; a signal strength registering between -91 and -111 dBm indicates unreliable communications.

Upload BASIC Code, Variables, Arrays, and String Arrays

Upload the BASIC code, variables, arrays, or string arrays currently stored in the monitor memory to your local directory or network in the following way:

> **Note:** ADS technicians use these features when troubleshooting monitor issues; therefore, typical users should rarely implement these features. In addition, these features are not applicable to all monitors.

1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select **Upload Basic Code**, **Variables**, **Arrays**, or **String Arrays** from the **Functions** drop-down list.

3. Select the **Perform** button.

***Profile** displays the selected information from the monitor memory and saves it to the database in your local directory or network.*

Update Firmware

Profile enables you to download updated firmware code to your monitors. Updated firmware may include new features and capabilities, or performance improvements and enhancements in functions such as data processing, analysis, or communications. The

Communication firmware file contains the monitor communication code and the DSP firmware file contains the monitor code for data processing activities.

> **Note:** Some monitors require *only* the **DSP** firmware.

Update the firmware in the monitor memory in the following way:

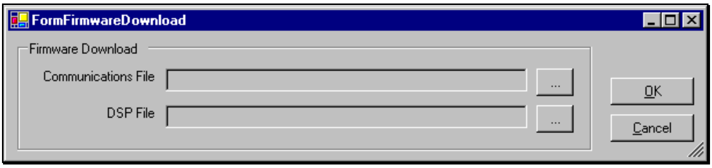
> **Note:** ADS recommends collecting the data from the monitor *before* updating the firmware in the monitor and reactivating the monitor *after* updating the firmware. Refer to *Collect Data* on page 6-24 for more information.

1. Select the **Connect** button to establish communication with the monitor.

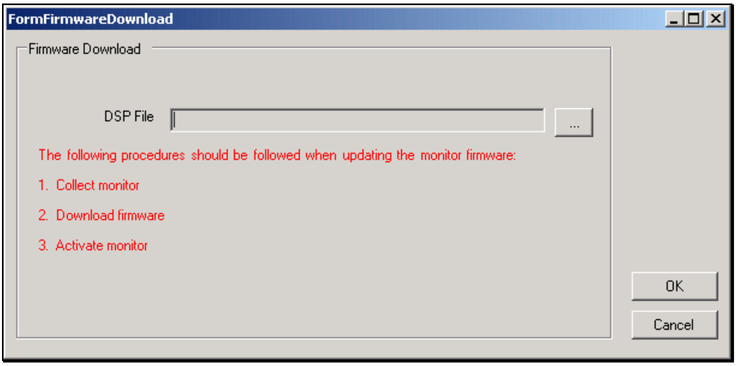
Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Update Firmware** from the **Functions** drop-down list, and then select the **Perform** button.

The ***Form Firmware Download*** *dialog displays.*



Form Firmware Download dialog (FlowShark monitor)



Form Firmware Download dialog (FlowShark IS monitor)

3. Select the **Browse** button (corresponding to communication or DSP file you want to update) to search for and locate the file applicable to the firmware download.

Note: Some monitors require *only* the **DSP** firmware.

Note: If necessary, upgrade either firmware component independently or both simultaneously.

4. Select the **OK** button.

***Profile** downloads the new firmware to the monitor.*

5. Select **Activate** from the **Functions** drop-down list, and then select the **Perform** button.

***Profile** activates the monitor with the updated firmware.*

Update the Modem Port

The **Update Modem Port** function is only available for some monitor series. If necessary, use this function to change the modem selection between **No modem**, **EMU**, or **Internal**.

Update the Monitor Configuration

This function should *only* be utilized by a trained ADS technician.

Upload Configuration

Upload the configuration currently stored in monitor memory to your local computer or network in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Upload Configuration** from the **Functions** drop-down list, and then select the **Perform** button.

Profile *uploads the configuration from the monitor and displays the configuration details in printable format.*

Print button

3. (*optional*) Select the **Print** button to print the report contents.

Waveforms

Some ADS monitors can interpret and convert electronic signals during the sensor firing to produce sensor readings. **Profile** can capture the ultrasonic or velocity signals and graphically display the sensor firing information as a waveform for analysis and troubleshooting. Once generated, **Profile** stores the waveform information for offline viewing.

Note: Not all ADS monitors support the **Capture Waveform** function.

Note: This function is typically used by experienced technicians troubleshooting sensor problems; therefore, a common user typically would not exercise this function.

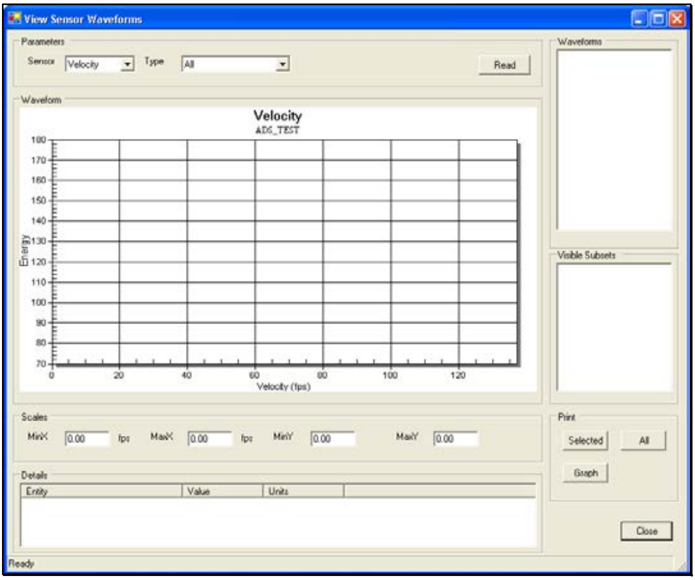
Capture ultrasonic and velocity waveforms in the following way:

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select **Waveforms** from the **Functions** drop-down list, and then select the **Perform** button.

The ***View Sensor Waveforms*** *dialog displays.*



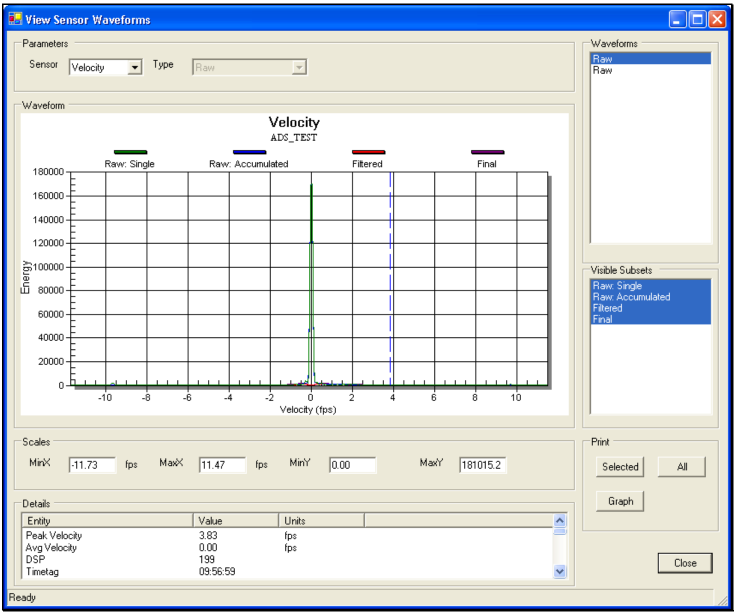
View Sensor Waveforms dialog

3. Select the appropriate options from the **Parameters** section to indicate the type of waveform you want to capture:

   - **Sensor** Select the sensor from which you want to capture a waveform: **Ultrasonic** or **Velocity**.
   - **Type** Select the format of the waveform data you want to capture.
   - **MinX** Use the default or designate your minimum horizontal graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
   - **MaxX** Use the default or designate the maximum horizontal graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
   - **MinY** Use the default or designate the minimum vertical graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
   - **MaxY** Use the default or designate the maximum vertical graph scale for displaying the waveform data. This field is typically used while reviewing a previously created waveform.
   - **Details** This section is populated with the waveform details and is used by ADS personnel.
   - **Waveforms** Choose a previously generated waveform to review from this list when reviewing waveforms offline..
   - **Visible Subsets** Choose a previously generated waveform subset for the selected waveform during a waveform review.
   - **Print** This section contains the options to print a waveform. Choose **Selected** to print all waveform graphs selected from the **Waveforms** list. Choose **All** to print *all* waveforms from the **Waveforms** list or choose **Graph** to print the current waveform.

4. Select the **Read** button to fire the selected sensor.

*The **View Sensor Waveforms** dialog displays the waveform reflecting the sensor signal returned.*



View Sensor Waveforms dialog displays the waveform for velocity

5. Repeat steps 3 and 4 for each additional type of waveform you want to capture.

6. Select **Close** to exit the **Waveform** function.

> **Note: Profile** creates a historical waveform for each waveform captured which can be reviewed offline using the **Waveform** function (**Functions** > **Waveform**).

Running Device Diagnostics

Profile's diagnostics tool enables you to obtain current readings, view current status, adjust settings, and identify, diagnose, and troubleshoot potential problems with ultrasonic, velocity, and pressure devices. Run diagnostics to obtain the current status of system devices in the following way:

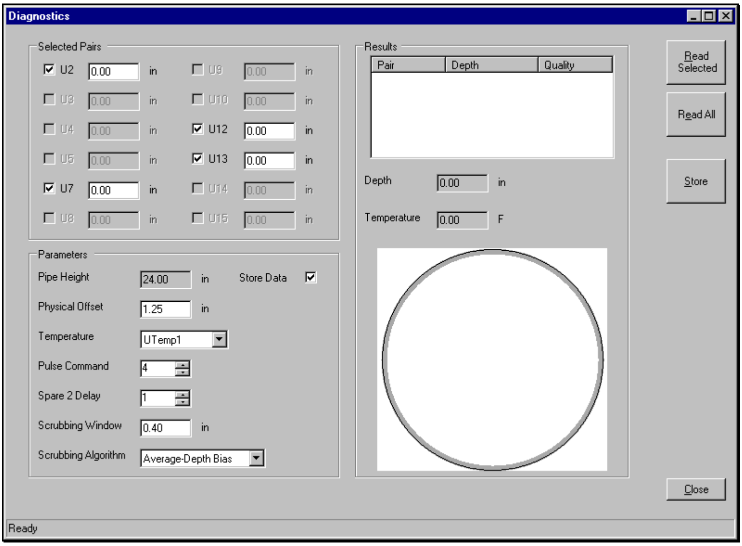
> **Note:** This section describes the general process for running diagnostics on all devices. However, the device parameters available for editing during the diagnostic process are specific to the individual devices. For detailed information on the parameters corresponding to each device, refer to *Selecting and Editing Devices* in Chapter 2.

1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select the device for which you want to run diagnostics from the **Diagnose Device** drop-down list, and then select the **Diagnose** button.

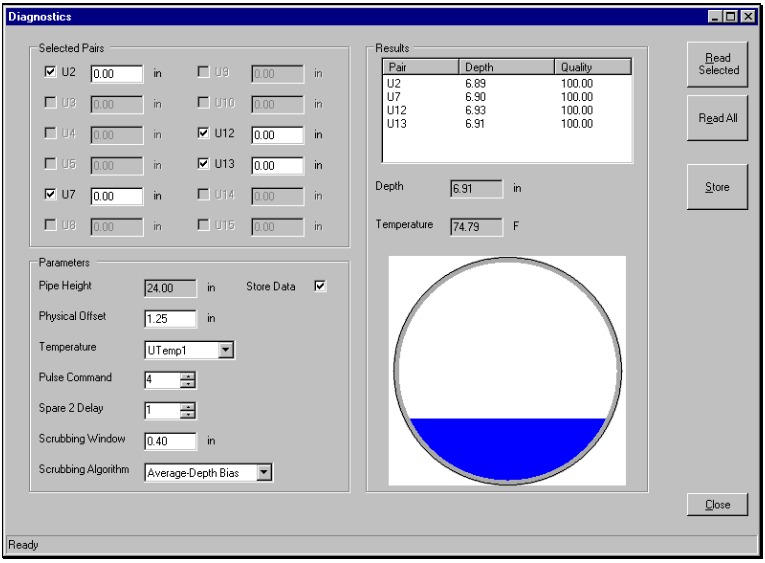
The ***Diagnostics*** *dialog displays the current configuration parameters stored in the LIF for the selected device.*



Diagnostics dialog for the Ultrasonic 1 device

3. View current data from and status of the selected device by selecting the **Read** or **Fire** button (*or **Read Selected** for the Ultrasonic device*). If you are requesting readings from an ultrasonic device, this will return data only for the ultrasonic pairs designated in the **Selected Pairs** section. If you want to receive data for *all* ultrasonic pairs, select the **Read All** button instead.

The device results section displays the current readings for the selected device.



Diagnostics dialog for the Ultrasonic 1 device following sensor firing

You also can edit the configuration information in the dialog at any time. Refer to *Selecting and Editing Devices* in Chapter 2, for descriptions of the individual configuration parameters corresponding to each device. Save these modifications to the LIF in the monitor in the following way:

- ❑ Make changes to the configuration information as necessary.
- ❑ Select the **Store** button to save the changes to the database.
- ❑ Select the **Close** button.
- ❑ Select **Activate** from the **Functions** drop-down list, and then select the **Perform** button.

Note: If you are running diagnostics on multiple devices for the same monitor, you may delay activating the monitor until you have finished running diagnostics on all the selected devices. However, you must save the changes to the database before exiting each device window.

4. Repeat steps 2 and 3 for each additional device for which you want to run diagnostics.
5. Select the **Disconnect** button to discontinue communication with monitor when you are finished running diagnostics on the system devices.

Performing Confirmations

While the sensors supporting ADS monitors display exceptional accuracy, ADS recommends confirming the sensors following configuration and monitor activation. Confirmations involve using **Profile** to compare depth, velocity, and weir measurements taken manually by field technicians to measurements obtained electronically by the sensors. This comparison helps to identify any discrepancies in readings that can exist due to improper sensor installation or electronic malfunctions. **Profile** enables you to modify the sensor offsets and other parameters to compensate for slight inconsistencies in the data.

This section provides instructions on performing the following kinds of confirmations through the **Diagnostics** tool:

- Ultrasonic Depth
- Peak Velocity and Depth
- Velocity Profile
- Flow Quantity using a Weir

Confirming the Ultrasonic Depth Sensor

Confirm the ultrasonic depth sensor in the following way:

> **Note:** This feature does not apply to FlowShark monitors.

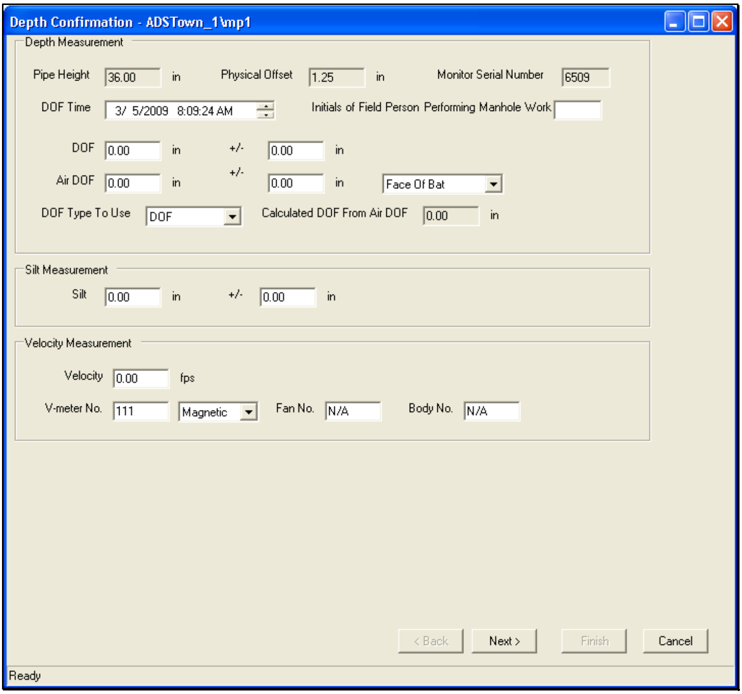
1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select the monitoring point in which the ultrasonic depth sensor is installed from the **Monitoring Point** drop-down list.

3. Select the **Depth Confirmation** from the **Confirmations** drop-down list, and then select the **Confirm** button.

*The **Depth Confirmation** dialog displays.*



Depth Confirmation dialog

4. Complete the depth and velocity-related parameters on the **Depth Confirmation** dialog in the following way and then select the **Next** button:

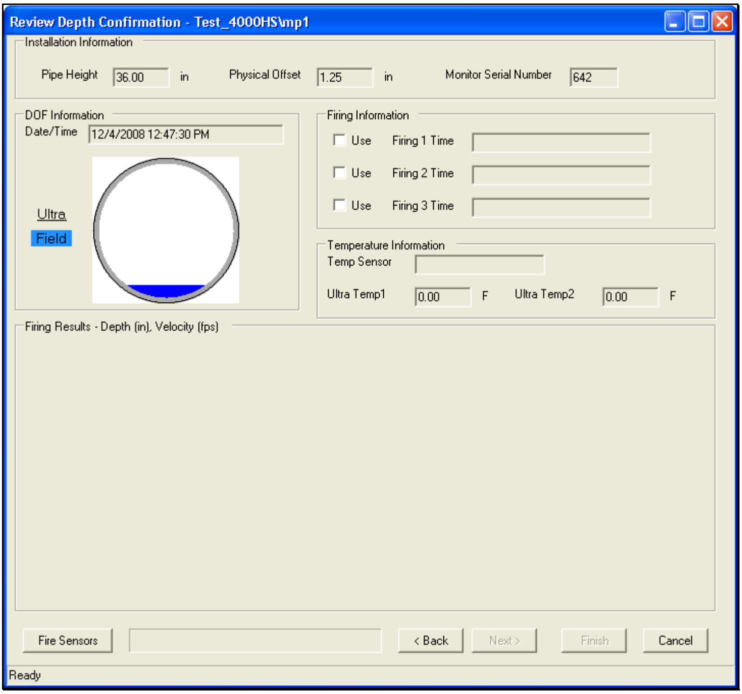
   - ❑ **DOF Time** Enter the date and time at which the technician obtained the manual depth measurements.
   - ❑ **Initials of Field Person Performing Manhole Work** Enter the initials of the field technician taking the manual depth measurements.

- **DOF/+/-** Enter the manually measured distance from the flow surface to the bottom of the pipe and the estimated +/- deviation.
- **Air DOF/ +/-** Enter the manually measured distance from the face of the ultrasonic depth sensor or top of the pipe to the flow surface and any estimated +/- deviation. Select the point of reference, Face of Bat or Crown of Pipe, to where the technician took the Air DOF measurement from the corresponding drop-down list.
- **DOF Type to Use** Select the manual flow depth measurement (**DOF** or **Air DOF**) you want **Profile** to compare with the monitor readings.

*The **Calculated DOF From Air DOF** field displays the flow depth based on the pipe height, physical offset, and manual air DOF measurement, compensating for the selected point of reference of the air DOF (**Face of Bat** (sensor) or **Crown of Pipe**).*

- **Silt** Enter the depth of the debris at the bottom of the pipe at the monitoring point and the estimated deviation.
- **Velocity** Enter the peak velocity value as manually measured in the field.
- **V-meter No.** Enter the identification number corresponding the velocity meter being used for the manual field measurements and then identify the type of velocity meter being using from the drop-down list. Choose from **Magnetic**, **Propeller**, or **FS-HV** (FlowShark HV).
- **Fan No.** Enter the fan identification number corresponding to the **Propeller** type velocity sensor, if applicable.
- **Body No.** Enter the body identification number corresponding to the **Propeller** type velocity sensor, if applicable.

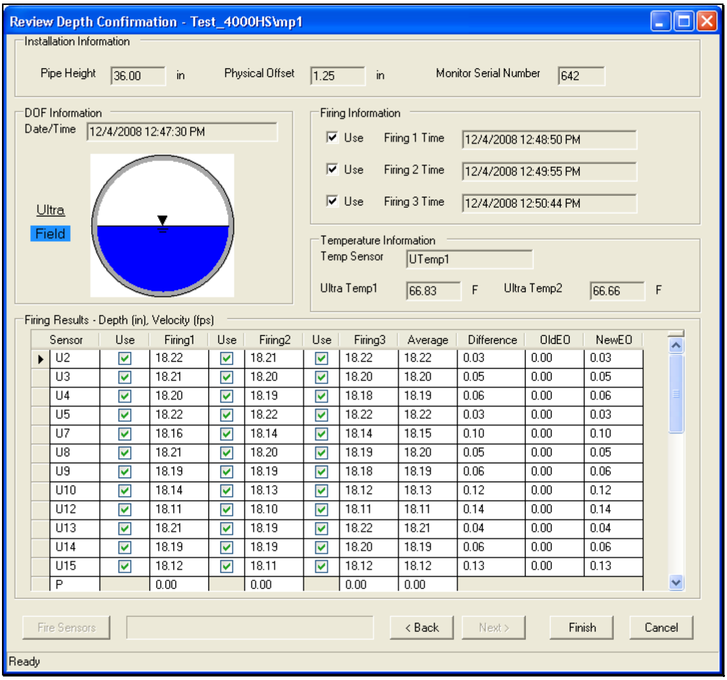
*The **Review Depth Confirmation** dialog displays.*



Review Depth Confirmation dialog

5. Select the **Fire Sensors** button to take sensor readings for comparison with the manual measurements. You can fire the sensors multiple times to obtain average readings.

The monitor fires the depth, velocity, and pressure sensors. The ***Review Confirmation*** *dialog displays the following: selected temperature sensor and temperature values from both ultrasonic temperature sensors; readings from firing the sensors for comparison; average readings from the firings; differences between the averaged readings and manual readings; old electronic offsets; and new electronic offsets.*



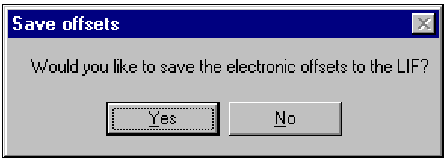
Review Depth Confirmation dialog following sensor firing

6. (*optional*) Select or deselect the checkboxes (**Use** column in **Firing Results** section) corresponding to the individual readings from the ultrasonic depth sensor pairs you want **Profile** to include or disregard when calculating the electronic offsets. You also can select to apply or disregard all readings obtained during a specific firing by selecting or deselecting the **Use** checkbox corresponding to the **Firing [*number of firing*] Time** in the **Firing Information** section.

***Profile** updates the averages, differences, and electronic offsets as you select or deselect the checkboxes.*

7. Select the **Finish** button to save the new offsets to the LIF, *or* click the **Cancel** button to disregard the new offsets and return to the **Diagnostics** dialog.

*The **Save Offsets** dialog displays.*



Save Offsets dialog

8. Select the **Yes** button to confirm that you want to save the new offsets to the LIF and the log *or* select **No** to save the new offsets only to the log.

9. Select the **Close** button.

Confirming Peak Velocity & Depth

Confirm Peak Velocity & Depth (PVD) in the following way:

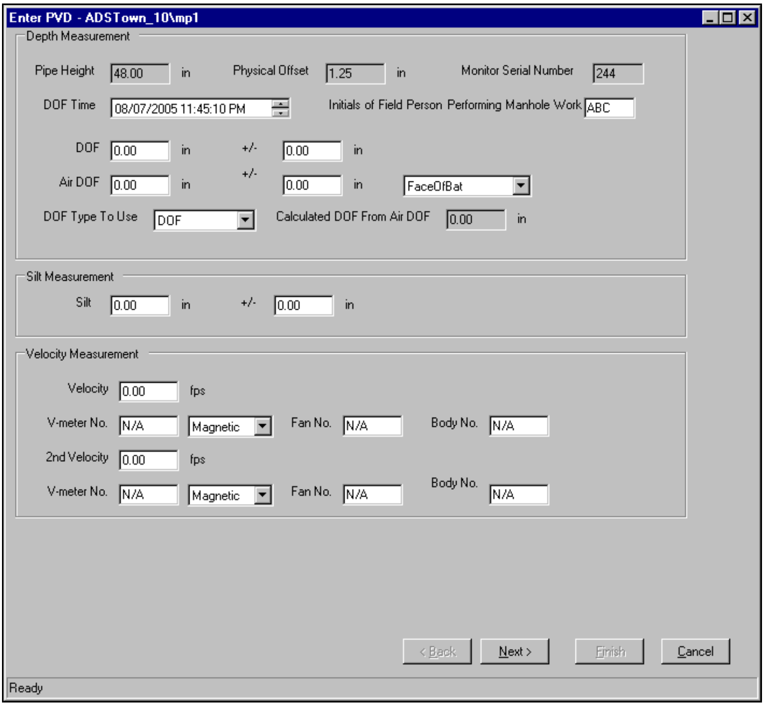
1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select the monitoring point in which the sensors are installed from the **Monitoring Point** drop-down list.

3. Select **PVD** from the **Confirmations** drop-down list, and then select the **Confirm** button.

The ***Enter PVD*** *dialog displays.*



Enter PVD dialog

4. Enter the depth, silt, and velocity parameters from manual measurements taken in the field in the following way, and then select the **Next** button:

   - ❑ **DOF Time** Enter the date and time at which the technician obtained the manual depth measurements.
   - ❑ **Initials of Field Person Performing Manhole Work** Enter the initials of the field technician taking the manual depth measurements.
   - ❑ **DOF** Enter the manually measured distance from the flow surface to the bottom of the pipe and the estimated accuracy of the measurement (tolerance or deviation).

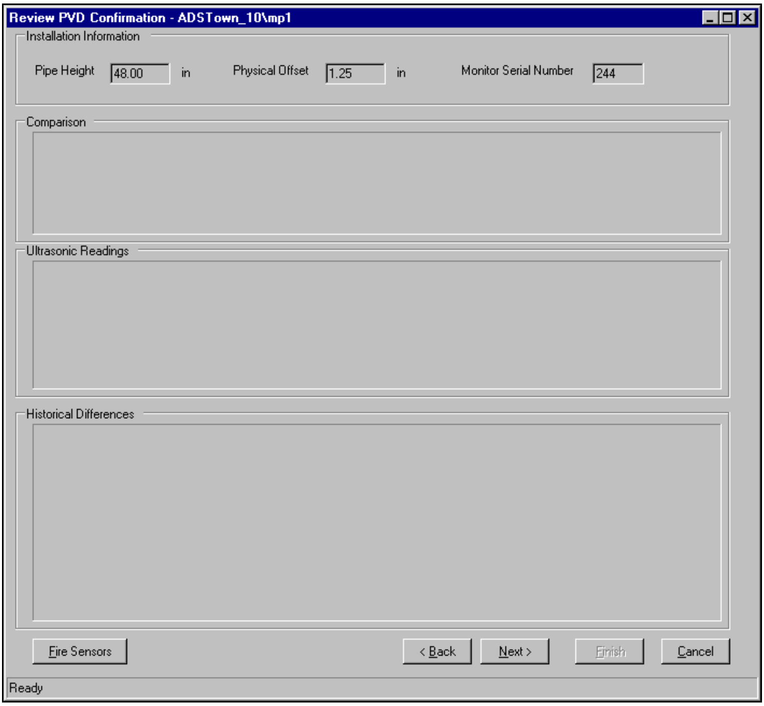
- **Air DOF** Enter the manually measured distance from the face of the ultrasonic depth sensor or top of the pipe to the flow surface and any estimated deviation. Select the point of reference at the top of the pipe from which the technician took the Air DOF measurement from the corresponding drop-down list.

*The **Calculated DOF From Air DOF** field displays the flow depth based on the pipe height, physical offset, and manual air DOF measurement, compensating for the selected point of reference of the air DOF (**Face of Bat** (sensor) or **Crown of Pipe**).*

- **DOF Type to Use** Select the manual flow depth measurement (**DOF** or **Air DOF**) you want **Profile** to compare with the monitor readings.
- **Silt** Enter the depth of the debris at the bottom of the pipe at the monitoring point and the estimated accuracy of the measurement (tolerance or deviation).
- **Velocity** Enter the velocity of the flow obtained at the monitoring point manually using a portable velocity meter.
- **V-meter No.** Enter the serial number of the portable velocity meter used to obtain the manual measurements.
- **Fan No.** (*applies only to propeller-type velocity meters*) Enter the *fan number* of the portable velocity meter used to obtain the manual measurements.
- **Body No.** (*applies only to propeller-type velocity meters*) Enter the *body number* of the portable velocity meter used to obtain the manual measurements.

Repeat the four previous velocity parameters for the second manual velocity measurement as applicable.

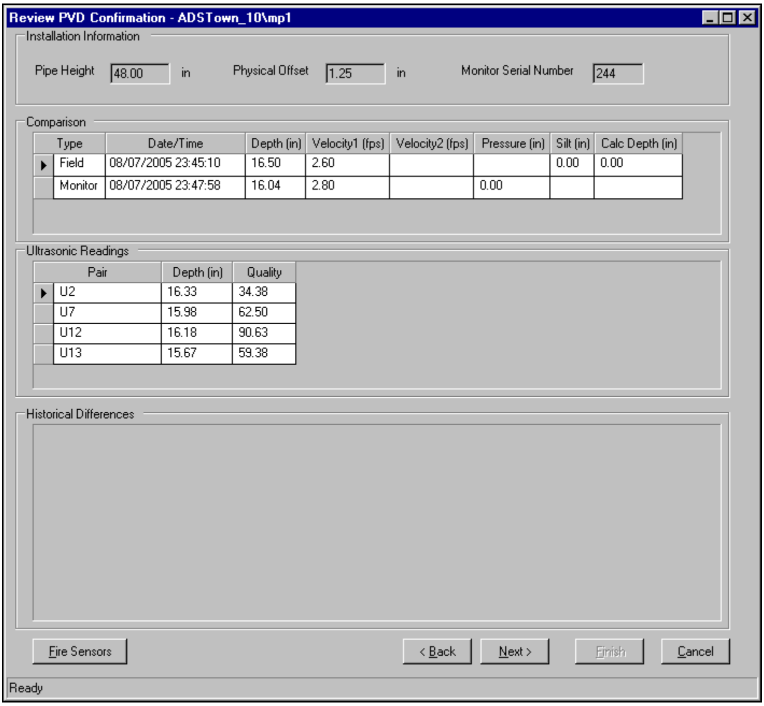
*The **Review PVD Confirmation** dialog displays.*



Review PVD Confirmation dialog

5. Select the **Fire Sensors** button to obtain readings from the ultrasonic, velocity, and pressure sensors.

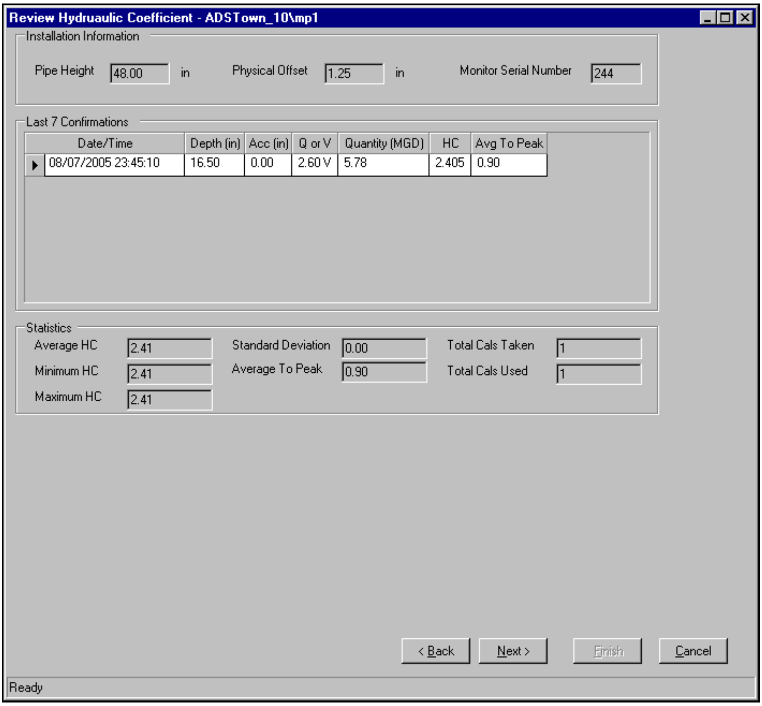
The ***Review PVD Confirmation*** *dialog displays the manual measurements, sensor readings, and historical data. The sensor readings include the ultrasonic depth sensor readings representing the designated pairs from the LIF (when applicable).*



Review PVD Confirmation dialog

6. Select the **Next** button.

*The **Review Hydraulic Coefficient** dialog displays.*



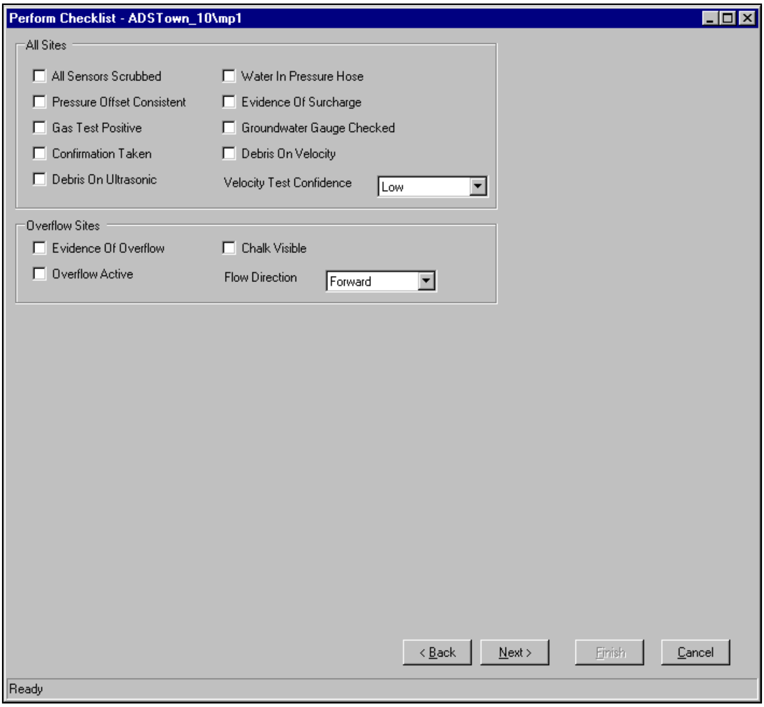
Review Hydraulic Coefficient dialog

7. Review the summary of confirmations and statistics concerning the Hydraulic Coefficient, and then select the **Next** button.

- ❑ **Average HC** This field displays the average of all hydraulic coefficients (HCs) calculated for the entries on the screen.
- ❑ **Minimum HC** This field displays the lowest HC of all the HC confirmations used to calculate the Average HC.
- ❑ **Maximum HC** This field displays the highest HC of all the HC confirmations used to calculate the Average HC.
- ❑ **Standard Deviation** This field displays the standard deviation of the individual HC calculations around the Average HC.

- **Average to Peak** This field displays the value representing the relationship of average velocity to peak velocity defined by the user using the **Quantity Coefficient Generator**.
- **Total Cals Taken** This field displays the number of confirmations conducted for the selected location.
- **Total Cals Used** This field displays the number of confirmations conducted for the selected location that were used to determine the Average HC.

*The **Perform Checklist** dialog displays.*



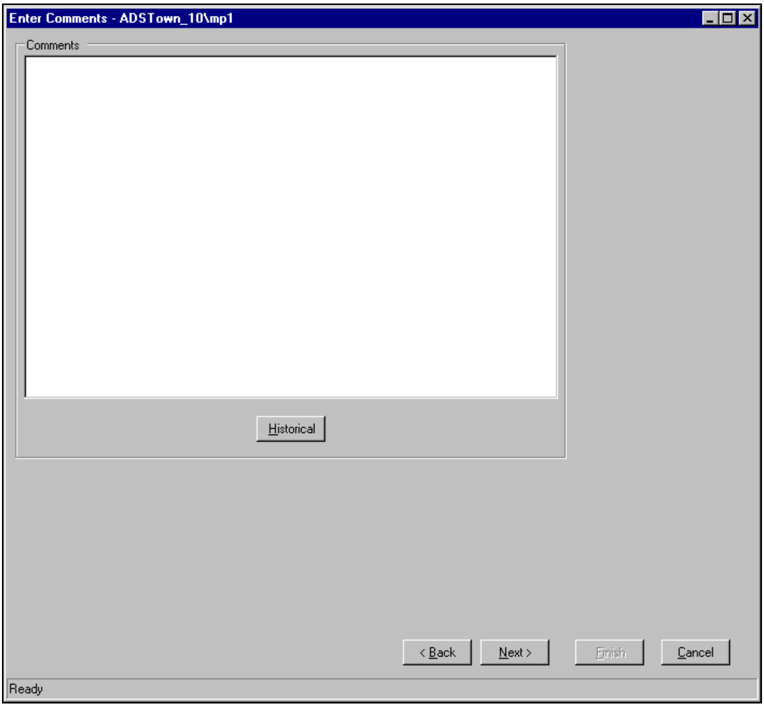
Perform Checklist dialog

8. Complete the **Perform Checklist** in the following way, and then select the **Next** button:

- **All Sensors Scrubbed** Select this checkbox if the field crew scrubbed the sensors at the monitoring point during the field confirmations.
- **Pressure Offset Consistent** Select this checkbox if the calculated pressure sensor offset remains consistent with the existing offset.
- **Gas Test Positive** Select this checkbox if the field crew registered the presence of hazardous gases beyond the acceptable limits.
- **Confirmation Taken** Select this checkbox if the field crew performed confirmations during the confirmation visit.
- **Debris On Ultrasonic** Select this checkbox if the field crew discovered debris on the ultrasonic depth sensor during the site visit.
- **Water in Pressure Hose** Select this checkbox if moisture was detected in the hose extending from the pressure depth sensor to the monitor.
- **Evidence Of Surcharge** Select this checkbox if indications exist that a surcharge occurred since the last visit to the monitor location.
- **Groundwater Gauge Checked** Select this checkbox if the field crew inspected the groundwater gauge.
- **Debris On Velocity** Select this checkbox if the field crew discovered debris on the velocity sensor during the site visit.
- **Velocity Test Confidence** Select the best option that describes the confidence you have in the manual velocity measurement obtained using the portable velocity meter.
- **Evidence Of Overflow** Select this checkbox if the field crew discovered evidence that an overflow occurred at the monitor location since the last site visit.
- **Overflow Active** Select this checkbox if overflow conditions exist at the monitor location during the site visit.

- **Chalk Visible** Select this checkbox if the chalk line originally drawn by the field crew inside the overflow is still present on the channel wall. If an overflow occurs, the flow typically washes away the chalk line.
- **Flow Direction** Select the direction the flow occurred in the pipe during the overflow. *Forward* indicates that the flow exited the manhole. *Reverse* indicates that the flow entered the manhole through the overflow.

*The **Enter Comments** dialog displays.*

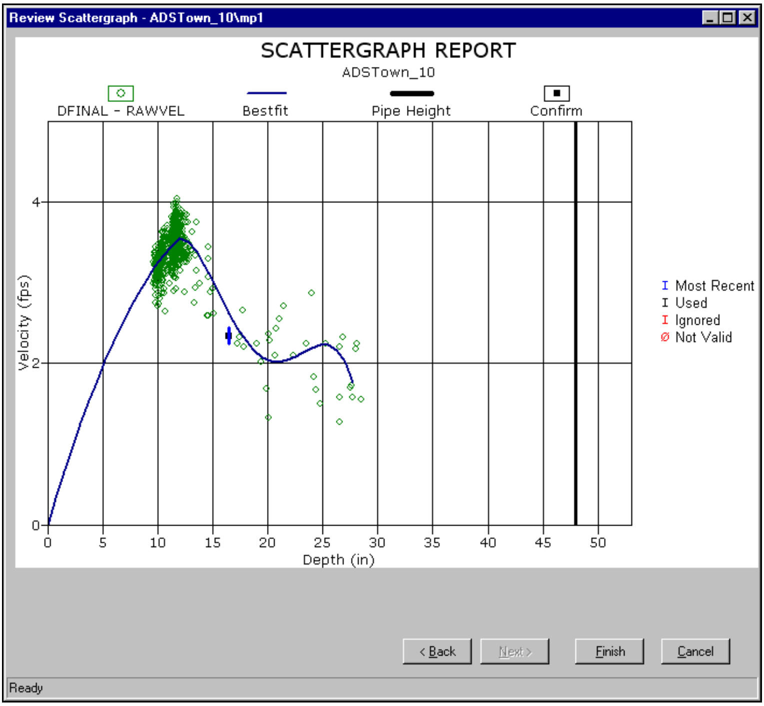


Enter Comments dialog

9. Enter any relevant comments or notes related to the current confirmations or any observations made during the site visit, and then select the **Next** button.

Note: Select the **Historical** button to view comments entered during previous field confirmation activities.

*The **Review Scattergraph** dialog displays.*



Review Scattergraph dialog

10. Review the scattergraph displaying data from the last collect and confirmations.

11. Select the **Finish** button.

12. Select the **Close** button to return to the **Diagnostics** dialog.

Performing the Velocity Profile

Perform a velocity profile to help identify the relationship between average and peak velocity at the monitoring point. Perform the velocity profile at the monitoring point in the following way:

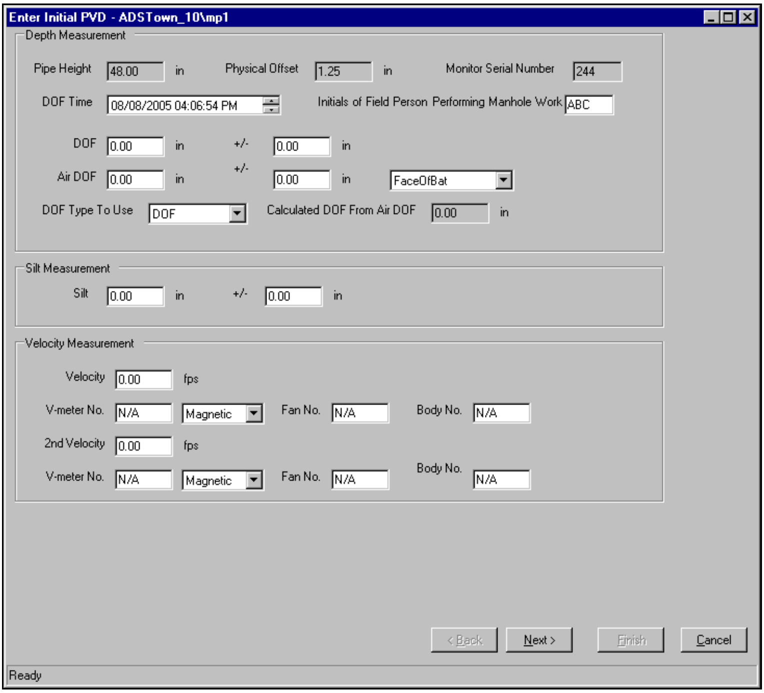
1. Select the **Connect** button to establish communication with the monitor.

Profile *initiates communication with the monitor and establishes a connection. Choose the* ***Abort*** *button prior to establishing a connection to abort the communication attempt.*

2. Select the monitoring point in which the sensors are installed from the **Monitoring Point** drop-down list.

3. Select **Velocity Profile** from the **Confirmations** drop-down list, and then select the **Confirm** button.

The ***Enter Initial PVD*** *dialog displays.*



Enter Initial PVD dialog

4. Complete the parameters in the **Enter Initial PVD** dialog in the following way, and then select the **Next** button:

- ❑ **DOF Time** Enter the date and time at which the technician obtained the manual depth measurements.
- ❑ **Initials of Field Person Performing Manhole Work** Enter the initials of the field technician taking the manual depth measurements.
- ❑ **DOF** Enter the manually measured distance from the flow surface to the bottom of the pipe and the estimated tolerance or deviation.

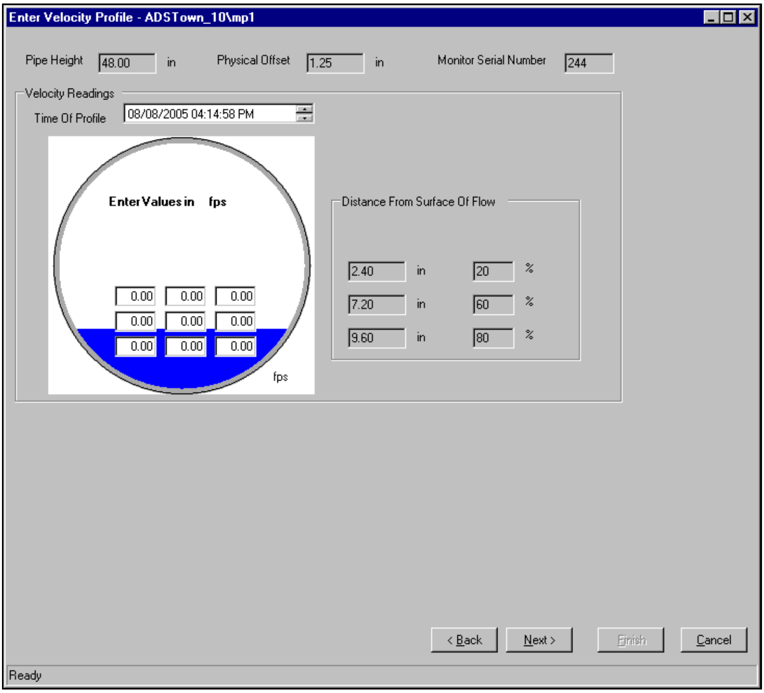
- **Air DOF** Enter the manually measured distance from the face of the ultrasonic depth sensor or top of the pipe to the flow surface and any estimated deviation. Select the point of reference at the top of the pipe from which the technician took the Air DOF measurement from the corresponding drop-down list.

The ***Calculated DOF From Air DOF*** *field displays the flow depth based on the pipe height, physical offset, and manual air DOF measurement, compensating for the selected point of reference of the air DOF (****Face of Bat*** *(sensor) or* ***Crown of Pipe****).*

- **DOF Type to Use** Select the manual flow depth measurement (**DOF** or **Air DOF**) you want **Profile** to compare with the monitor readings.
- **Silt** Enter the depth of the debris at the bottom of the pipe at the monitoring point and the estimated deviation.
- **Velocity** Enter the velocity of the flow obtained at the monitoring point manually using a portable velocity meter.
- **V-meter No.** Enter the serial number of the portable velocity meter used to obtain the manual measurements.
- **Fan No.** (*applies only to propeller-type velocity meters*) Enter the *fan number* of the portable velocity meter used to obtain the manual measurements.
- **Body No.** (*applies only to propeller-type velocity meters*) Enter the *body number* of the portable velocity meter used to obtain the manual measurements.

Repeat these instructions for a second manual velocity measurement, when applicable.

The ***Enter Velocity Profile*** *dialog displays.*



Enter Velocity Profile dialog

5. Enter the manual velocity readings obtained using the portable velocity meter in the fields available in the pipe graphic in the **Velocity Readings** section. Refer to the depths displayed in the **Distance From Surface of Flow** section to determine the distance from the surface at which to take the profile measurements. These depths are calculated based on the Depth of Flow (DOF) measurements recorded in the **Enter Initial PVD** dialog.

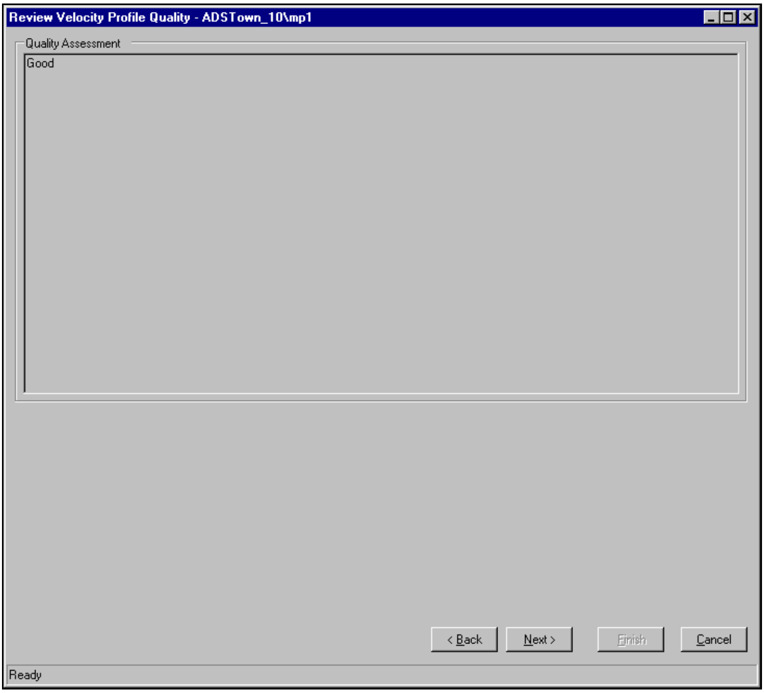
6. Enter the date and time at which the field crew performed the velocity profile in the **Time of Profile** field by selecting and editing the individual date entries in the field. You also can use the arrow controls to edit the selected entries in the date field.

7. Select the **Next** button.

*The **Enter Final PVD** dialog displays.*

8. Repeat the instructions given in step 4.

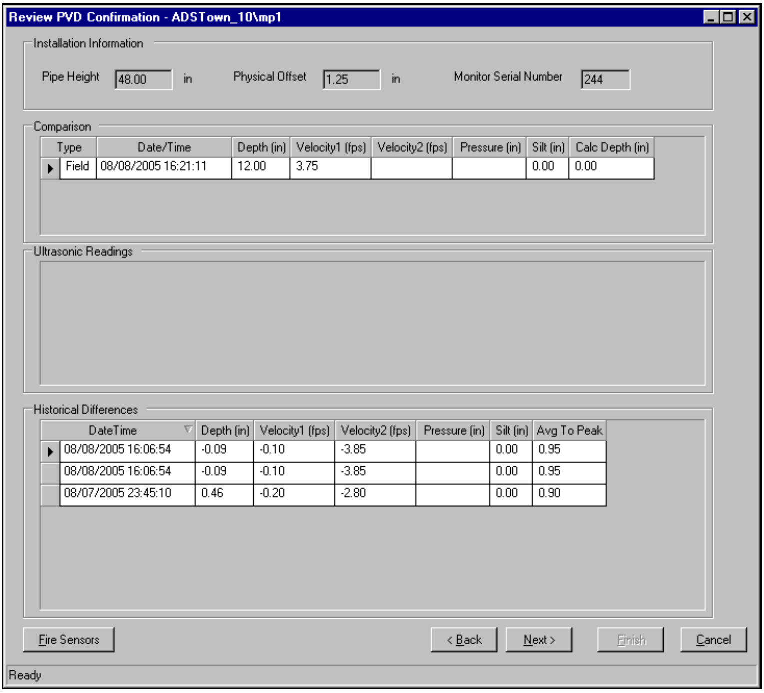
*The **Review Velocity Profile Quality** dialog displays.*



Review Velocity Profile Quality dialog

9. View the quality assessment, and then select the **Next** button.

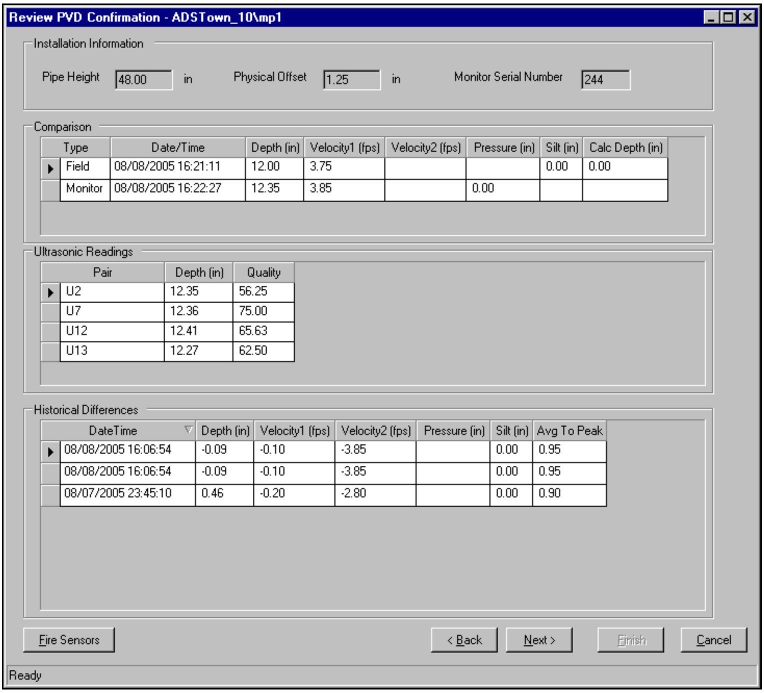
*The **Review PVD Confirmation** dialog displays.*



Review PVD Confirmation dialog

10. Select the **Fire Sensors** button to obtain readings from the ultrasonic, velocity, and pressure sensors.

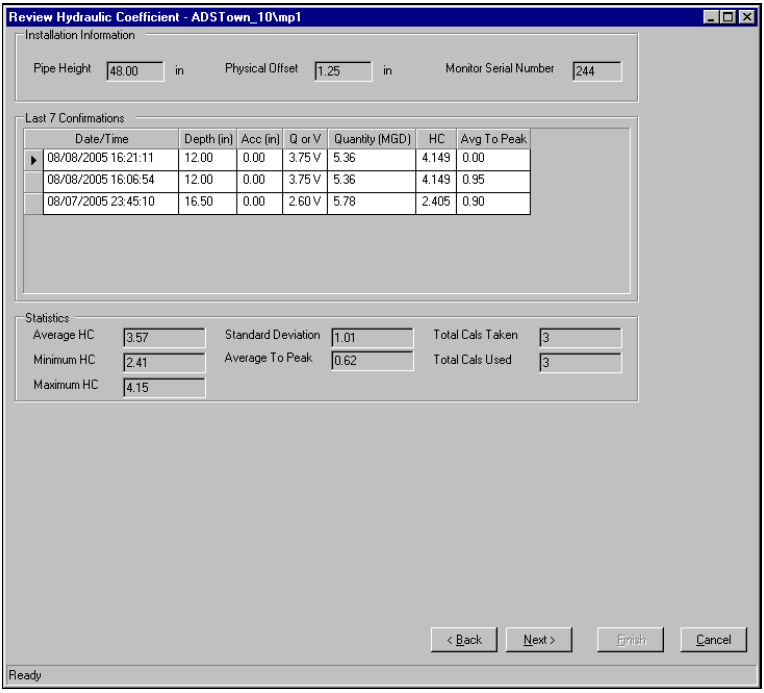
The ***Review PVD Confirmation*** *dialog displays the manual measurements, sensor readings, and historical data. The sensor readings include the ultrasonic depth sensor readings representing the designated pairs from the LIF (when applicable).*



Review PVD Confirmation dialog

11. Select the **Next** button.

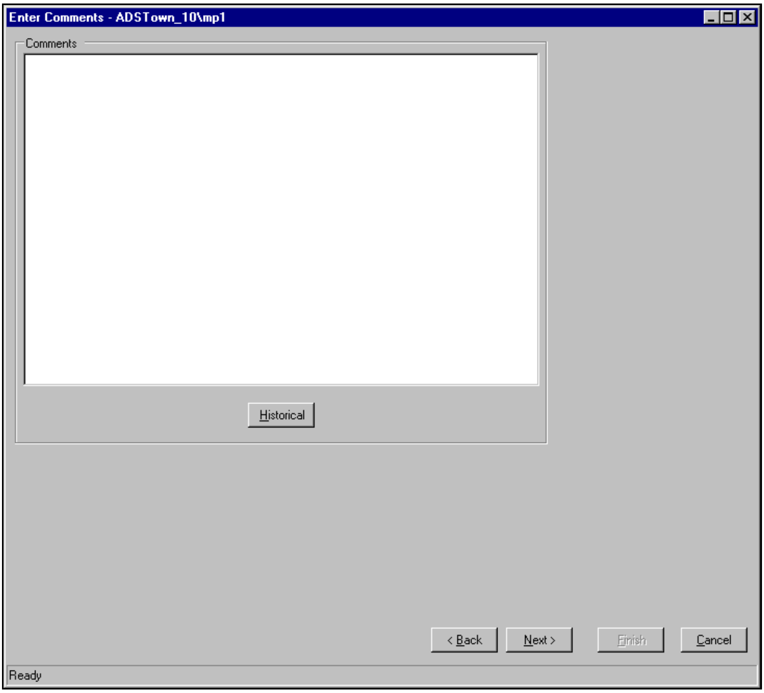
The ***Review Hydraulic Coefficient*** *dialog displays.*



Review Hydraulic Coefficient dialog

12. Review the summary of confirmations and statistics concerning the hydraulic coefficient, and then select the **Next** button.

*The **Enter Comments** dialog displays.*

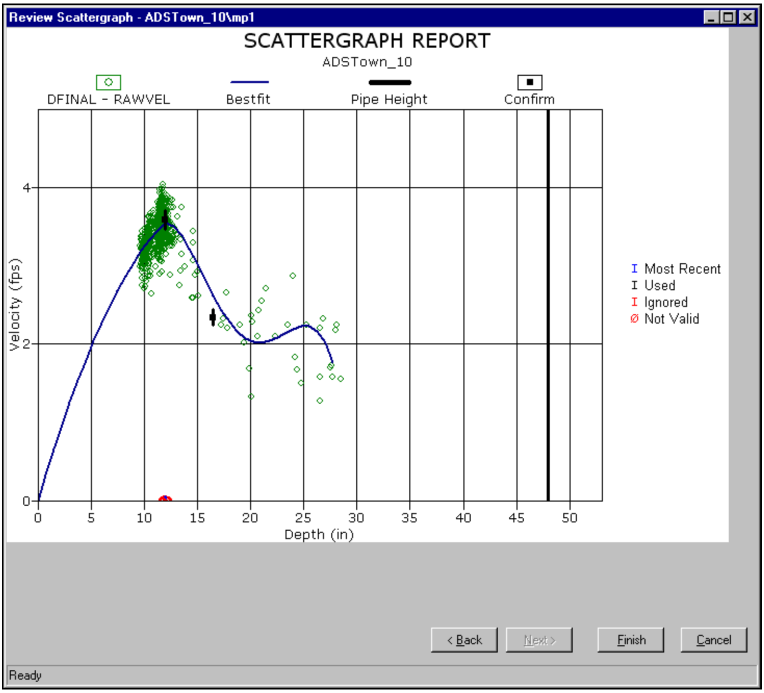


Enter Comments dialog

13. Enter any relevant comments or notes related to the velocity profile or site visit, and then select the **Next** button.

    Note: Select the **Historical** button to view comments entered during previous field confirmation activities.

*The **Review Scattergraph** dialog displays.*



Review Scattergraph dialog

14. Review the scattergraph displaying data from the last collect and confirmations.

15. Select the **Finish** button.

16. Select the **Close** button to return to the **Diagnostics** dialog.

Confirming Flow Quantity Using a Weir

ADS typically uses a weir to confirm flow quantity at a monitoring point where the flow depth does not exceed 5 inches because a portable velocity meter may not produce reliable results. Confirm the flow quantity using a weir in the following way:

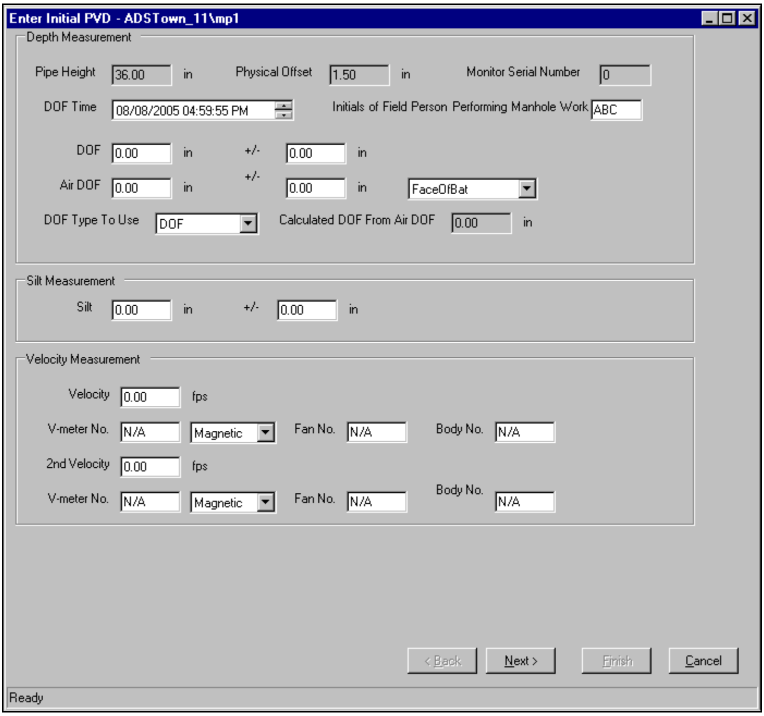
1. Select the **Connect** button to establish communication with the monitor.

***Profile** initiates communication with the monitor and establishes a connection. Choose the **Abort** button prior to establishing a connection to abort the communication attempt.*

2. Select the monitoring point in which the sensors are installed from the **Monitoring Point** drop-down list.

3. Select **Weir Confirmation** from the **Confirmations** drop-down list, and then select the **Confirm** button.

*The **Enter Initial PVD** dialog displays.*



Enter Initial PVD dialog

4. Enter the depth, silt, and velocity measurements in the following way, and then select the **Next** button:

   Note: It is essential that you complete the entire form. If the appropriate depth and velocity measurements are not available, **Profile** cannot calculate flow quantity.

   - **DOF Time** Enter the date and time at which the technician obtained the manual depth measurements.
   - **Initials of Field Person Performing Manhole Work** Enter the initials of the field technician taking the manual depth measurements.
   - **DOF** Enter the manually measured distance from the flow surface to the bottom of the pipe and the estimated accuracy of the measurement (tolerance or deviation).
   - **Air DOF** Enter the manually measured distance from the face of the ultrasonic depth sensor or top of the pipe to the flow surface and any estimated deviation. Select the point of reference at the top of the pipe from which the technician took the Air DOF measurement from the corresponding drop-down list.

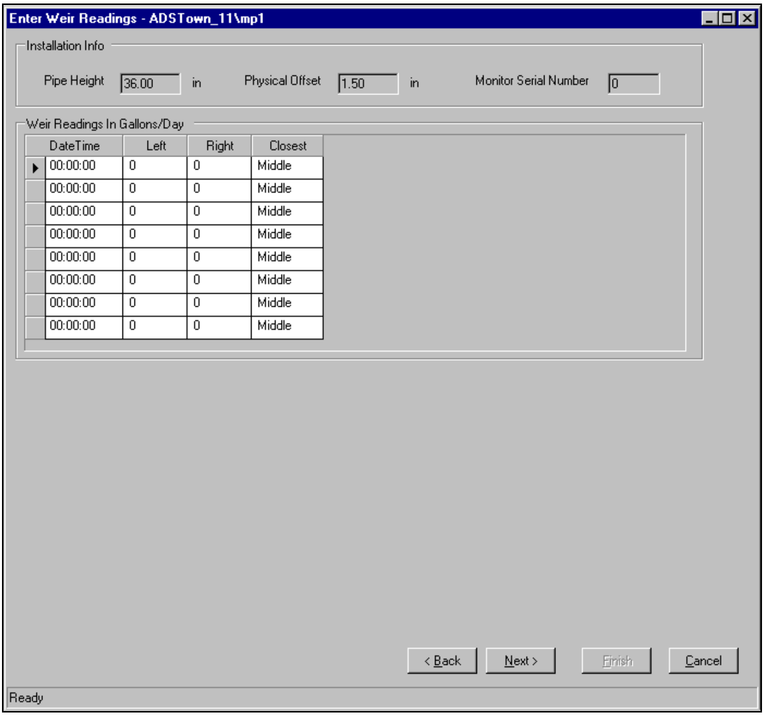
*The **Calculated DOF From Air DOF** field displays the flow depth based on the pipe height, physical offset, and manual air DOF measurement, compensating for the selected point of reference of the air DOF (**Face of Bat** (sensor) or **Crown of Pipe**).*

- **DOF Type to Use** Select the manual flow depth measurement (**DOF** or **Air DOF**) you want **Profile** to compare with the monitor readings.
- **Silt** Enter the depth of the debris at the bottom of the pipe at the monitoring point and the estimated accuracy of the measurement (tolerance or deviation).
- **Velocity** Enter the velocity of the flow obtained at the monitoring point manually using a portable velocity meter.
- **V-meter No.** Enter the serial number of the portable velocity meter used to obtain the manual measurements.

- ❑ **Fan No.** (*applies only to propeller-type velocity* meters) Enter the *fan number* of the portable velocity meter used to obtain the manual measurements.
- ❑ **Body No.** (*applies only to propeller-type* velocity *meters*) Enter the *body number* of the portable velocity meter used to obtain the manual measurements.

When applicable, repeat the four previous velocity parameters for the second manual velocity measurement.

*The **Enter Weir Readings** dialog displays.*



Enter Weir Readings dialog

5. Complete the **Weir Readings in Gallons/Day** table in the following way, and then select the **Next** button:

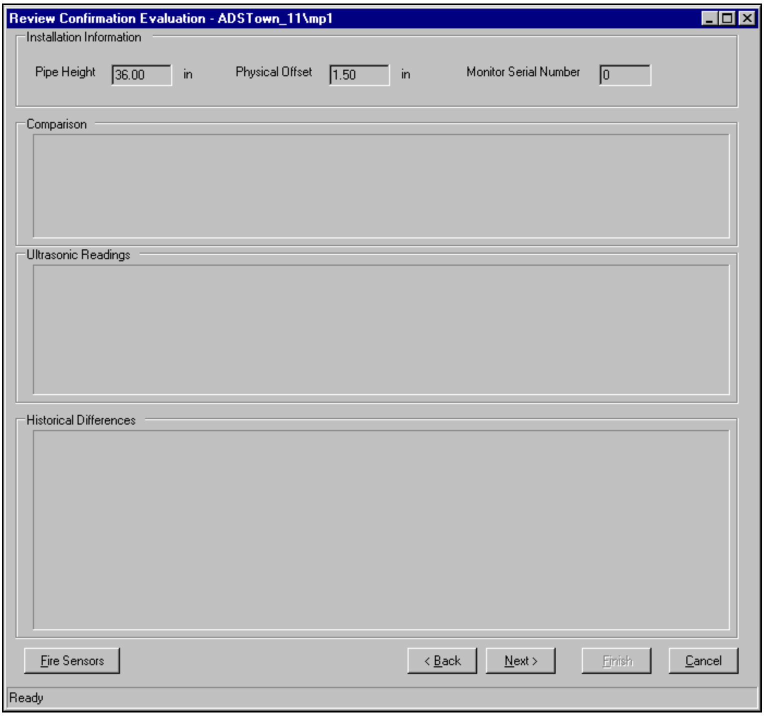
- **DateTime** Enter the date and time of the manual weir reading.
- **Left** Record the reading level at which the flow is registering on the left side of the weir at the designated time. The reading on the weir represents the flow quantity.
- **Right** Record the reading level at which the flow is registering on the right side of the weir at the designated time. The reading on the weir represents the flow quantity.
- **Closest** Select the measurement (**Right** or **Left**) on the weir to which the water level reads closest. If the water level falls midway between the right and left readings, designate the **Middle** to average the readings during flow calculations.

Complete the remaining **DateTime**, **Left**, **Right**, and **Closest** fields for each additional weir reading.

*The **Enter Final PVD** dialog displays.*

6. Repeat the instructions listed in step 4.

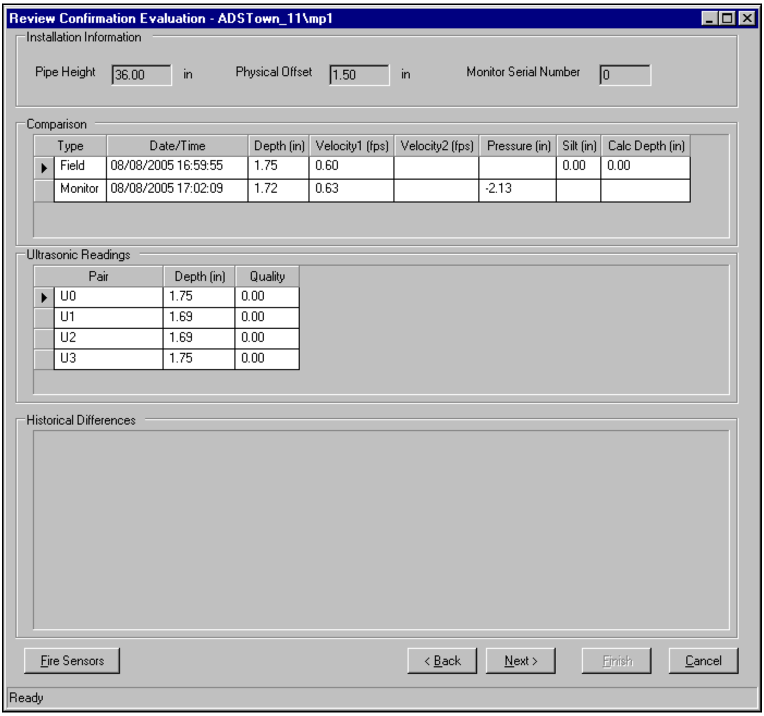
*The **Review Confirmation Evaluation** dialog displays.*



Review Confirmation Evaluation dialog

7. Select the **Fire Sensors** button to obtain readings from the ultrasonic, velocity, and pressure sensors.

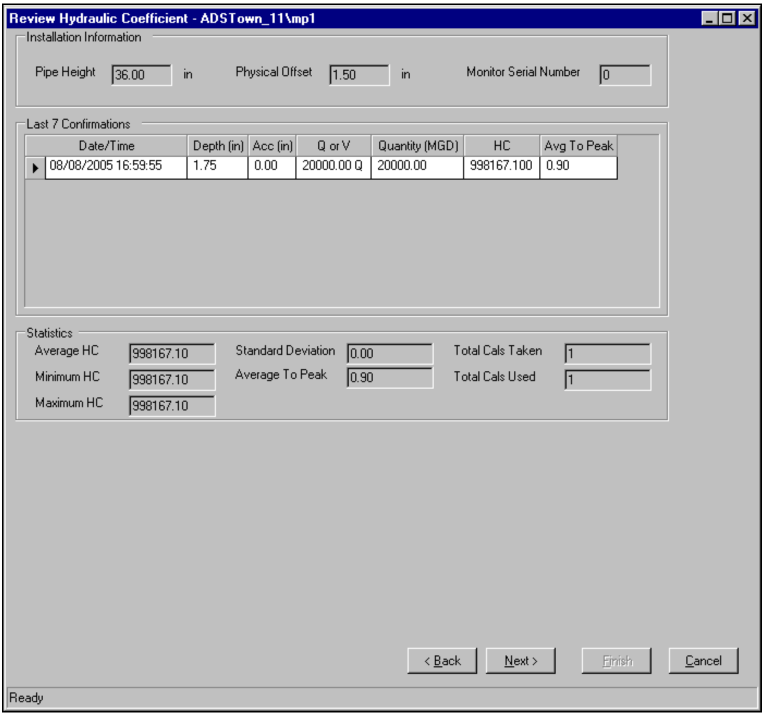
*The **Review Confirmation Evaluation** dialog displays the manual measurements, sensor readings, and historical data. The sensor readings include the ultrasonic depth sensor readings representing the designated pairs from the LIF.*



Review Confirmation Evaluation dialog with field measurements and electronic sensor readings

8. Click on the **Next** button.

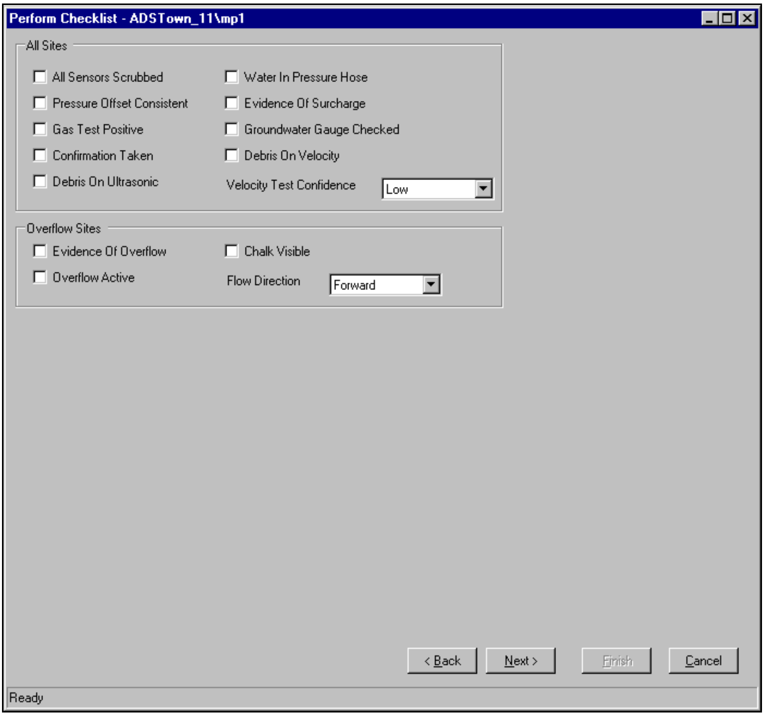
*The **Review Hydraulic Coefficient** dialog displays.*



Review Hydraulic Coefficient dialog

9. Review the summary of confirmations and statistics concerning the Hydraulic Coefficient, and then select the **Next** button.

*The **Perform Checklist** dialog displays.*



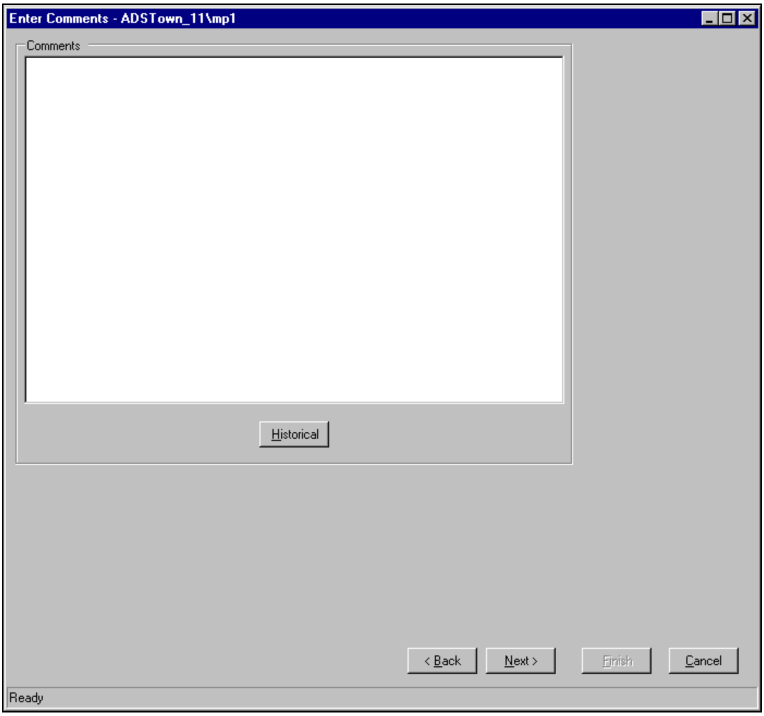
Perform Checklist dialog

10. Complete the **Perform Checklist** in the following way, and then select the **Next** button:

- ❑ **All Sensors Scrubbed** Select this checkbox if the field crew scrubbed the sensors at the monitoring point during the field confirmations.
- ❑ **Pressure Offset Consistent** Select this checkbox if the calculated pressure sensor offset remains consistent with the historical offsets.
- ❑ **Gas Test Positive** Select this checkbox if the field crew registered the presence of hazardous gases beyond the acceptable limits.

- **Confirmation Taken** Select this checkbox if the field crew performed confirmations during the site visit.
- **Debris On Ultrasonic** Select this checkbox if the field crew discovered debris on the ultrasonic depth sensor during the site visit.
- **Water in Pressure Hose** Select this checkbox if moisture was detected in the hose extending from the pressure depth sensor to the monitor.
- **Evidence Of Surcharge** Select this checkbox if indications exist that a surcharge occurred since the last visit to the monitor location.
- **Groundwater Gauge Checked** Select this checkbox if the field crew inspected the groundwater gauge.
- **Debris On Velocity** Select this checkbox if the field crew discovered debris on the velocity sensor during the site visit.
- **Velocity Test Confidence** Select the best option that describes the confidence you have in the manual velocity measurement obtained using the portable velocity meter.
- **Evidence Of Overflow** Select this checkbox if the field crew discovered evidence that an overflow occurred at the monitor location since the last site visit.
- **Overflow Active** Select this checkbox if overflow conditions exist at the monitor location during the site visit.
- **Chalk Visible** Select this checkbox if the chalk line originally drawn by the field crew inside the overflow is still present on the channel wall. If an overflow occurs, the flow typically washes away the chalk line.
- **Flow Direction** Select the direction the flow occurred in the pipe during the overflow. *Forward* indicates that the flow exited the manhole. *Reverse* indicates that the flow entered the manhole through the overflow.

*The **Enter Comments** dialog displays.*

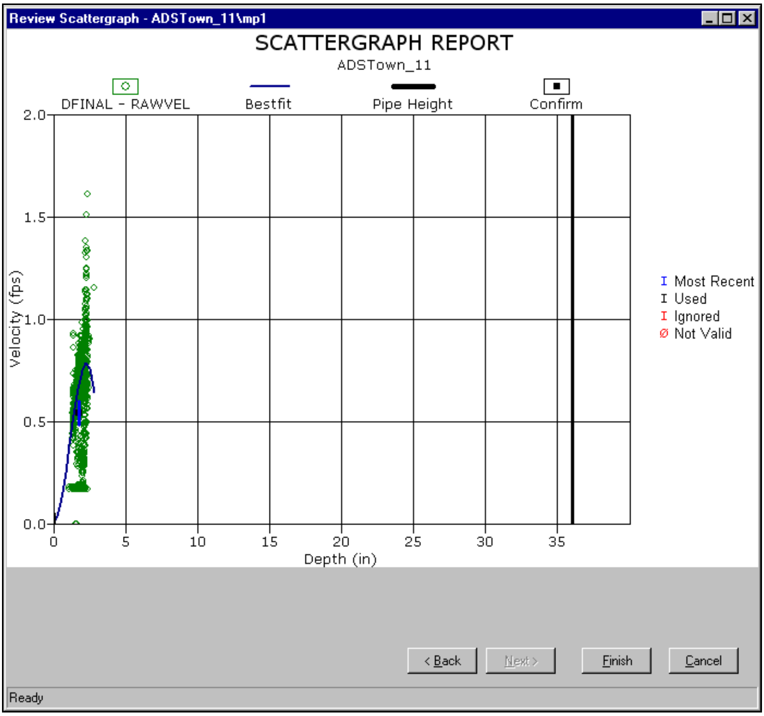


Enter Comments dialog

11. Enter any relevant comments or notes related to the weir confirmation, and then select the **Next** button.

Note: Select the **Historical** button to view comments entered during previous field confirmation activities.

*The **Review Scattergraph** dialog displays.*



Review Scattergraph dialog

12. Review the scattergraph displaying data from the last collect.
13. Select the **Finish** button.
14. Select the **Close** button to return to the **Diagnostics** dialog.

Exiting the Diagnostics Tool

Select the **File > Exit** option to close and exit the **Diagnostics** tool.

CHAPTER 7

Data Transfer Utility

To learn about: ***See page:***

What is the Data Transfer Utility?

The **Data Transfer Utility** is a **Profile** tool that allows the user to import flow monitor data to the **Profile** database or export data from the **Profile** database to another location. This tool also enables the user to import and export the data in various file formats.

The **Data Transfer Utility** can import or export the following data to and from the **Profile** database:

- **Entity Data** Logged data from flow monitoring activities
- **Configuration** Configuration information stored in the monitor memory concerning system identification, monitor location, monitoring point description, entities logged, data logging rate, and other parameters
- **Calibration** Calibration logs containing manual measurements taken during field calibrations
- **Service Logs** Service logs documenting service and maintenance activities performed at the monitor location
- **Which Entity Information** Final data generator tables defining the QFinal, DFinal, Pseudo Site (QPseudo), and AvgUDepth entities

When to Use the Data Transfer Utility

Use the **Data Transfer Utility** to import data during the *Data Retrieval* phase of the weekly routine, to export data for use outside the **Profile** database, or to archive data from or restore **Profile** data to the **Profile** database. Refer to the *Introduction,* Chapter 1, for more information on retrieving data during the weekly routine.

How to Use the Data Transfer Utility

This section provides detailed instruction on using the **Data Transfer Utility** tool to perform two primary functions:

- Import data to the **Profile** database
- Export data from the **Profile** database

Importing Data to the Profile Database

The flexibility of the **Data Transfer Utility** enables the user to import data for a single monitor location, multiple monitor locations, or an entire group simultaneously.

> **Note:** **Profile** limits you to a maximum of 32 entities on each data import.

Import monitor data to the **Profile** database in the following way:

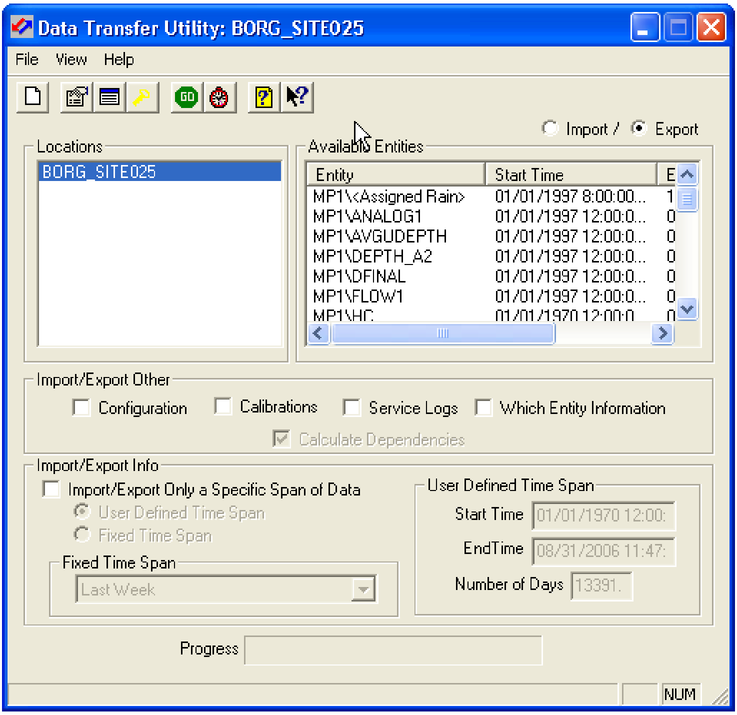
1. Select the **<All Locations>** group (or the specific monitor group or location from which to import data) from the **Profile** main screen.

> **Note:** Access to the **Data Transfer Utility** also may occur by selecting a template previously saved by the user.

Data Transfer Utility

2. Select the **Data Transfer Utility** toolbar button.

Profile *displays the* **Data Transfer Utility** *dialog. The* **Locations** *list box displays any* **Profile** *data files currently saved to the default file location, C:\Profiledata.*

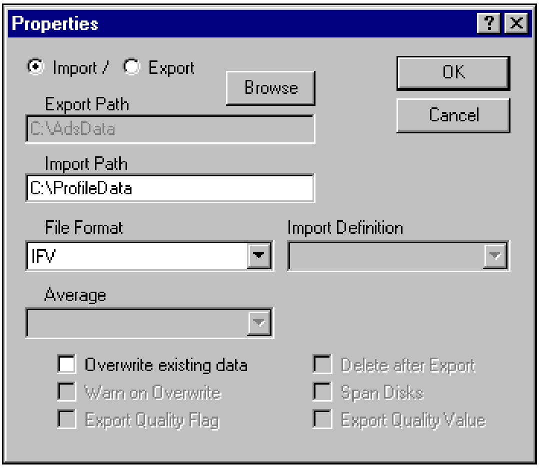


Data Transfer Utility dialog

3. Select the **Import** radio button at the top of the dialog.

Properties button

4. Select the **Properties** toolbar button to access the **Properties** dialog for accomplishing any of the following tasks:



Properties dialog

- ❑ **Locating Other Data Files Profile** imports data from *C:\Profiledata* by default. If this location does not contain **Profile** data files, select the **Browse** button to locate the file path containing the required data files for display under **Import Path**. The **Locations** list box will display the available data files.

Note: The actual **Profile** data files will reside in the [*Import Path*]\[*monitor location name*] folder, where **Import Path** is the default path or a user-selected path, and **monitor location name** represents the name of the monitor associated with the data. **Profile** will automatically create the **monitor location name** folder when a data export is performed.

- ❑ **Changing the Import File Format** Select the required format from the **File Format** drop-down list to change the format of the data file imported to the **Profile** database. When selecting a *user-defined* format, you also must select a specific format from the **Import Definition** drop-down list. This list may contain ASCII or Excel formats previously created using the **Import Definition Wizard** launched from the **Data Transfer Utility** dialog. Refer to

Using the Import Definition Wizard on page 7-9 for more information.

- ❑ **Overwriting Existing Data** Select this checkbox to ensure the **Profile** import overwrites any duplicate data files already existing in the database. Select the **Warn on Overwrite** checkbox to notify you prior to overwriting any existing data.

Select the **OK** button to save changes made to the **Properties** dialog.

5. Select the monitor location(s) from the **Locations** list box and the corresponding entities from the **Available Entities** list box for which you desire to import data. (**Profile** limits you to 32 entities for a data import.)
6. Select the appropriate checkboxes in the **Import/Export Other** section to import the current configuration file, calibration log, service log, or final data generator tables associated with any monitor locations selected in the **Locations** list box.
7. (*Optional*) Select the **Calculate Dependencies** checkbox to generate dependent data for the imported data.
8. (*Optional*) Select the **Import/Export Only a Specific Span of Data** checkbox and *one* of the following options to import data for a user-defined or fixed date and time span:

Note: If you do not select an option for importing a specific span of data, **Profile** automatically will import all the data available for the selected entities.

- ❑ **User Defined Time Span** Enter the specific beginning and ending dates and times in the **Start Time** and **End Time** fields to import only a specific, user-defined range of data from the import file location.
- ❑ **Fixed Time Span** Select **Last Day**, **Last Week**, or **Last Month** to import the most recent data available from the import file location for the designated period.

9. Choose one of the following options:

Go button

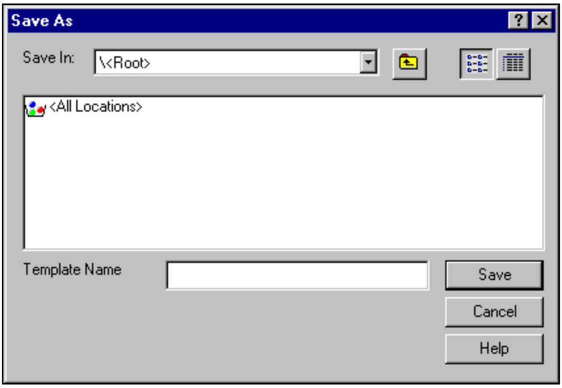
- ❑ Select the **Go** toolbar button to initiate the import.

***Profile** initiates the import, and the **Progress** field displays the status.*

Task Scheduler button

- ❑ Select the **Task Scheduler** toolbar button to schedule the import to occur at a later time or at a user-defined interval.

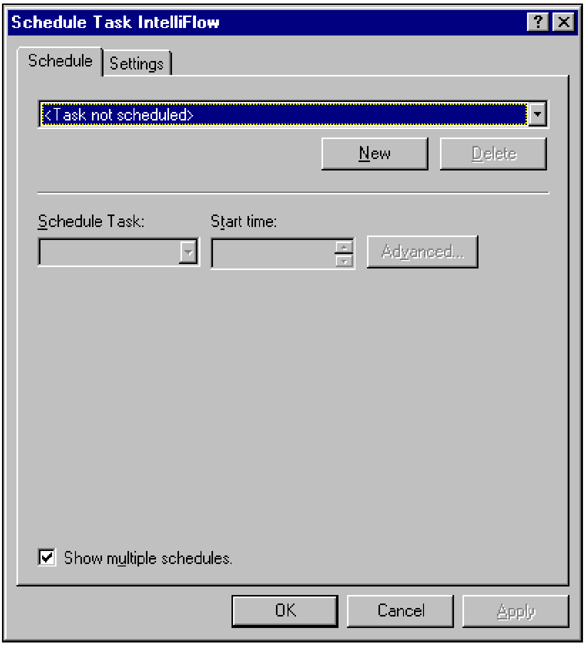
*The **Save As** dialog displays.*



Save As dialog

Complete the **Save As** dialog, and select the **Save** button to save the template to the desired location.

*The **Schedule Task** dialog displays.*



Schedule Task dialog

Select the **New** button in the **Schedule** tab, complete the appropriate fields, and select **Apply** to schedule the import. Then, complete the **Settings** tab to set the task management options and select **OK**.

Warning: If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled activity. Therefore, *do not* log off from the network when operations are scheduled to occur.

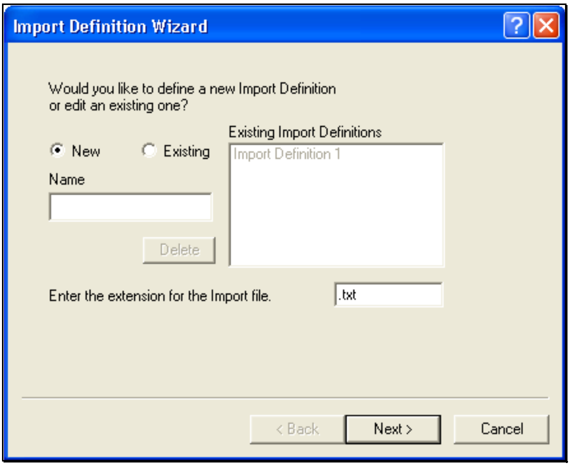
10. Repeat steps 3 through 8 to import additional data when **<All Locations>** is displayed in the **Locations** list box. To import data from a monitor group or location that is not displayed in the **Locations** list box, select the **New** toolbar button to modify the selections available in the list box and then repeat steps 3 through 8.

Using the Import Definition Wizard

The **Import Definition Wizard** allows the user to set up a special file format for displaying the ASCII or Excel data files. Set up a user-defined file format using the wizard in the following way:

Import Definition Wizard button

1. Select the **Import Definition Wizard** toolbar button on the **Data Utility Transfer** dialog.

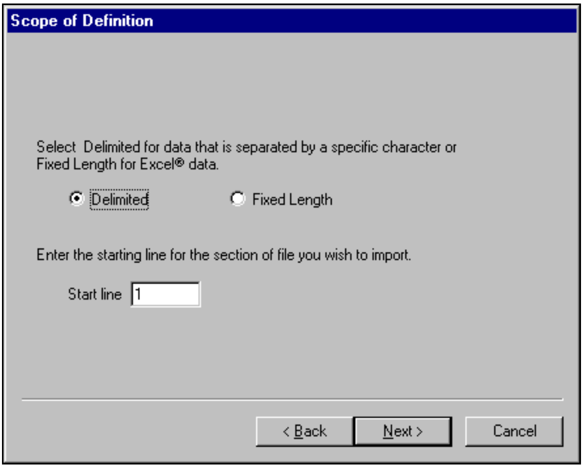


Import Definition Wizard dialog

2. Complete the initial **Import Definition Wizard** dialog by selecting the **New** radio button, entering a name and a file extension for the new import definition, and selecting **Next**.

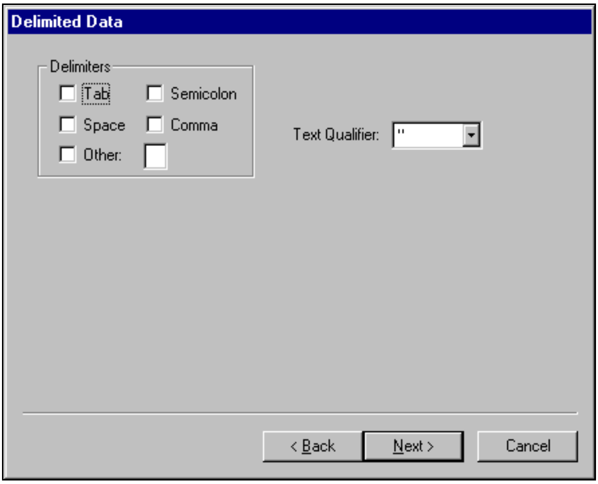
Note: Use the **Delete** button when you want to permanently remove a previously created import definition from the **Existing Import Definitions** list. Choose the **Existing** radio button, choose the import definition you want to remove, and then choose the **Delete** button.

3. Complete the **Scope of Definition** dialog by selecting either a **Delimited** or **Fixed Length** file format, entering the starting line for the section of the file you desire to import, and selecting **Next**.



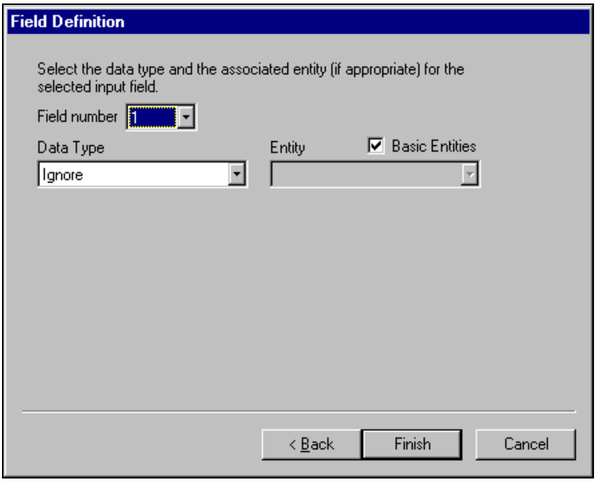
Scope of Definition dialog

- ❑ **Delimited** Selecting the **Delimited** format displays the **Delimited Data** dialog. To complete this dialog, select the checkbox for the appropriate **Delimiter**, select the appropriate **Text Qualifier** from the drop-down list, and select **Next**.



Delimited Data dialog

4. Complete the **Field Definition** dialog by selecting a data type and associated entity for each corresponding field and then selecting **Finish**.



Field Definition dialog

Properties button

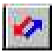
5. Select the **Properties** toolbar button to access the **Properties** dialog.

The new file format is available in the **Import Definition** *drop-down list on the* **Properties** *dialog.*

Exporting Data from the Profile Database

The **Data Transfer Utility** enables the user to export monitor entity data for a single monitor, multiple monitors, or an entire group from the **Profile** database simultaneously. Export data from the **Profile** database to another location in the following way:

1. Select the **<All Locations>** group (or the specific monitor group or location from which you desire to import data) from the **Profile** main screen.



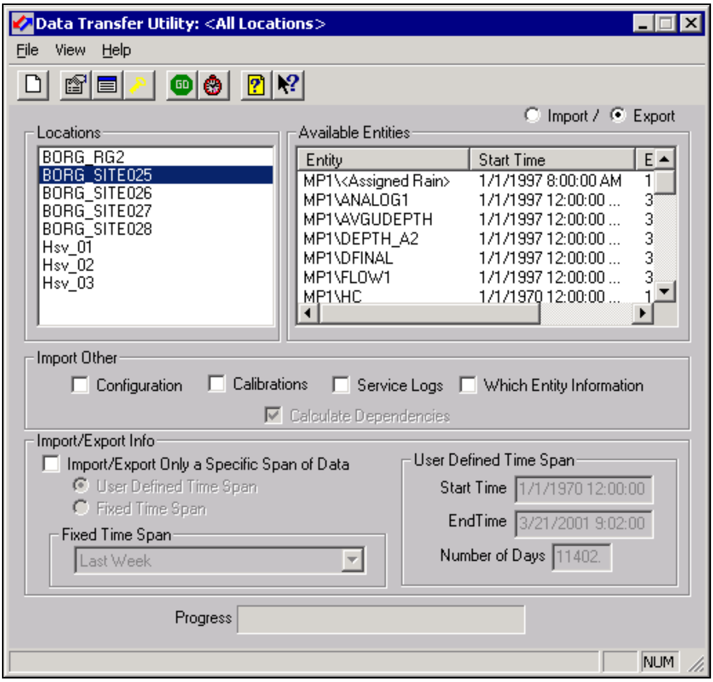
Data Transfer Utility

2. Select the **Data Transfer Utility** toolbar button.

Profile *displays the* **Data Transfer Utility** *dialog.*

3. Select the **Export** radio button.

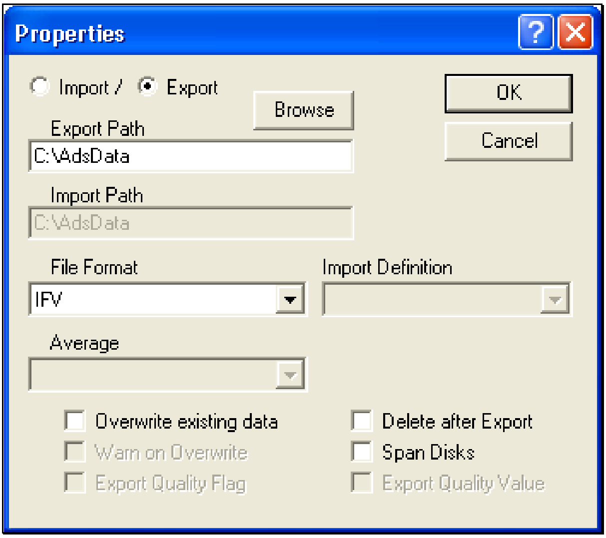
The **Locations** *list box displays all locations containing monitor data in the* **Profile** *data base.*



Data Transfer Utility dialog

Properties button

4. Select **View>Properties** or the **Properties** toolbar button to access the properties dialog for accomplishing any of the following tasks:



Properties dialog

- ❑ **Changing the Export Path Profile** exports data to *C:\AdsData* by default. Select the **Browse** button to locate an alternate file path for exporting the data.

Note: The actual **Profile** data files will reside in the [*Export Path*]\[*monitor location name*] folder, where **Export Path** is the default path or a user-selected path, and **monitor location name** represents the name of the monitor associated with the data. **Profile** will automatically create the **monitor location name** folder when a data export is performed.

- ❑ **Changing the Export File Format** Select the desired format for the exported data from the **File Format** drop-down list.

- ❑ **Creating an Average Interval for the Monitor Data** Select the desired average interval from the **Average** drop-down list when exporting the data into ASCII or Excel format. This option is not available for exporting **Profile** data (.IFV) files.

- ❑ **Overwriting Existing Data** Select this checkbox to ensure the exported overwrites any duplicate data files already existing in the export file location. Select the **Warn on Overwrite** checkbox to notify you prior to overwriting any existing data.
- ❑ **Export Quality Flag** Select this checkbox to ensure data quality flags corresponding to each data point are exported along with the data. This option is limited to (ADS Predefined) **CSV**, **Text**, and **Excel** exports.
- ❑ **Deleting Profile Data After the Export** Select this checkbox to ensure **Profile** automatically deletes the exported data from the **Profile** database following the export. This option is only available for exporting *.IFV* files.
- ❑ **Span Disks** Select this checkbox to ensure **Profile** notifies you to insert another disk when the original disk receiving the export data becomes full. This option is not available for exporting Excel files.
- ❑ **Export Quality Value** Select this checkbox to ensure data quality values corresponding to each data point are exported along with the data. (This option is limited to (ADS Predefined) **CSV**, **Text**, and **Excel** exports.

Select the **OK** button to save changes made to the **Properties** dialog.

5. Select the monitor locations from the **Locations** list box and the corresponding entities from the **Available Entities** list box for which you desire to export data.
6. (Optional) Select the appropriate checkboxes in the **Import Other** section to import the current configuration file, calibration log, service log, or final data generator tables associated with any monitor location selected in the **Location** list box.
7. (Optional) Select the **Import/Export Only a Specific Span of Data** checkbox and *one* of the following options to export data for a user-defined or fixed date and time span:

> **Note:** If you do not select an option for exporting a specific span of data, **Profile** automatically will export all the data available for the selected entities.

- ❑ **User-Defined Time Span** Enter the specific beginning and ending dates and times in the **Start Time** and **End Time** fields to export only a specific, user-defined range of data from the **Profile** database.
- ❑ **Fixed Time Span** Select **Last Day**, **Last Week**, or **Last Month** to export the most recent data available from the **Profile** database for the designated period.

8. Choose from one of the following options:

Go button

- ❑ Select the **Go** toolbar button to initiate the export.

Profile *initiates the export, and the* **Progress** *field displays the status.*

Task Scheduler button

- ❑ Select the **Task Scheduler** toolbar button to schedule the export to occur at a later time or at a user-defined interval.

The **Save As** *dialog displays.*

Complete the **Save As** dialog to save the template to the desired location.

The **Schedule Task** *dialog displays.*

Select the **New** button in the **Schedule** tab, complete the appropriate fields, and select **Apply** to schedule the export. Then, complete the **Settings** tab to set the task management options and select **OK**.

9. Repeat steps 4 through 8 to export additional **Profile** data when **<All Locations>** is displayed in the **Locations** list box. To export data from a monitor group or location that is not displayed in the **Locations** list box, select the **New** toolbar button to modify the selections available in the list box and then repeat steps 4 through 8.

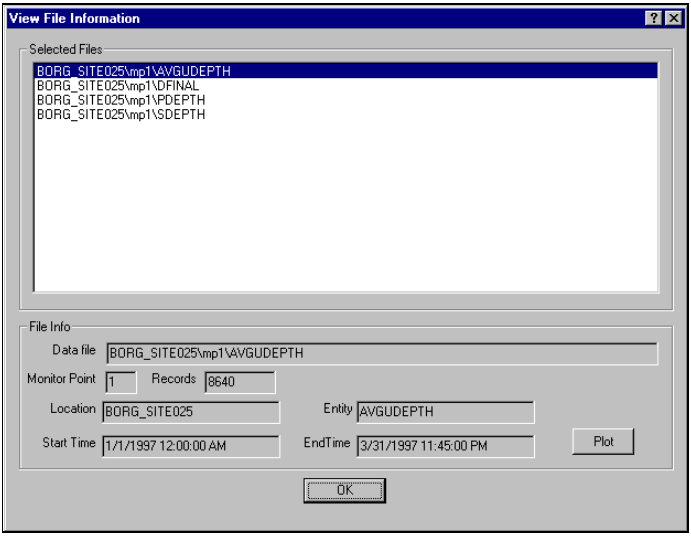
Reviewing Data Files

The **Data Transfer Utility** allows the user to review the details of each data file for diagnostics purposes. Perform the following task to view the details of specific entity data files:

1. Select a monitor location(s) in the **Location** list box.
2. Select the desired entities from the **Available Entities** list box.
3. Select the **View Associated Files** toolbar button.

View Associated Files button

The **View File Information** *dialog displays the details of the selected* ***Profile*** *entity data file(s).*



Viewing the details of a data file on the **View File Information** dialog

Exiting the Data Transfer Utility

Select the **File > Exit** option to close and exit the **Data Transfer Utility**.

CHAPTER 8

Importer

To learn about:	*See page:*

What is the Importer?

The **Importer** tool enables you to import flow data collected through **QuadraScan** or **FieldScan** into your **Profile** database. It also allows you to import **FieldScan**, **Profile** or **QuadraScan** LIFs into your **Profile** database.

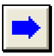
Use the **Importer** tool during the *Project Setup or Data Retrieval* phase of the project. Refer to *Introduction,* Chapter 1, for more information.

How to Use the Importer

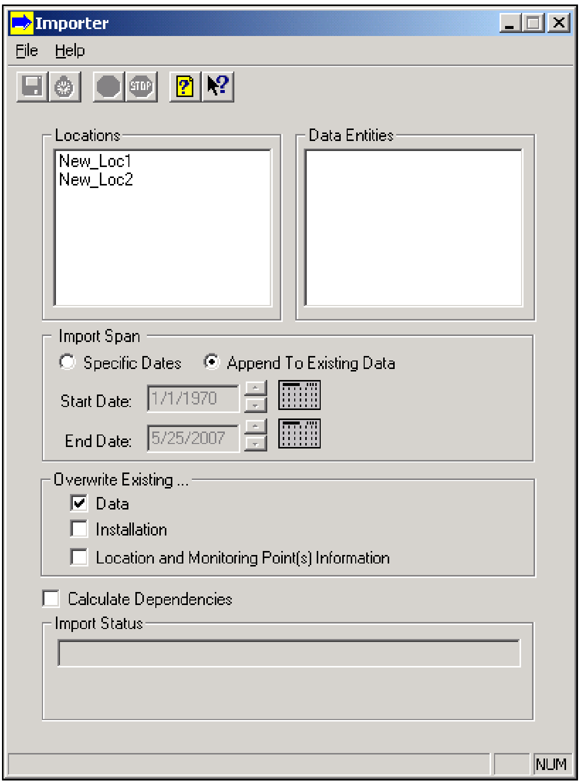
Use the **Importer** to retrieve **QuadraScan** and **FieldScan** generated data or LIFs, or to update your **Profile** LIFs copied from another system or folder into your **Profile** database by performing the following steps:

1. From the **Profile** main menu, select the **<All Locations>** group from the current database.

2. Select the **Importer** toolbar button to display the **Importer** dialog.



Importer button



Importer dialog

The **Locations** *box will display the corresponding monitor locations.*

3. If no locations display in the **Locations** list, make sure **Profile** has the correct path to the folder containing the data files in the following way:

   - ❑ Select the database from the main screen.
   - ❑ Select the **Edit > Properties** option or the **Properties** toolbar button to display the **Database Properties** dialog.
   - ❑ From the General tab, view the **Import Data Path**. If the wrong path or no path display, enter or **Browse** to the folder containing the **locations.dat** file for the data (LIFs or data), select **Open**, and select **OK** to exit the **Database Properties** dialog.

4. Select the location(s) you want to import from the **Locations** list. Hold down the **<Shift>** key to select a contiguous block of locations, or hold down the **<Ctrl>** key to select a non-contiguous block of locations.

The **Data Entities** *displays the data entities available for import based on the selected* **Locations**.

5. Select the individual data entities you want to import from the **Data Entities** list. Hold down the **<Shift>** key to select multiple data entities for contiguous entities, or hold down the **<Ctrl>** key to select a non-contiguous block of entities.

6. Select the time period of data you want to import in the **Import Span** section. Enter specific time periods using the **Specific Dates** radio button to access the **Start Date** and **End Date** fields, or add to your existing **Profile** database by selecting the **Append to Existing Data** radio button.

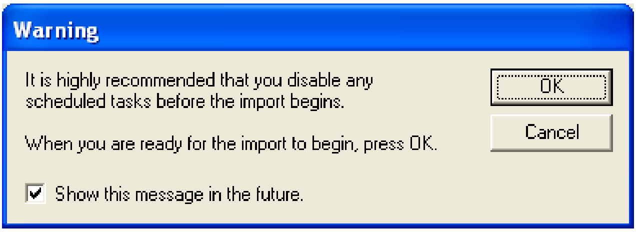
7. Select the appropriate **Overwrite Existing** checkbox categories: **Data**, **Installation**, and/or **Location and Monitoring Point(s) Information**.

8. Select the **Calculate Dependencies** checkbox to calculate dependent data for the imported data entities.

Go button

9. Select the **Go** button to begin the data import, or select the **Schedule** button to delay the import process until a later time.

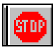
*The following **Warning** message appears to make sure no scheduled processes are currently running. If any scheduled tasks are enabled, click the **Cancel** button.*



Importer **Warning** message

10. Click the **OK** button to start the import.

*The **Import Status** section of the **Importer** dialog displays the progress of the import process.*



Stop button

Note: If necessary, select the **Stop** toolbar button to terminate the import process.

*When the import process is finished, the **Import Complete** message appears.*

Import Complete status message

11. Select **OK** to close the status message.

Note: **Profile** places newly imported locations into the <**All Locations**> group. Copy the monitor locations from the <**All Locations**> group to other **Profile** groups, as necessary.

Exiting the Importer

Select the **File > Exit** option to close and exit the **Importer**.

CHAPTER 9

Log Viewer

To learn about:	See page:

What is the Log Viewer?

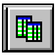
The **Log Viewer** allows you to review details of historical **Profile** activities called *logs*. **Profile** is capable of recording details of specific activities, including various data edits, data imports, monitor service, activation, set time, data collects, final data generation, data file processing, and log viewer errors. For example, each time you perform a monitor data collect, **Profile** creates a log record detailing the activity— the time the collect was attempted, the success or failure of the collect, and the beginning and ending dates of the collected data. Use the **Log Viewer** to review these activity details.

When to Use the Log Viewer

Use the **Log Viewer** typically after the *Data Retrieval* phase of the project analysis to view the success or failure of the data collects and imports or anytime you want to review the logged activities of a group, monitor location, monitoring point, or data entity. Refer to the *Introduction*, Chapter 1, for more information.

> **Note:** For more information on viewing and printing diagnostic activity logs, refer to Chapter 2, *Profile Main Screen* and Chapter 6, *Diagnostics*.

How to Use the Log Viewer

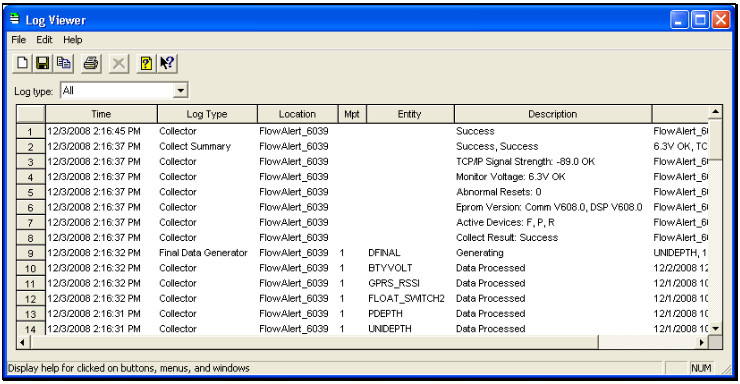


Log Viewer button

Access the **Log Viewer** after selecting single or multiple groups, monitor locations, monitoring points, or data entities from the **Profile** main screen and then selecting the **Log Viewer** toolbar button.

Performing the following steps ensures successful log viewing:

- **Setting up the log view** This step includes changing, if necessary, the currently selected database object (group, monitor location, monitoring point, or data entity) and the log record time span.
- **Viewing log records** This step includes reviewing the log records on-screen for the selected database object(s).
- **Printing log records** This step includes printing hardcopies of log records, as necessary.

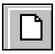


Log Viewer dialog

Setting Up the Log View

The first step to successfully using the **Log Viewer** is setting up the view. This includes verifying and changing, if necessary, the currently selected database object(s) and/or the log record time span.

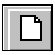
Changing the Selected Monitor Location



New button

Change the selected group, monitor location, monitoring point, or data entity on the **Monitored Items** tab to display the appropriate log records for viewing in **Log Viewer**. Access the **Monitored Items** tab by selecting **File > New** or the **New** button in **Log Viewer**. Refer to *Changing the Selected Database Objects* in Chapter 2 for detailed instructions.

Changing the Time Span



New button

Change the time span of the log records you desire to display in the **Log Viewer** from the **Date Selection** tab. Access this tab by selecting **File > New** or the **New** button in the **Log Viewer**. The time span defaults to the last seven days. Refer to *Changing the Time Span* in Chapter 2 for detailed instructions.

Viewing Log Records

Select the type of log records you want to review from the **Log Type** drop-down list and the **Log Viewer** will (chronologically) display the selected activity logs. The following log message categories are available for review: All, Activate Summary, Bin File Processor, Block Function Editor, data edit logs, data collect logs, data file processing logs, data import logs, data finalization logs, and log viewer errors. **Log Viewer** defaults to the **Collect Summary** log type.

> **Note:** For more information on viewing and printing diagnostic activity logs, refer to Chapter 2, *Profile Main Screen* and Chapter 6, *Diagnostics*.

Activate Summary Logs

Select **Activate Summary** from the **Log Type** drop-down list to view log records generated following monitor activation activities performed through the **Communications** tool. These logs contain the date and time the activate activity occurred, the location name, the success or failure of the activation process, and details concerning data delivery (*when applicable*).

> **Note:** Logs generated following monitor activations that occur through the **Diagnostics** tool are not available in the **Log Viewer**. These activation logs are accessible only through the **Logs** function in the **Diagnostics** tool.

Bin File Processing Logs

Select **Bin File Processor** from the **Log Type** drop-down list to view log records generated while processing raw (binary) monitor data files. These logs may include the time, monitor location, monitoring point, entity data processed, activity performed, and range of data processed upon collection or using the **Bin File Processor** utility.

Data Edit or Block Function Editor Logs

Select **Data Edit** or **Block Function Editor** from the **Log Type** drop-down list to view log records generated during data editing or block function editing activities. Edit logs generate each time you perform any type of data editing activity within **Profile**. For example, the **Log Details** column on the log table will display the span of data affected by the edit and what mathematical operation was performed on the selected data entity.

> **Note:** **Data Edit** and **Block Function Editor** logs generate only if the **Log data edits** checkbox is selected as a database property. Review and, if necessary, change the **Log data edits** option through the **Database Properties** dialog accessed from the **Profile** main screen.

Perform the following steps to review and/or change the **Log data edits** option:

1. Select the database level from the **Profile** main screen.

Properties button

2. Select the **Properties** toolbar button to display the **Database Properties** dialog.
3. Select the **Log data edits** checkbox on the **General** tab to log data edits or de-select the checkbox to prevent generating data edit logs.
4. Select **OK** to close and exit the dialog.

Data Collect Logs

Select **Collector** or **Collect Summary** from the **Log Type** drop-down list to view log records generated during monitor data collect or monitor activate attempts. Collector or activate logs are individual records concerning system status or activities occurring during a single collect attempt of a monitor. Status information or activities logged could include a communication failure, date and time range of requested data, successful configuration retrieval, and Site DR information.

> **Note:** Site DR collect information is typically found on the second page of the log.

A collect summary log is a one-line record of a single collect attempt of a monitor. It provides specific information such as the collect attempt date and time, monitor battery voltage, ultrasonic temperature, collect success/failure, and **Basic** program status. Collect attempts involving multiple monitor locations will produce one collect summary record for each monitor location.

Importer Logs

Select either **Data Transfer Utility** or **QuadraScan Importer** from the **Log Type** drop-down list to view log records generated during data import activities. For example, import log records indicate the success or failure of the import activity and the date span of imported data (for successful data imports).

Data Finalization Logs

Select **Final Data Generator** from the **Log Type** drop-down list to display logs detailing the generation of DFinal, QFinal, QPseudo, and AvgUDepth data. Data finalization logs may include some of the following information:

- Data being generated
- Date and time span of data generation
- Process involved in generating the data

Log Viewer Errors

Select **Log Viewer Errors** from the **Log Type** drop-down list to view log records generated for **Log Viewer** printing activities. For example, schedule a group of monitors to collect, and then schedule the collect logs to print after the collects are complete. If an error occurs to prevent the logs from printing, a log will be recorded.

Data Transfer Utility Logs

Select **Data Transfer Utility** from the **Log Type** drop-down list to view log records generated for **Data Transfer Utility** import and export activities. These logs contain the date and time the import or export activity occurred, the location name, and each entity imported or exported with the corresponding starting and ending dates for the data.

Set Time Summary Logs

Select **Set Time Summary** from the **Log Type** drop-down list to view log records generated for monitor time setting activities performed through the **Communications** tool. These logs contain the date and time the activate activity occurred, the location name, and the success or failure of the **Set Time** process.

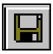
Block Function Editor Logs

Select **Block Function Editor** from the **Log Type** drop-down list to view log records generated for block function editing activities. These logs contain the date and time the activate activity occurred, the location name, the monitoring point, and the entity edited with details concerning the conditional IF/THEN editing statement.

Log Viewer Options

The **Log Viewer** allows you to save current log viewer settings, print out log records, and delete log records from the database.

Saving Log Viewer Settings



Save button

Save the current log viewer settings to a template by selecting the **File** > **Save** option or the **Save** toolbar button. The screen settings are saved to the database as a template. The **Save As** dialog displays the first time you save a template. Enter a descriptive **Template Name** for the log viewer screen.

Use the **File** > **Save As** option to rename and save a previously saved template.

Printing Log Records

Print button

Print log records to keep a hardcopy of logged activities. Select the **File** > **Print** option or the **Print** toolbar button to print the currently displayed log list.

Deleting Log Records

ADS recommends periodically deleting log records to manage the size of the database. The **Log Viewer** enables you to delete log records individually or collectively.

Deleting Individual Log Records

Delete button

Delete the currently selected individual log record(s) by selecting the **Edit** > **Delete** option or the **Delete** toolbar button.

Deleting Multiple Log Records

Select the **Delete All** option when you want to delete all the log records *currently displayed* from the database.

Copy Log Records

Copy button

When you want to copy information from log records to the Windows clipboard and then paste them into other applications, use the **Copy** toolbar button. Select the desired text from the log and then select the **Copy** button to make the information available on the Windows clipboard.

Exiting the Log Viewer

Select the **File > Exit** option to close and exit the **Log Viewer**.

CHAPTER 10

Hydrograph Editor

To learn about:	*See page:*

What is the Hydrograph Editor?

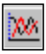
The **Hydrograph Editor** allows the graphical display of flow data for review and editing modification. Display multiple monitor locations and multiple data entities simultaneously on a time versus value graph. Graph customization options are available to change the appearance of the hydrograph, including report headings, scales, date format, and fonts. Scroll through the data when more data is available than can be displayed on a single screen.

Use the **Hydrograph Editor** to review data and perform editing modifications such as adding, subtracting, multiplying, or dividing factors to the data; flagging poor or questionable data; or setting selected spans of data to a specific value. Missing data may be copied from one data entity to another (from the same or from a different location) or replaced through a linear interpolation.

When to Use the Hydrograph Editor

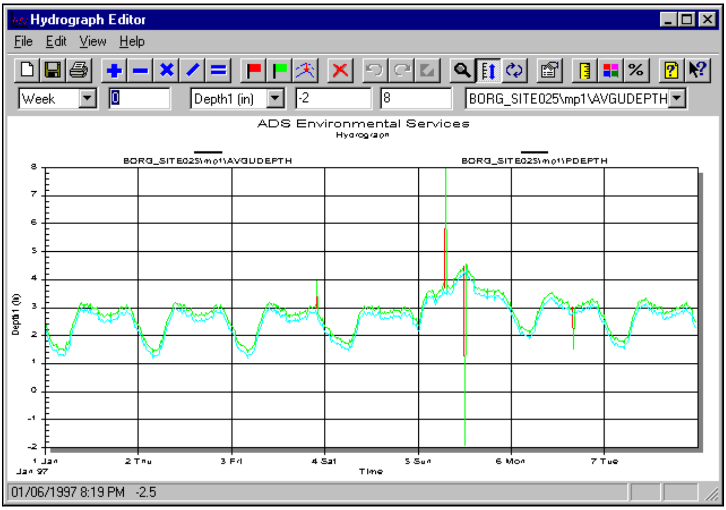
Use the **Hydrograph Editor** during the weekly routine as part of the *Data Editing* step. Refer to the *Introduction*, Chapter 1, for more information on the weekly routine.

How to Use the Hydrograph Editor



Hydrograph Editor button

Access the **Hydrograph Editor** by selecting one or more data entities (or a previously saved **Hydrograph Editor** template) from the **Profile** main screen and then selecting the **Hydrograph Editor** toolbar button.



The **Hydrograph Editor**

Using the **Hydrograph Editor** successfully requires performing the following steps:

- Setting up the hydrograph screen
- Selecting the hydrograph attributes
- Editing the hydrograph data

When using the **Hydrograph Editor**, review the date, time, and value of the current cursor position within the hydrograph from the status bar in the lower left corner of the screen.

Setting Up the Hydrograph Screen

Begin the hydrograph editing process by setting up the hydrograph screen. The following options are available when setting up the hydrograph.

Changing the Selected Data Entities

New button

The **New** option or toolbar button allows access to the **Monitored Items** tab that you can use to change the selected hydrograph data entities.

Changing the Time Span

New button

The **New** option or toolbar button allows access to the **Date Selection** tab that you can use to change the selected hydrograph time span.

> **Note:** The beginning and ending date span default value will be the last configuration entered.

Adjusting the Hydrograph Scale Values

Adjust the hydrograph scale values manually or automatically. When three or more entities display on the hydrograph, stacked graph scales will automatically display.

Manually Setting the Hydrograph Scale

1. Select the scale type to adjust from the **Scale Types** drop-down list.

2. Enter the new minimum and maximum scale values in the **Minimum Y** and **Maximum Y** fields.

Automatically Setting the Hydrograph Scale

Autoscale button

Allow **Profile** to choose the hydrograph's Y axis scale value based on the highest and lowest data values during the period that appears on the graph. Select the **View** > **AutoScale** option or the **AutoScale** toolbar button to allow **Profile** to set the scales automatically.

Selecting a Hydrograph Format

Select a report format to display the hydrograph data from the **Plot Type** drop-down list. Select from **Day**, **Week**, **Month**, **Quarter**, **Year**, or **Manual** depending on the amount of data you want to display on a single hydrograph screen. Select from the following formats:

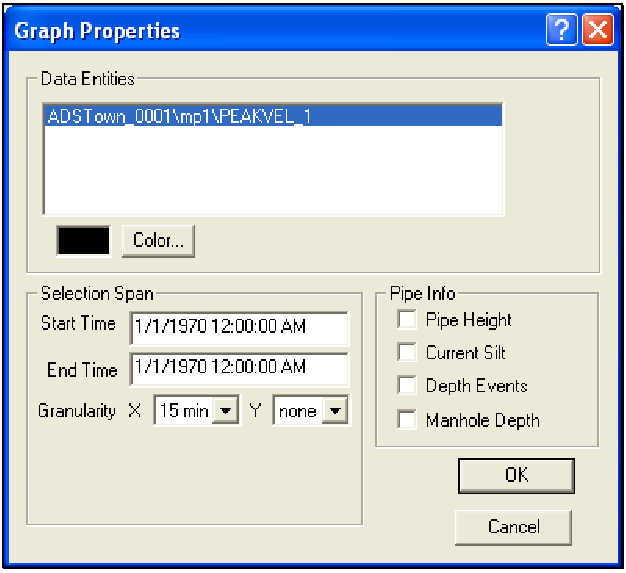
- **Day** This option displays the hydrograph data in a 1-day graph format.
- **Week** This option displays the hydrograph data in a 7-day graph format.
- **Month** This option uses a 31-day graph format.
- **Quarter** This option displays the hydrograph data in a 92-day graph format.
- **Year** This option displays the hydrograph data in a 365-day graph format.
- **Manual** This option allows you to specify the beginning and ending dates and times for the hydrograph report.

Changing the Color of the Hydrograph Objects

Perform the following steps to change the color assigned to a data entity (system-wide) on the hydrograph.

Graph Properties button

1. Select the **View > Graph Properties** option or the **Graph Properties** toolbar button to display the **Graph Properties** dialog box.



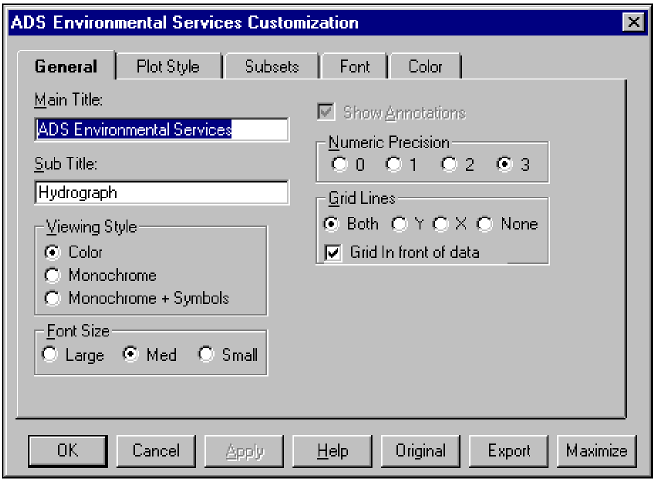
Graph Properties dialog

2. Select the entity you want to change from the **Data Entities** list.
3. Select the **Color** button to display the **Color** dialog box.
4. Choose a new color to represent the selected data entity on the hydrograph.
5. Select **OK** to apply the new color selection.

Customizing the Graph

Further customize a hydrograph using the graph **Customization** tabs or the **Graph Options**.

Access the **Customization** tabs by double-clicking the hydrograph.



The **Customization** tabs

Access the **Graph Options** menu the by right-clicking on the hydrograph.

The **Graph Options** menu

Selecting the Hydrograph Attributes

Select your hydrograph attributes after setting up the hydrograph. Displaying hydrograph attributes can help you make your data editing decisions.

Displaying Field Confirmations

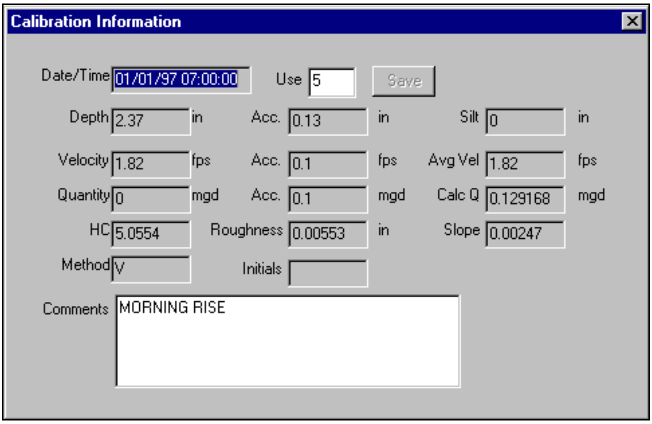
Confirmation button

Use the **Confirmations** toolbar button to display all associated field confirmations for the selected monitor locations. Toggle the confirmations button to show or hide the confirmations. Depress the button to show the confirmations; de-select the button to hide the confirmations.

Each confirmation type displays as a unique symbol: circles represent *velocity* confirmations; inverted triangles represent *depth* confirmations; squares represent *quantity* confirmations; red symbols represent *ignored* confirmations; and green symbols represent *included* confirmations.

Viewing Confirmation Details

View details for a selected confirmation by clicking on the confirmation. The **Confirmation Information** dialog will display. You can change the current confirmation status (*included* or *ignored* confirmation) by entering either an **I** (indicating *ignore*) or a number (indicating *include*) in the **Use** field of the **Confirmation Information** dialog. You also can enter any necessary comments in the **Comments** text box.



Viewing confirmation information

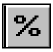
Displaying Questionable Data

Questionable Data button

Use the **Questionable Data** toolbar button to display or hide hydrograph data that has questionable quality (questionable data displays in blue). **Questionable Data** is first identified by establishing a *tolerance* range using the **Scattergraph Editor** tool. Any data falling outside the scattergraph tolerance range is defined as having questionable quality. Refer to the *Scattergraph Editor*, Chapter 12, for more information on establishing tolerances.

Depress the **Questionable Data** toolbar button to display the questionable data or de-select the button to hide the questionable data.

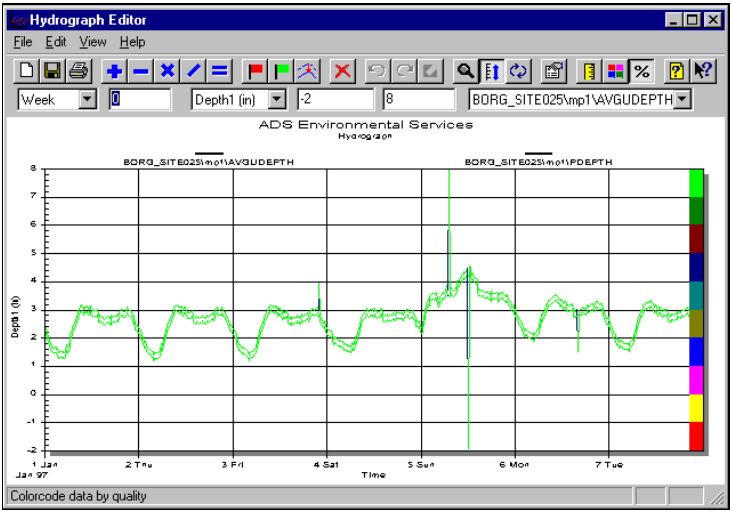
Displaying the Data Quality



Quality Range button

Use the **Quality Range** toolbar button to display data quality information on the hydrograph. As the monitor generates data, it assigns each data point a quality statistic between 0 and 100%.

When the **Quality Range** option is selected (checked) or the toolbar button is depressed, a multicolored legend displays on the hydrograph's Y-axis, indicating 10 levels of quality from 0 to 100%. Low quality is indicated at the bottom of the legend in red, and 100% quality is indicated at the top of the legend in green. Each data point on the hydrograph is assigned a color corresponding to the legend to indicate the quality percent.

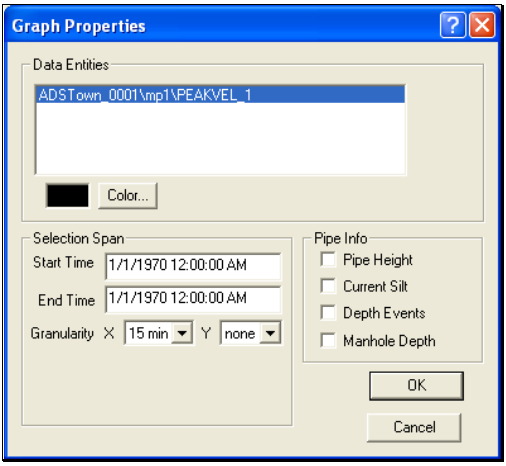


Displaying data quality

Displaying Monitoring Point Information

The **Hydrograph Editor** tool allows you to display the monitoring point's pipe height, current silt depth, depth event threshold information, and manhole depth on the hydrograph.

Access the ability to add or remove this information from the hydrograph by selecting the **View > Graph Properties** option or the **Graph Properties** toolbar button.



Graph Properties dialog

Toggle the appropriate checkboxes from the **Pipe Info** section of the **Graph Properties** dialog to add or remove the information from the hydrograph.

- **Pipe Height** Select this checkbox to display the manually measured pipe height on the hydrograph.
- **Current Silt** Select this checkbox to display the most current field measured silt value on the hydrograph.
- **Depth Events** Select this checkbox to display alarm/event threshold information from the monitoring point on the hydrograph. This includes depth thresholds such as high level, high high level, low flow (quantity), or low depth alarms.

- **Manhole Depth** Select this to display the manhole depth (from the location properties page) as measured at the monitoring point.

Editing the Hydrograph Data

After successfully setting up your hydrograph, you can begin editing your data. The editing process includes performing the following tasks:

- Selecting the data entity you want to edit
- Selecting the hydrograph data you want to edit
- Performing the edits

Selecting the Active Data Entity

When you have more than one data entity displayed on the hydrograph, you must specify which data entity to apply span edits. Use the **Active Entity** drop-down list (located below the toolbar) to specify the active entity—all span editing modifications will be performed on the *active* entity.

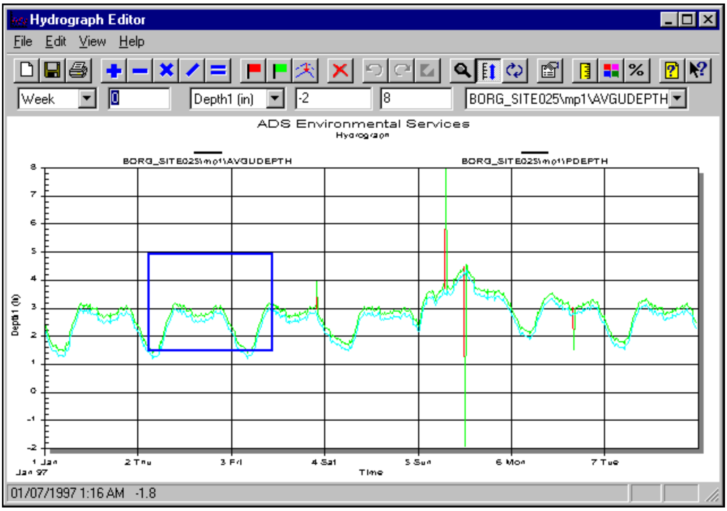
> **Note:** *Span* editing includes all editing except single point editing.

Selecting Hydrograph Data

After specifying the active data entity, select the hydrograph data points you want to edit.

Selecting Data Using an Edit Box

Select a graphical span of data by clicking and dragging a selection box over the data points you want to edit. Once selected, the data points will display inside a blue outlined area.



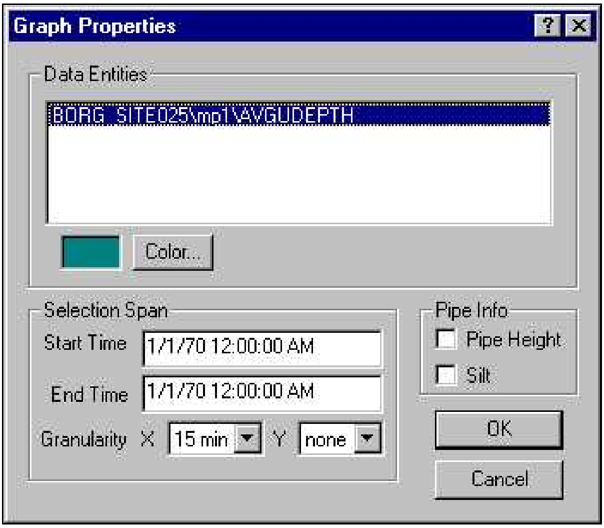
Selecting data using an edit box

Selecting Data By Manually Entering the Time

Graph Properties button

For more precise graphical data selections, manually enter the time span on the **Graph Properties** dialog.

1. Select the **Graph Properties** toolbar button.
2. Enter the **Start Time** and **End Time** in the **Selection Span** section of the screen.



Selecting data by manually entering time

3. (Optional) Specify the default accuracy for all data selections from the **Granularity X** and **Y** drop-down lists. For example, selecting **1-Hour** from the **Granularity X** drop-down list (located in the **Selection Span** section of the **Graph Properties** dialog) causes the time of any data selection to default to the nearest hour. Selecting **.25** from the **Y** drop-down list ensures the Y axis selection span scales to the nearest ¼ increment for the corresponding unit of measure.

4. Select **OK** to exit the dialog.

The selected data will display inside a blue outlined area.

Selecting and Moving a Single Data Point

Select and drag any single hydrograph data point (regardless of whether it is the active data entity) to a new value on the graph. Position the mouse cursor over the point (a hand cursor will display), and then click and drag the data point to a new value on the Y (vertical) hydrograph axis.

All manually modified data displays in purple.

Clearing a Data Selection

Clear Selection button

Clear the current data selection span by choosing the **View** > **Clear Selection** option or the **Clear Selection** toolbar button.

Performing Edits to Hydrograph Data

Edit hydrograph data using the following techniques.

> **Note:** Prior to editing the data, be sure to verify the active data entity from the **Active Entity** drop-down list. The active entity will be the entity to which all span editing modifications are applied. Span editing includes all editing except single-point editing.

Adding a Value to the Data

Perform the following steps to add a value to a selected span of hydrograph data:

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.
2. Enter the value you want to add to the selected data in the **Adjust Value** field.

Add button

3. Select the **Add** toolbar button.

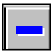
The factor is added to the selected data, and the data now reflects the new value. All modified data displays in purple.

Subtracting a Value from the Data

Perform the following steps to subtract a value from a selected span of hydrograph data:

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.

2. Enter the value you want to subtract from the selected data in the **Adjust Value** field.



Subtract button

3. Select the **Subtract** toolbar button.

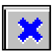
The factor is subtracted from the selected data and now reflects the resulting value. All modified data displays in purple.

Multiplying the Data by a Value

Perform the following steps to multiply selected hydrograph data by a value:

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.

2. Enter the value by which you want to multiply the selected data in the **Adjust Value** field.



Multiply button

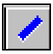
3. Select the **Multiply** button.

The selected data is multiplied by the **Adjust Value** *amount and now reflects the resulting value. All modified data displays in purple.*

Dividing the Data by a Value

Perform the following steps to divide selected hydrograph data by a value:

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.
2. Enter the value in the **Adjust Value** field by which you want to divide the selected data.



Divide button

3. Select the **Divide** button.

The selected data is divided by the **Adjust Value** *amount and now reflects the resulting value. All modified data displays in purple.*

Setting the Data Equal to a Value

Perform the following steps to set a selected span of hydrograph data equal to a specific value:

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.
2. Enter the value in the **Adjust Value** field for which you want the selected data to equal.

Set Equal To button

3. Select the **Set Equal To** button.

The selected data now reflects the new value. All modified data displays in purple.

Flagging Data for Poor Quality

Use the **Flag** toolbar button to mark selected data so that the data no longer affects flow statistics. Flags can be applied to any selected hydrograph data. When you have reason to believe that the quality of a data point is questionable, you can flag that point to exclude it from calculations and reports.

1. Select the hydrograph data you want to flag. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.

Flag button

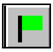
2. Select the **Flag** toolbar button.

The selected data is now flagged and displays in red.

Clearing Data Flags

Clear flags from previously flagged data using the **Clear Flags** toolbar button.

1. Select the hydrograph data you want to unflag. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.



Clear Flags button

2. Select the **Clear Flags** toolbar button to remove the flags.

The flags are cleared from the selected data.

Using Hydrograph Options

The **Hydrograph Editor** includes the following helpful options to use while you are editing.

Copying, Pasting, and Deleting Hydrograph Data

Copy a selection of the hydrograph data into the **Windows** clipboard using the **Edit > Copy** option. Use the copied data to **Paste** to another area of the hydrograph or into the **Tabular Editor**.

When multiple data entities display on the hydrograph, be sure to verify the **Active** data entity from the **Active Entity** drop-down list.

> **Note:** When you want to copy the entire hydrograph report, use the graphical **Export Dialog** option from the options menu. Right-click on the hydrograph, and select **Export Dialog**.

Copying Hydrograph Data

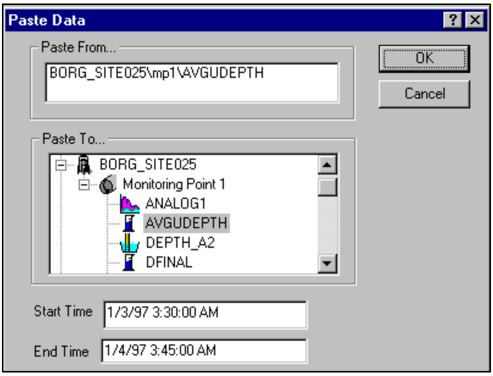
1. Select the data (using the selection box method or the **Graph Properties** dialog box) you want to copy.
2. Select the **Edit > Copy** option to copy the data to the clipboard.

> **Note:** Using the **Edit > Copy** option allows you to place graphical data on the **Windows** clipboard. Paste the copied graphical data into the **Hydrograph Editor** or **Tabular Editor**.

Pasting Data to the Hydrograph

Perform these steps after using the **Edit** > **Copy** option to paste copied data.

1. Select the **Edit** > **Paste** option to display the **Paste Data** dialog box. The **Paste From** section displays the monitoring point and data entity from which the data was copied.



Paste Data dialog

2. Use the **Paste To** field to locate and select the data entity to which you want to paste the copied data.
3. Enter the **Start Time** to which you want to paste the clipboard data. The time span for the copied data will remain fixed.
4. Select **OK** to paste the data.

Deleting a Section of Hydrograph Data

Delete a selection of hydrograph data and paste it to the **Windows** clipboard using the **Cut** option. You can use clipboard data to paste to another area of the hydrograph using the **Edit** > **Paste** option.

> **Note:** Use the **Delete** toolbar button to remove data from the hydrograph without copying the data to the clipboard.

1. Select the hydrograph data you want to edit. Refer to *Selecting Hydrograph Data* on page 10-15 for more information on selecting data.

2. Select the **Edit** > **Cut** option to cut the selected data.

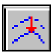
The data no longer displays on the hydrograph, but is placed on the **Windows** *clipboard.*

> **Note:** Paste cut graphical data into the **Hydrograph Editor** or **Tabular Editor**.

Fixing Missing Data

When a span of data is missing (no data points exist), you can use the **Fix Missing** tool to replace the points by creating a straight-line interpolation of the missing data points. However, for most locations, interpolated data is rarely valid for periods of more than a few hours.

1. Verify the **Active** data entity from the **Active Entity** drop-down list.



Fix Missing button

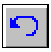
2. Select the missing data span using the **Fix Missing** toolbar button to display the **Fix Missing Data** dialog, or click and drag a selection box around the missing data time span. This selected span should include the last existing data point before the missing data gap and the first existing data point after the missing data gap.

3. Select a data-averaging interval from the **Interval** drop-down list for which you want to recreate points. For example, selecting 15 minutes would create four individual data points for each hour of missing data. Select the interval that matches the existing data.

4. Select **OK** to generate and display the interpolated data.

The interpolated data will display in purple, indicating it is modified data.

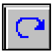
Undoing an Edit



Undo button

Select the **Edit** > **Undo** option or the **Undo** toolbar button to reverse an editing action. The **Undo** function is limited to the last editing operation performed.

Reversing an Undo Edit



Redo button

Select the **Edit** > **Redo** option or the **Redo** toolbar button to reverse the last **Undo** action.

Magnifying a Section of the Graph

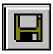
Zoom button

Select the **View** > **Zoom** option or **Zoom** toolbar button and then select the data span to magnify a selected section of the graph.

Undoing a Zoom

Undo a zoomed hydrograph screen and return to the original screen view by right-clicking on the hydrograph (to display the graphical customization menu) and selecting the **Undo Zoom** option.

Saving a Hydrograph View

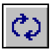


Save button

Save the current hydrograph screen configuration, including attributes, to a template by selecting the **File > Save** option or the **Save** toolbar button. The screen is saved to the database as a template. The **Save As** dialog box displays the first time you save a template. Enter a descriptive **Template Name** for the hydrograph screen.

Use the **File > Save As** option to rename and save a previously saved template.

Updating a Hydrograph



Refresh button

Select the **View > Refresh** option or the **Refresh** toolbar button to update the currently displayed hydrograph screen to reflect edits performed on the same data in either the **Tabular Editor** or the **Scattergraph Editor**. This action is necessary only when the **Hydrograph Editor** is open at the same time as the editing tool in which you are editing data.

Printing a Hydrograph

Print button

Select the **Print** toolbar button to send a print request of the current hydrograph screen immediately to the **Windows**-configured printer.

Exiting the Hydrograph Editor

Select the **File > Exit** option to close and exit the **Hydrograph Editor**.

CHAPTER 11

Tabular Editor

To learn about:	See page:

What is the Tabular Editor?

The **Tabular Editor** allows the display of numerical flow data for the purpose of performing data reviews and editing. This tool can display tabular data from multiple monitor locations and multiple data types simultaneously. Scroll through the data when more data is available than can be displayed on one screen.

Use the **Tabular Editor** for the following purposes:

- Performing editing such as adding, subtracting, multiplying, or dividing factors to the data
- Editing synchronous *and* asynchronous data
- Flagging and unflagging data
- Setting selected time spans of data to a specific value
- Copying missing data from one data entity to another, from the same or from a different location
- Replacing missing data using a straight line interpolation feature

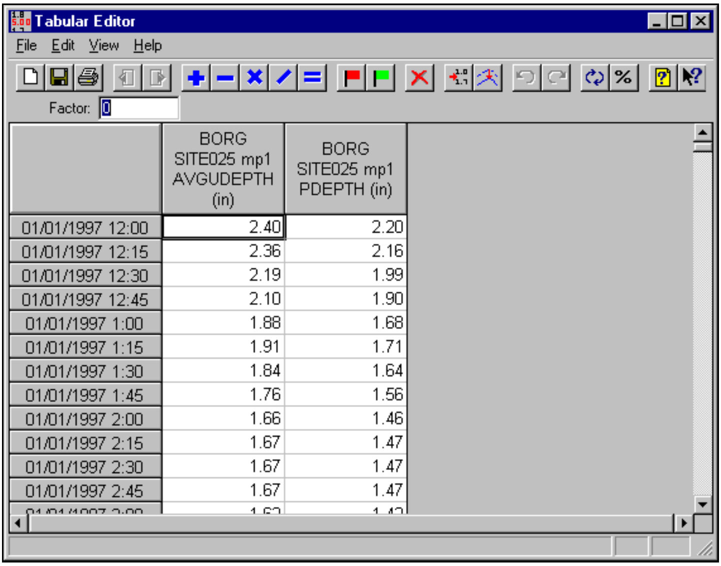
When to Use the Tabular Editor

Use the **Tabular Editor** during the *Data Editing* phase of the weekly routine. For more information, refer to the weekly routine in *Introduction*, Chapter 1.

How to Use the Tabular Editor

Tabular Editor button

Access the **Tabular Editor** by selecting the data entities you want to edit (such as depth or velocity) and the **Tabular Editor** toolbar button from the **Profile** main screen or by selecting a previously saved **Tabular Editor** template.



Tabular Editor dialog

Successfully using the **Tabular Editor** includes performing the following steps:

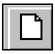
- Setting up the tabular screen
- Selecting tabular data for editing
- Editing tabular data

The **Tabular Editor** also includes options such as saving the tabular screen to a template or printing the tabular screen.

Setting Up the Tabular Screen

This is the first step to using the **Tabular Editor**. It includes changing the tabular data entities, setting the time span, and displaying the data quality statistics.

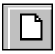
Changing the Selected Data Entities



New button

Change the selected data entities by selecting the **File > New** option or the **New** toolbar button to access the **Monitored Items** tab. Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Changing the Time Span



New button

Change the selected time span by selecting the **File > New** option or the **New** toolbar button to access the **Date Selection** tab.

> **Note:** The default beginning and ending date span will display the last configuration entered until an update is performed.

Refer to *Changing the Time Span* in Chapter 2 for more information.

Displaying Data Qualities

Use the **Qualities** toolbar button to display the monitor calculated data quality percentages for each data entity. Data quality percentages are calculated in the monitor (from 0% to 100%).

Qualities button

Select the **Qualities** toolbar button to display the monitor calculated quality for each tabular data point. The data quality statistics column will display to the right of each data entity on the tabular screen. Toggle the **Qualities** button to display or hide the quality statistics.

Selecting Tabular Data

After successfully setting up the tabular screen, select the data you want to edit.

In order to perform editing operations, you must first select the tabular data you want to affect with the edit.

Selecting a Single Data Point

Select a single tabular data point by highlighting the data point on the table.

Selecting a Span of Data

Select a *sequential* span of tabular data either by left clicking the mouse button and dragging the cursor over the tabular data points or by pressing the shift key to anchor the cursor and the up or down arrow key to paint the tabular data selection.

Performing Edits to Tabular Data

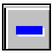
After setting up the tabular screen and selecting the tabular data you want to edit, edit the data using the following editing tools.

Performing Mathematical Edits to the Data

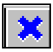
Use the mathematical options **Add**, **Subtract**, **Multiply**, or **Divide** to adjust the value of selected flow data. Use the **Set Equal** option to set a selected span of data to a specific value.

Adding, Subtracting, Multiplying, or Dividing a Value to the Data

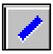
Add



Subtract



Multiply



Divide button

Use the **Add**, **Subtract**, **Multiply**, or **Divide** toolbar buttons to adjust the selected data.

1. Select the span of tabular data you want to adjust.
2. Enter the value by which you want to adjust the data into the **Factor** field.
3. Select the **Add**, **Subtract**, **Multiply** or **Divide** toolbar button.

The data is adjusted by the **Factor** *amount and now reflects the resulting value.*

> **Note:** Manually modified tabular data displays in magenta.

Setting the Data Equal to a Value

Use the **Equal** toolbar button to set selected data to a specific value.

1. Select the span of tabular data you want to affect with the **Equal** operation.

Equal button

2. Enter a value in the **Factor** field.
3. Select the **Equal** toolbar button.

The selected data now reflects the new value.

> **Note:** Manually modified tabular data displays in magenta.

Flagging Data for Poor Quality

Use the **Flag** toolbar button to apply flags to selected tabular data. Flags can be applied to any selected tabular data. When you have reason to believe that the data point's quality is questionable, you can flag that point to exclude it from calculations and reports.

> **Remember:** Applying flags to data affects all dependent data.

Flag button

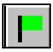
1. Select the data to which you want to apply flags.
2. Select the (red) **Flag** button.

The selected data is now flagged and displays in red.

Clearing Data Flags

Use the **Clear Flags** toolbar button to remove flags from previously flagged data.

> **Remember:** Removing flags from data affects all dependent data.



Clear Flags button

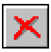
1. Select the flagged tabular data from which you want to remove flags.
2. Select the **Clear Flags** toolbar button.

The flags are cleared from the selected data.

Deleting Tabular Data

Use the **Delete** toolbar button to delete a selected span of data.

> **Note:** Using the **Delete** option removes the data from the database.



Delete button

1. Select the tabular data you want to delete.
2. Select the **Delete** toolbar button.

The selected data is deleted from the database.

Copying Tabular Data

Use the **Edit > Copy** option to copy a selection of tabular data to paste within the **Tabular Editor**, **Hydrograph Editor**, or **Microsoft Excel®**.

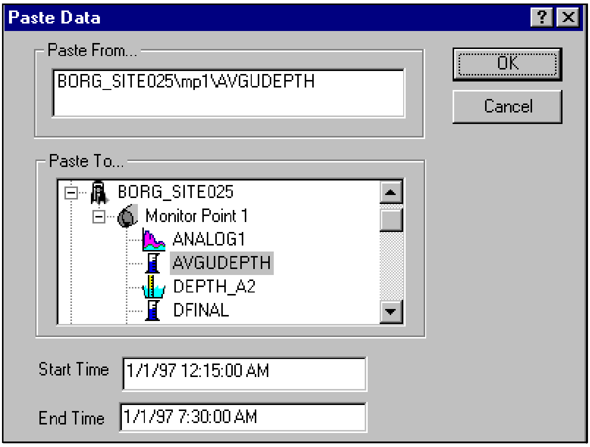
Copying the Tabular Data

1. Select the tabular data you want to copy.
2. Select the **Edit > Copy** option to copy the data to the clipboard.

Pasting Copied Data

Use the **Paste** option after using the **Edit** > **Copy** option to paste copied tabular data to the **Tabular Editor** or **Hydrograph Editor**.

1. Select the **Edit** > **Paste** option to display the **Paste Data** dialog.



Paste Data dialog

The **Paste From** *section of the* **Paste Data** *dialog displays the location and data entity from which the tabular data was copied.*

2. Select the data entity from the **Paste To** section to which you want to paste the copied data.

3. Enter the time corresponding to the first data point to which you want to paste the clipboard data in the **Start Time** field.

Note: The time span for the copied tabular data will remain fixed.

4. Select **OK** to paste the data to the tabular screen.

The tabular data from the clipboard is copied to the selected data.

Inserting Tabular Data

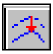
Use the **Insert** toolbar button to insert a data point between two existing tabular data points.

Insert button

1. Select the **Insert** toolbar button to display the **Insert data for** dialog.
2. Enter the **Time** to which you want to insert the data point.
3. Enter the **Value** of the inserted data point.
4. Select **OK** to display the inserted tabular data point.

Fixing Missing Tabular Data

Use the **Fix Missing** option to allow the **Tabular Editor** to interpolate missing tabular data using a straight line interpolation method. The software will estimate new data values for the missing data based on the beginning and ending existing data values.



Fix Missing button

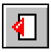
1. Select the **Fix Missing** toolbar button to display the **Fix Missing Data** dialog.
2. Review the **Start Time** and **End Time** dates, and update them if necessary. This period should include the last existing data point before the missing data period and the first data point after the missing data period.
3. Select a data **Interval** from the drop-down list. Select an interval that matches the existing data interval.
4. Select **OK** to generate and display the new data.

The new data displays in magenta to indicate that it is modified data.

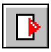
Using Tabular Options

The **Tabular Editor** includes some helpful options to use while you are editing.

Scrolling Through the Tabular Data



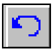
Previous Week



Next Week

Use the **Previous Week** and **Next Week** options to scroll backward and forward in seven-day increments when more data is requested than can display on one screen of the tabular screen.

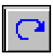
Undoing an Edit



Undo button

Use the **Edit** > **Undo** option to reverse the last editing operation performed.

Reversing an Undo Edit

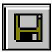


Redo button

Use the **Edit** > **Redo** option to reverse the last **Undo** action.

Saving a Tabular Screen

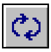
Use the **Save** option to save the current tabular screen configuration. **Save** allows you to save all of the custom settings in the current tabular screen as a template.



Save button

Select the **File** > **Save** option or the **Save** toolbar button to save the current screen. The **Save As** dialog displays the first time you save a template. Select the **File** > **Save As** option to save a previously saved screen configuration to a new filename.

Updating the Tabular Screen



Refresh button

Select the **View** > **Refresh** option or the **Refresh** toolbar button to update the currently displayed tabular screen to reflect edits performed on the same data in either the **Hydrograph Editor** or the **Scattergraph Editor**. This action is necessary only when the **Tabular Editor** is open at the same time as the editing tool in which you are editing data.

Printing a Tabular Screen

Print button

Select the **File** > **Print** option or the **Print** toolbar button to immediately send a print request for the current tabular screen to the **Windows-**configured printer.

Exiting the Tabular Editor

Select the **Exit** option to close and exit the **Tabular Editor**.

CHAPTER 12

Scattergraph Editor

To learn about:	*See page:*

What is the Scattergraph Editor?

The **Scattergraph Editor** is a **Profile** software tool that allows you to generate on-screen scattergraphs for the purpose of reviewing and editing velocity flow data and diagnosing various hydraulic site conditions.

Scattergraphs allow you to graphically display the relationship of one data entity to another, typically velocity and depth. For example, first edit your depth data using the **Hydrograph Editor** or **Tabular Editor**, and then use the **Scattergraph Editor** to plot your depth data (X axis entity) against your velocity data (Y axis entity). The resulting scattergraph displays the correlation between the depth and velocity data. The pattern of the scattergraph curve can indicate poor quality velocity points and can also represent potential hydraulic backups.

> **Note:** Scattergraphs typically are used to review and edit velocity data (Y axis entity), as well as review the general relationship between depth and velocity.

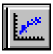
You can select one or two Y axis data entities; however, you can only generate scattergraph curves or edit data with one Y axis data entity.

> **Note:** Prior to using the scattergraph to edit velocity data, it is *important* to edit the depth data using another **Profile** editor.

When to Use the Scattergraph Editor

Use the **Scattergraph Editor** during the weekly routine as part of the *Data Editing* step. Refer to *Introduction*, Chapter 1, for more information on the weekly routine.

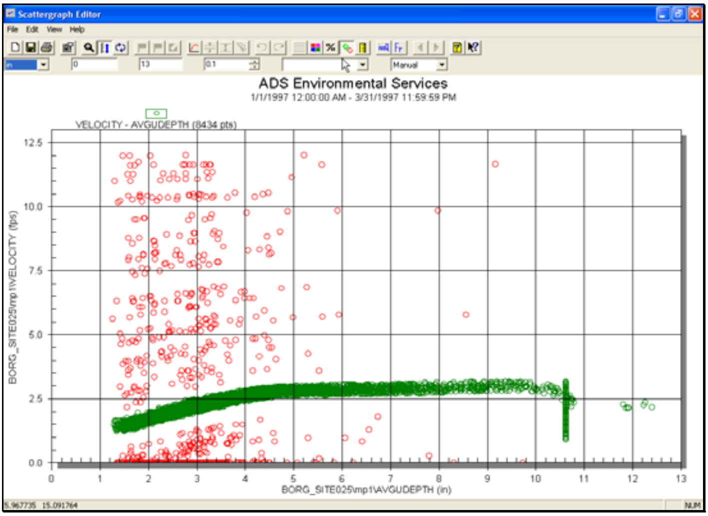
How to Use the Scattergraph Editor



Scattergraph Editor button

Access the **Scattergraph Editor** after selecting at least 2 data entities (maximum of 3) from a monitoring point or a previously saved **Scattergraph Editor** template from the **Profile** main screen and then selecting the **Scattergraph Editor** toolbar button.

> **Note:** The **Scattergraph Editor** typically is used to edit velocity data (Y axis entity) against the corresponding depth data (X axis entity).



Scattergraph Editor wndow

Successfully edit scattergraph data by performing the following steps:

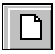
- Setting up the scattergraph screen
- Generating a scattergraph curve
- Displaying curve attributes
- Editing scattergraph data

Setting Up the Scattergraph Screen

Select from the following options to successfully set up the **Scattergraph Editor** screen:

- Change the selected data entities you want to display on the scattergraph (if necessary)
- Change the time span for the scattergraph data (if necessary)
- Select a sub-set of graph data to view
- Select the X and Y axis scattergraph data entities
- Change the color of the scattergraph data
- Adjust the scattergraph scale values
- Customize the graph

Changing the Selected Data Entities

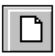


New button

Use the **New** option or toolbar button to change the scattergraph data entities.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information on how to change the selected entities for the scattergraph screen.

Changing the Time Span



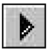
New button

Change the beginning and ending dates for the scattergraph using the **New** option or toolbar button to access the **Date Selection** tab.

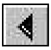
> **Note:** The default beginning and ending date span displays the last configuration entered until an update is performed using the **Date Selection** tab.

Refer to *Changing the Time Span* in Chapter 2 for more information on how to change the scattergraph time span.

Selecting the Graph Period



Next Period



Previous Period

Use this option to view smaller sub-sets of data from a larger time span. Choose the amount of data you want to view from the **Select Period** drop-down list. Choose among **Daily**, **Weekly**, **Monthly**, and **Manual** data spans. Select **Manual** to specify the **Start** and **End** dates and times.

Use the **Next Period** and **Previous Period** toolbar buttons to move among multiple pages of the report period.

Selecting the X and Y Axis Data Entities

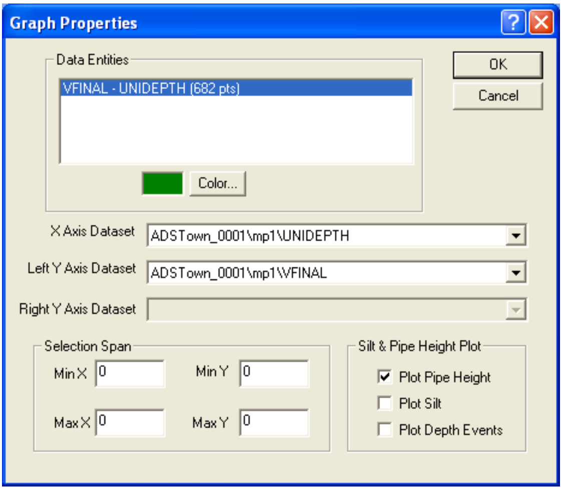
Change the selected data entities displayed on the X and Y scattergraph axis using **Graph Properties** dialog.

> **Note:** All editing modifications will be performed to the Y axis data entity.

Scattergraphs typically are used to edit velocity data. Select the X and Y axis data entities by performing the following steps:

Graph Properties button

1. Select **View** > **Graph Properties** or the **Graph Properties** toolbar button.



Graph Properties dialog

2. Select the depth data entity from the **X Axis Dataset** drop-down list.

3. Select the velocity data entity from the **Left Y Axis Dataset** drop-down list.

4. Choose a third data entity for the **Right Y Axis Dataset** when you have three data entities displaying on the scattergraph.

Note: You can perform edits when displaying a maximum of two data entities on the scattergraph.

5. Select **OK** to close and exit the dialog.

Changing the Color of the Scattergraph Data

Perform the following steps when you want to change the color assigned to the X axis data entity.

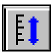
Graph Properties button

1. Select the **Graph Properties** toolbar button to display the **Graph Properties** dialog.
2. Select the entity you want to change from the **Entities** list in the **Graph Properties** dialog.
3. Select the **Color** button to display the **Color** dialog.
4. Choose a new color to represent the data entity.
5. Select the **OK** button to apply the new color selection.

Adjusting the Scattergraph Scale Values

The **Scattergraph Editor** allows you to automatically or manually set the scattergraph scale values.

Automatically Setting the Scattergraph Scale Values



Autoscale button

Allow **Profile** to automatically set the scattergraph's X and Y axis scale values based on the highest and lowest data value during the selected graph period. Select the **View > Autoscale** option or the **Autoscale** toolbar button, and the **Scattergraph Editor** will automatically set the scale values.

Manually Setting the Scattergraph Scale Values

Manually adjust the scattergraph scale values using the **Scales** drop-down list located under the toolbar.

1. Select the scattergraph scale you want to change from the **Scales** drop-down list.

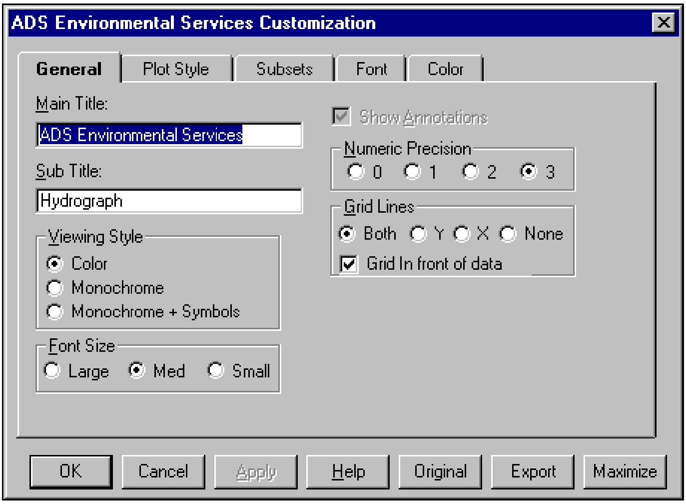
2. Enter the new scale minimum and maximum values in the **Scale Max** and **Scale Min** fields.

The scattergraph scales will adjust according to the new entries.

Customizing the Graph

Further customize the graph using the **Customization** tabs or the **Graph Options**.

Access the **Customization** tabs by positioning the mouse cursor over the graph and double-clicking the left mouse button.



Customization tabs

Access the **Graph Options** menu by positioning the mouse cursor over the hydrograph and right clicking the mouse button.

Graph Options menu

Generating Scattergraph Curves

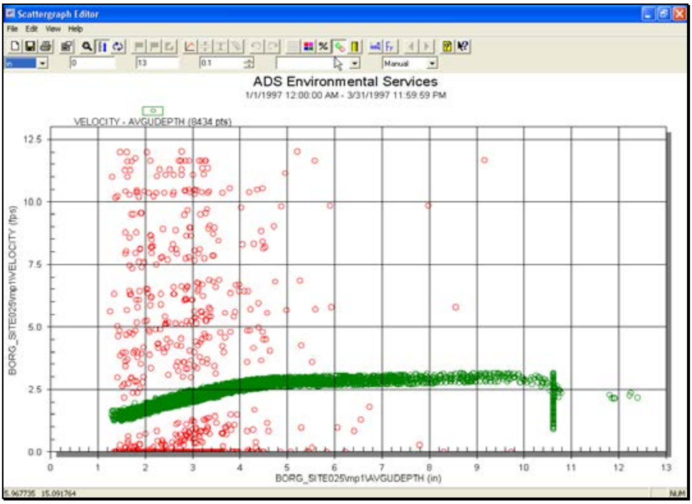
After you have successfully set up the scattergraph screen, generate a scattergraph curve. Display Bestfit, Manning, or Colebrook-White curves to help edit and evaluate flow data for specific flow conditions which might exist at the monitoring location. Perform the following steps to successfully use scattergraph curves:

- Edit abnormal scattergraph data
- Set up the curve parameters
- Generate a curve: Bestfit, Colebrook-White, or Manning

Note: To use this option, the scattergraph's X-axis data entity must be a depth entity, the left Y-axis data entity must be a quantity or velocity, and there must be a pipe associated with the monitoring point (for example, you cannot generate curves for weirs, flumes, or lookups).

Editing Abnormal Scattergraph Data

It is important to edit and flag data points located significantly outside the general scattergraph pattern prior to generating a curve. Points located outside the general curve pattern indicate that they do not display a normal (typical) relationship between the two selected scattergraph entities. For example, there should be a typical relationship between each depth and velocity data point— for each given depth value, there will be an approximate velocity value. Any points falling outside of that typical relationship should be flagged prior to generating the scattergraph curve. Not flagging this type of data can cause the curve you generate to be skewed by the poor quality data points.



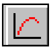
Scattergraph with data significantly outside the typical curve pattern

See the sections on *Selecting Scattergraph Data* on page 12-31 and *Editing Scattergraph Data Using Flags* on page 12-32 for more information on how to select and edit scattergraph data.

> **Reminder:** It is important to edit or flag data outside the curve pattern prior to generating the graph curve.

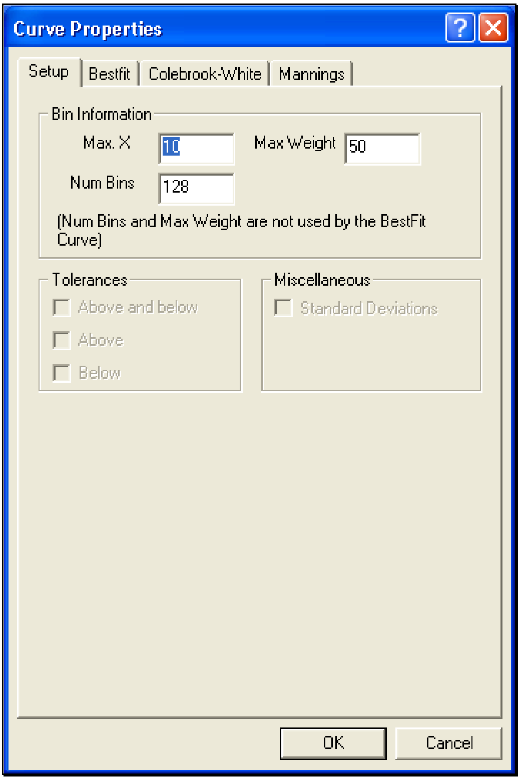
Setting Up Curve Parameters

Define the curve parameters before attempting to display a Bestfit, Colebrook-White, or Manning curve. Typically, you should use the default values for the curve parameters; however, there will be situations where changing the default values will be necessary. Access and update the curve parameters by performing the following steps:



Curve Properties button

1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Setup** tab.



Curve Properties > Setup tab

3. In the **Max X** field, use the default value of the maximum depth for the data range selected, or adjust this value to use only the scattergraph points below the **Max X** field value to generate a curve.
4. In the **Num Bins** field, use the default value or enter the number of vertical bins (points) you want to use to generate the curve.

> **Note**: Increasing this value will result in a smoother curve.

5. In the **Max Weight** field, use the default value or enter another weighting value to use for all bins when generating the curve.

> **Note:** The weight of each bin is equal to the number of points in the bin up to Max Weight.

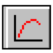
6. Select **OK**.

The **Setup** *tab closes.*

Generating a Bestfit Curve

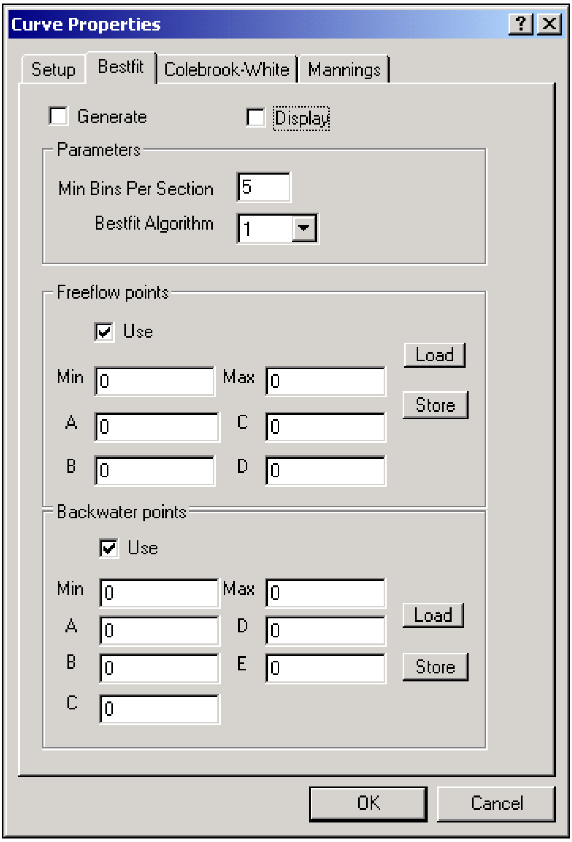
Generate a Bestfit scattergraph curve after editing any required scattergraph data and setting up the curve parameters. The **Scattergraph Editor** generates Bestfit curve coefficients after vertically segmenting the scattergraph into equal parts (bins) and averaging the data points within each bin to derive the Bestfit curve points. The default enables you to generate a Bestfit curve representing freeflow data points *and* backwater data points. You also can display either the freeflow set of data points *or* the backwater set of data points separately by clicking (off) the appropriate **Use** box.

Generate and display a Bestfit curve for the current scattergraph using the following steps:



Curve Properties button

1. Select the **Edit** > **Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Bestfit** tab.



Curve Properties > Bestfit tab

3. Select the **Generate** checkbox to allow **Profile** to generate the Bestfit curve.

4. Select the **Display** checkbox to display the curve.

5. Keep the recommended default value of *5* for the **Min Bins per Section**. If the Bestfit curve is unacceptable, you can change the value to *3* or *4*.

6. Keep the default value of *1* for the **Bestfit Algorithm**. If the Bestfit curve is unacceptable, select *2* from the drop-down list.

Note: Clicking the **Use** checkbox (off) under **Freeflow points** or **Backwater points** enables you to display either set of data points on the BestFit curve.

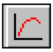
Note: Clicking the **Load** button enables you to load a previously generated Bestfit curve. Bestfit coefficient values must be stored before you can load a Bestfit curve.

Note: Clicking the **Store** button enables you to store a Bestfit curve. The **Store Data** dialog enables you to store and save the curve with a start date and description.

7. Select **OK** to generate and display the Bestfit curve.

Store Bestfit Coefficient Values

If you generated a Bestfit curve, optionally store the new Bestfit coefficient values to the database. After the Bestfit curve generates, perform the following steps to review and store the Bestfit coefficient values:

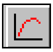


Curve Properties button

1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Bestfit** tab.
3. Review the Bestfit coefficients for the freeflow (A-D) and backwater (A-E) curves.
4. Select the **Store** button on the **Bestfit** tab to save the new Bestfit points to use with future data. **Store** allows you to define the time period in which to begin applying the values and to enter a descriptive name by which to save the coefficients.

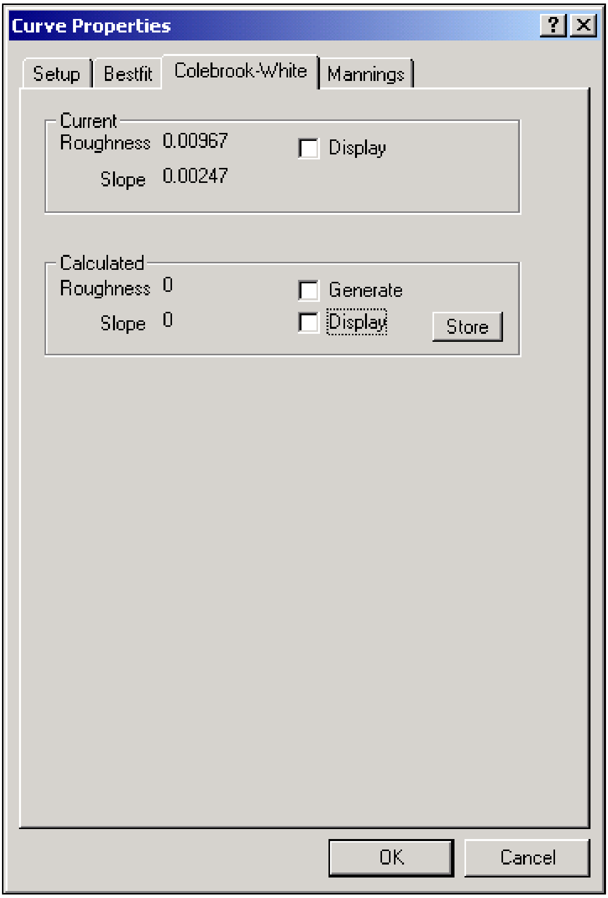
Generating a Colebrook-White Curve

Generate a scattergraph curve based on the Colebrook-White quantity equation after editing any abnormal scattergraph data and setting up the curve parameters. Generate a curve for the current data based on the Colebrook-White equation using the following steps:



Curve Properties button

1. Select the **Edit** > **Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Colebrook-White** tab.



Curve Properties > Colebrook-White tab

3. Select one or both of the following:

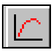
   - Select the **Display** checkbox in the **Current** section of the tab to display a Colebrook-White curve based on the current roughness and slope factors from the database (select this only if valid roughness and slope values display in the **Roughness** and **Slope** fields).

   - Select the **Generate** and **Display** checkboxes in the **Calculated** section of the tab to generate and display a Colebrook-White curve based on calculated **Roughness** and **Slope** factors for the current scattergraph data.

4. Select **OK** to generate and display the curve(s).

Store Calculated Roughness and Slope Values (*optional*)

If you generated a **Calculated** Colebrook-White curve you can store the new roughness and slope values to the database. After the **Calculated** Colebrook-White curve generates, perform the following steps to review and store the **Calculated** roughness and slope values:



Curve Properties button

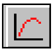
1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button.

2. Select the **Colebrook-White** tab.

3. The roughness and slope values display in the **Calculated** section of the screen. Select the **Store** button to save the new roughness and slope values to use with future data. **Store** allows you to define the time period to begin applying the new values.

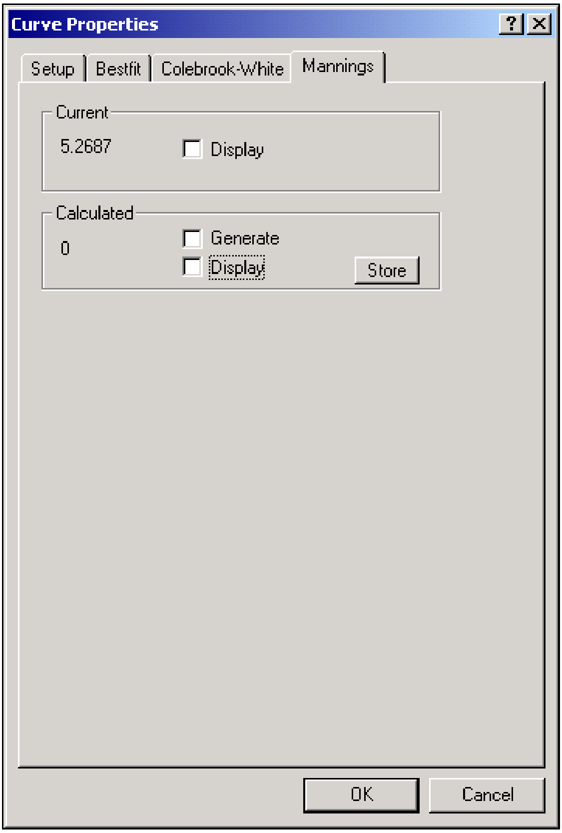
Generating a Manning Curve

Generate a scattergraph curve based on Manning's quantity equation after editing any necessary scattergraph data and setting up the curve parameters. Generate a Manning curve using the following steps:



Curve Properties button

1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Manning** tab.



Curve Properties > Manning tab

3. Select one or both of the following:

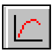
   - Select the **Display** checkbox in the **Current** section of the tab to display a Manning scattergraph curve based on the most current HC value in the database (select this option only if there is a valid HC value in the **Current** section). The **Current** section displays the current hydraulic coefficient as stored in the database for the Y axis data entity.

   - Select the **Generate** and **Display** checkboxes in the **Calculated** section of the tab to generate and display Manning's curve based on the current scattergraph data.

4. Select **OK** to generate the curve(s).

Storing a Calculated HC Value (*optional*)

After generating a **Calculated** Manning scattergraph curve, store the newly calculated **HC** value to the database.



Curve Properties button

1. Select the **Edit** > **Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Manning** tab.
3. Review the **HC** value in the **Calculated** section of the screen.
4. Select the **Store** button to save the calculated **HC** value to the database. **Store** allows you to define the time period in which to begin applying the **HC** value.

Displaying Curve Attributes

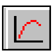
After generating a Bestfit, Colebrook-White, or Manning scattergraph curve, select curve attributes to display a variety of information on the scattergraph. Displaying attributes will help you perform a more thorough data review. For example, display **Field Confirmations** so that you can compare them to actual monitor data, or use the **Tolerances** feature to establish and display acceptable and unacceptable data ranges to judge the data quality.

Displaying the Data Tolerance Ranges

Tolerance ranges indicate acceptable and unacceptable quality flow data: flow data inside a tolerance range indicates acceptable quality; flow data outside the tolerance range indicates unacceptable quality. Use the **Scattergraph Editor** to establish and display tolerance ranges, and then use them to edit scattergraph data.

Use tolerances to identify and flag any poor quality data points outside the tolerance range, or unflag any previously flagged data inside the tolerance range that is now determined to be good quality. For more information, refer to *Editing Scattergraph Data Using Tolerances* on page 12-33.

Display the data tolerance ranges using the following information:

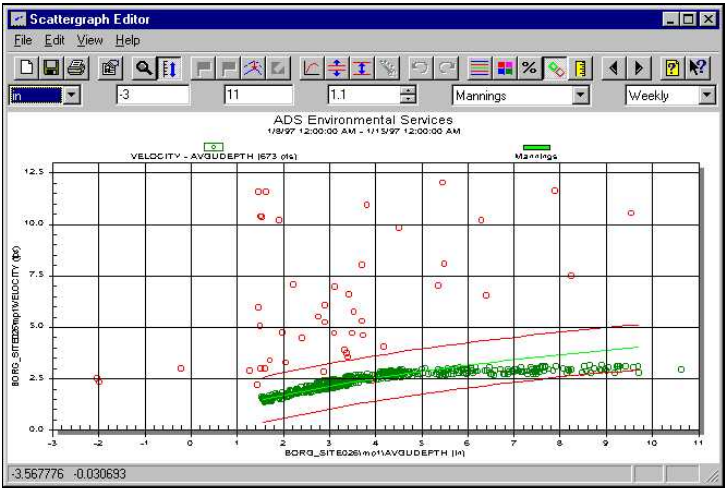


Curve Properties button

1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button.
2. Select the **Setup** tab.
3. Select the appropriate checkbox from the **Tolerances** section on the **Setup** tab to display the tolerance area above and/or below the curve.

> **Note:** The checkboxes from the **Tolerances** section on the **Setup** tab are only enabled after a scattergraph curve has been generated and displayed.

The tolerance curves display as red lines drawn parallel above and/or below the scattergraph curve.



Displaying the curve tolerances

Widening the Tolerance Range

Select the up arrow next to the **Tolerance** field (below the toolbar) to widen the current tolerance range. Selecting the up arrow button will widen the range between each red parallel tolerance curve and the scattergraph curve.

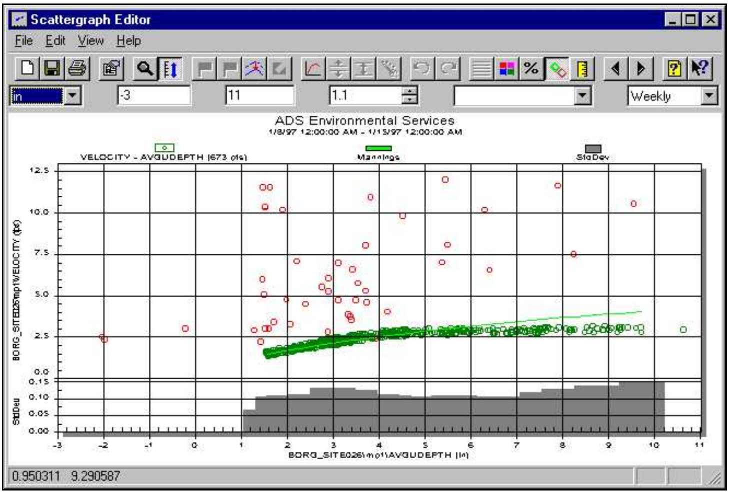
Tightening the Tolerance Range

Select the down arrow next to the **Tolerance** field (below the toolbar) to tighten the current tolerance range. Selecting the down arrow button will narrow the range between each red parallel tolerance curve and the scattergraph curve.

Displaying a Bestfit Curve Standard Deviation

Use this option after generating a Bestfit curve to display the average variance of each generated curve point as compared to the data for each bin on the Bestfit scattergraph curve.

Select the **Standard Deviation** checkbox on the **Edit > Curve Properties > Setup** tab to display the standard deviation calculated for each bin of the Bestfit curve. The standard deviation values display as bars on the scattergraph's X axis.



Displaying the standard deviation

Displaying Questionable Data

Questionable Data is any data that falls outside the tolerance ranges and may be of questionable quality. Perform the following steps to display questionable data on the scattergraph:

1. Display the **Tolerances** to enable the **Mark Questionable** Data option. See *Displaying the Data Tolerances Ranges* on page 12-21.

Mark Questionable Data button

Questionable Data button

2. Select the **Mark Questionable Data** toolbar button to mark the data.
3. Select the **Questionable Data** toolbar button to display the marked questionable data.

   Any questionable scattergraph data points will display in blue.

Displaying Scattergraph Information

Profile includes options for displaying field confirmations, pipe height, silt depth, quality ranges, depth event thresholds, iso-Q™ lines, and iso-Froude lines on the scattergraph. Review the following topics for details on each of these options.

Displaying Field Confirmations

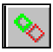
Field confirmations recorded in Profile's *Quantity Coefficient Generator* tool can be displayed on the scattergraph for informational purposes. Display all or a specific time span of field confirmations on the scattergraph. Confirmations display on the scattergraph as diamond symbols: green diamonds indicate *included* confirmations, and red diamonds indicate *ignored* confirmations.

Displaying All Field Confirmations

Confirmation button

Select the **Confirmations** toolbar button to display all field confirmations associated with the current monitor location.

Displaying a Specific Time Span of Field Confirmations

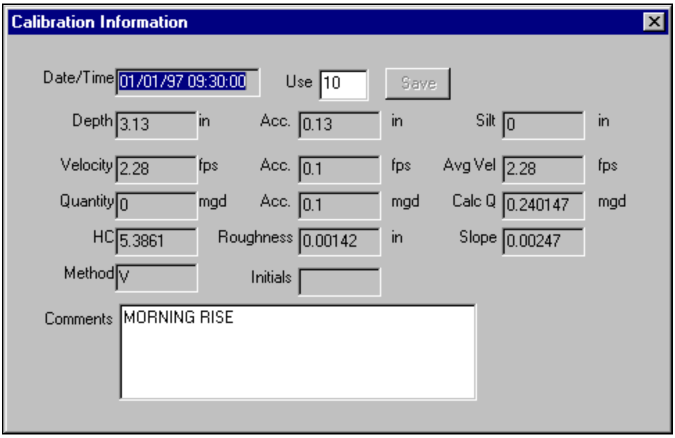


Confirmations in Span button

Select the **Confirmations in Span** toolbar button to display the field confirmations for the time period specified on the **Date Selection** tab (accessed through the **New** toolbar button).

Displaying Confirmation Information

Anytime field confirmations display on the scattergraph, position the mouse cursor over the confirmation and click the mouse button to display the **Confirmation Information** dialog.



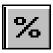
Displaying confirmation information

This dialog contains information specific to the selected confirmation:

- Enter an **I** in the **Use** field if you want to ignore the selected confirmation. Select the **Save** button to save the change.
- Enter any remarks in the **Comments** field.

Displaying Quality Ranges

Use the **Quality Range** toolbar button to display data quality information on the scattergraph. As the monitor generates flow data, it assigns each data point a quality statistic between 0 (poor) and 100% (good).



Quality Range button

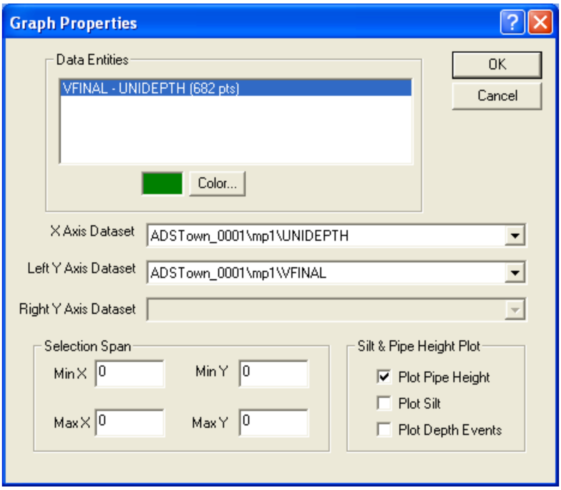
When the **Quality Range** option is selected, a multicolored legend displays on the scattergraph's Y axis indicating 10 levels of quality from 0 to 100%. Zero percent or poor quality is indicated in red at the bottom of the ruler, and 100% good quality is indicated in green at the top of the legend. Each data point on the scattergraph will be assigned a color corresponding to the legend to indicate the quality percent.

Displaying Pipe Height, Silt Depth, and Depth Event Thresholds

Display the pipe height, silt depth, and/or depth event thresholds for the currently selected monitoring point using the **Graph Properties** dialog.

Graph Properties button

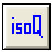
Select the **View > Graph Properties** option or the **Graph Properties** toolbar button to access the **Graph Properties** dialog. Select the **Plot Pipe Height, Plot Silt,** and **Plot Depth Events** checkboxes, as desired.



Scattergraph Editor – Graph Properties

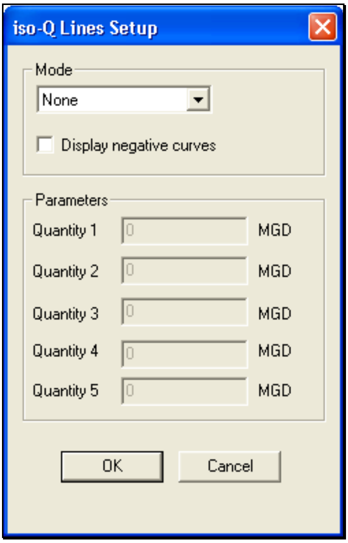
Displaying Iso-Q™ Lines

Display user-defined iso-Q lines using the **iso-Q** toolbar button. Iso-Q lines are graphed lines showing a constant quantity value which can be plotted on the scattergraph. Profile allows you to display up to five user-defined iso-Q lines.



Iso-Q button

1. Select the **iso-Q** toolbar button to display the **iso-Q Lines Setup** window.



Iso-Q Lines Setup window

2. Select **Specified** from the **Mode** drop-down list to enable the **Parameters** section.

   Note: To remove iso-Q lines from the scattergraph, select **None** from the **Mode** drop-down list.

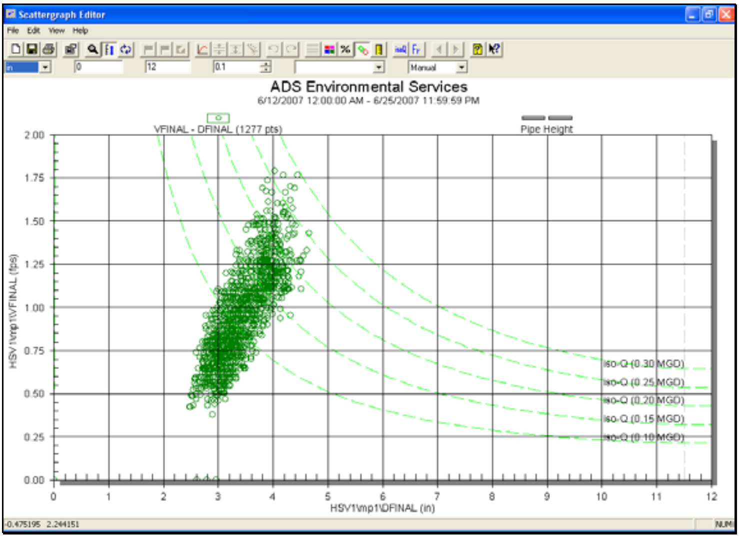
3. Enter as many quantity values you wanted graphed as lines in the **Quantity** fields. Display up to five lines. Entering a 0 in a **Quantity** field results in no line displayed.

4. Select the **Display negative curves** checkbox when you have negative flow (velocity, for example) data. **Profile** displays the negative data plotted with the negative iso-Q lines.

5. Select **OK** to close and save the information.

   Note: Save the scattergraph report as a template and all configured iso-Q lines will save in the template.

Profile displays the iso-Q lines on the scattergraph.



Scattergraph displaying iso-Q lines

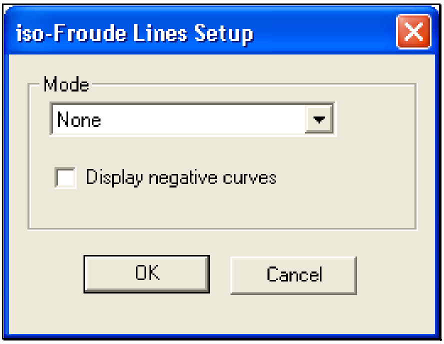
Displaying Iso-Froude Lines

Profile includes the ability to display iso-Froude lines on scattergraphs. Use iso-Froude lines on a scattergraph to reveal and identify hydraulic conditions such as hydraulic jumps, sewer bores, and undular jumps and help provide insight into your flow data. Display the three most important areas of flow: subcritical, critical, and supercritical using this option.

> **Note:** For best results when evaluating data using iso-Froude lines use edited data.

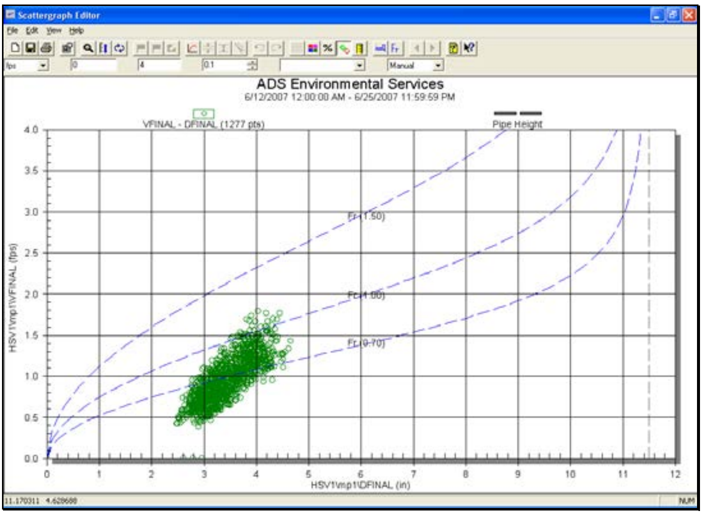
Iso-Froude button

Display iso-Froude lines by selecting the **iso-Froude** toolbar button to display the **iso-Froude Lines Setup** window. Choose the desired **Mode** to display the lines on the scattergraph.



iso-Froude Lines Setup window

- **1** Select this iso-Froude line to display the area of flow defined as *critical* or unstable.
- **0.7, 1, 1.5** Select this to display the 3 transitional flow conditions of subcritical or tranquil (0.7), critical or unstable (1) and supercritical or unstable (1.5).
- **Display negative curves** Select this when you have negative flow data (velocity, for example) and you want negative iso-Froude lines to display with the data.



Scattergraph displaying iso-Froude lines

Editing Scattergraph Data

The **Scattergraph Editor** provides several editing options including selecting data, flagging poor data, and editing using tolerance ranges.

> **Note:** All editing functions will be performed to the Y axis data entity. The typical data analysis project uses scattergraphs to edit velocity data (Y axis entity). Previously flagged X axis data will not display in the Scattergraph Editor.

Graph Properties button

Successfully perform data editing after verifying the X and Y axis data entities—the Y axis data entity will be the data used for editing. Select the **Graph Properties** toolbar button to change the graph axis on which a data entity displays, if necessary.

Edit the scattergraph data using the following editing options:

- Selecting scattergraph data
- Flagging data and clearing data flags
- Editing using tolerances
- Undoing an edit
- Reversing an undone edit

Selecting Scattergraph Data

In order to edit scattergraph data, you must first select the data you want to affect with the edit. Select scattergraph data using one of the following techniques:

Dragging a Selection Box

Select the scattergraph data by clicking and dragging a selection box over the desired data points. You may need to repeat this method in order to select all the data points you want to include. Selected data will display within a blue box.

> **Note:** If the **Inside Tolerance** or **Outside Tolerance** toolbar buttons are selected, the selection area will include the entire Y axis.

Clear Selection button

Remove a blue selection box by choosing the **Clear Selection** toolbar button.

Manually Entering the Data Selection

Graph Properties button

Select the **View >Graph Properties** option or the **Graph Properties** toolbar button to manually define a scattergraph data selection. This method of selecting data is more precise than dragging a selection box. The **Graph Properties** screen will display and allow you to enter a **Selection Span**. Enter the **Min X**, **Max X**, **Min Y**, and **Max Y** graph scale values to define the selection span. Selected data will display within a blue boxed area.

Removing a Selection Box

Clear Selection button

Remove the current selection box by choosing the **Clear Selection** toolbar button. For example, when you are finished performing data edits to a group of selected data points, remove the blue selection box by choosing the **Clear Selection** toolbar button.

Editing Scattergraph Data Using Flags

Apply or clear flags to scattergraph data. Flag (or mark) selected data so that the data no longer affects flow statistics; all flagged data points are ignored in quantity calculations. Apply flags to any selected data points when you have reason to believe that a data point is questionable. The data point can be flagged to be excluded from calculations and reports.

Setting Data Flags

Apply flags to scattergraph data by performing the following:

1. Select the data to which you want to apply the flags (refer to *Selecting Scattergraph Data*, page 12-31).

Flag button

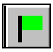
2. Select the **Edit > Flag Data** option or the **Flag** toolbar button to apply flags to the selected data.

Flagged data will display in red.

Clearing Data Flags

Clear flags from previously flagged data by performing the following:

1. Select the flagged graph data from which you want to remove flags (refer to *Selecting Scattergraph Data*, page 12-31).



Clear Flags button

2. Select the **Clear Flags** toolbar button to clear the flags.

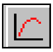
   The flags are cleared from the selected data, and the data points no longer display in red.

Editing Scattergraph Data Using Tolerances

Tolerance ranges, indicated by red lines drawn in parallel above and/or below a scattergraph curve, reveal acceptable and unacceptable quality flow data. Data points inside the tolerance ranges indicate acceptable quality; data points falling outside the tolerance ranges indicate unacceptable quality. Use the **Scattergraph Editor** to establish and display tolerance ranges for use in editing the data.

> **Note:** You must first generate a scattergraph curve to enable the checkboxes in the **Tolerances** section.

Begin by establishing the tolerance ranges. Perform the following steps to establish the tolerance ranges:



Curve Properties button

1. Select the **Edit > Curve Properties** option or the **Curve Properties** toolbar button to display the **Setup** tab.
2. Select the appropriate checkbox in the **Tolerances** section to display the desired tolerance curve(s) on the scattergraph.

   Note: The checkboxes in the **Tolerances** section are only enabled after a scattergraph curve has been generated.

3. Select **OK** to close and exit the **Setup** tab.
4. Select the curve type from the **Tolerance Curve** drop-down list (located below the toolbar buttons) around which you want to draw the tolerance ranges.

Perform one or more of the following tolerance editing operations after establishing the tolerance ranges:

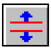
- Widen or tighten the tolerance ranges.
- Move data inside the tolerance range to the graph curve using the **Snap** data feature.
- Flag any data points that fall outside the tolerance range.
- Clear data flags from any data inside the tolerance range.

Widening or Tightening the Tolerance Ranges

Adjust the tolerance width using the up and down arrows located to the right of the **Tolerance** field to widen or tighten the current tolerance range. Changing the tolerance width affects which data points are included or excluded in the tolerance range. The scattergraph tolerance range will adjust according to the value in the **Tolerance** field.

Moving Data Outside the Tolerance to the Curve

After establishing the tolerance width, use the **Snap Data** option to move any data located outside the tolerance range to the scattergraph curve. Perform the following steps to use the **Snap Data** option:



Outside Tolerance button

1. Select the **Outside Tolerance** toolbar button.
2. Select the scattergraph data you want to move to the curve using the mouse to drag a selection box across the horizontal (X) scattergraph axis.

Snap Data button

3. Select the **Edit > Snap Data** option or the **Snap Data** toolbar button to move the data to the curve.

The points outside the tolerance area will be moved to the selected scattergraph curve.

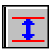
> **Note:** Selecting the **Above** checkbox (from the **Tolerances** section on the **Setup** tab of the **Curve Properties** dialog) moves all data above the tolerance curve to the scattergraph curve. Selecting the **Below** checkbox moves all data below the tolerance curve to the scattergraph curve.

Clearing Flags Inside a Tolerance Range

After establishing the tolerance width, use the **Inside Tolerance** option to clear flags from data located inside the tolerance range.

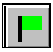
> **Note:** This option is often used after using the **Snap Data** option to remove flags from data previously located outside the tolerance range.

Perform the following steps to clear flags from data located inside the tolerance ranges:



Inside Tolerance button

1. Select the **Inside Tolerance** toolbar button.
2. Select the scattergraph data you want to move using the mouse to drag a selection box across the horizontal (X) axis.



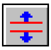
Clear Flags button

3. Select the **Clear Flags** toolbar buttons to clear flags from the selected data points.

The previously flagged red data points will now display in green (or the color chosen to represent the data points).

Setting Flags Outside a Tolerance Range

Use the **Outside Tolerance** toolbar button when you want to flag data located outside the defined tolerance ranges.



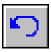
Outside Tolerance button

Flag button

1. Select the data points to which you want to apply flags.
2. Select the **Outside Tolerance** toolbar button.
3. Select the **Flag** toolbar button to apply flags to the selected data points outside the tolerance range.

   The flagged data points will display in red.

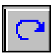
Undoing an Edit



Undo button

Select the **Edit** > **Undo** option or the **Undo** toolbar button to reverse the last editing operation.

Reversing an Undo Edit



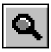
Redo button

Select the **Edit** > **Redo** option or the **Redo** toolbar button to reverse the last **Undo** action.

Using the Scattergraph Options

The **Scattergraph Editor** includes helpful options which make editing easier. These options include zooming a scattergraph screen, and viewing the value of any data point included on the scattergraph, saving the scattergraph screen configuration as a template, updating the scattergraph, or printing the scattergraph screen.

Magnifying the Scattergraph Screen

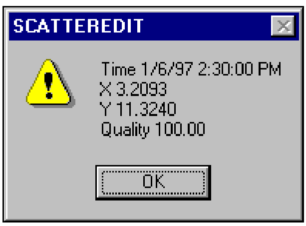


Zoom button

To magnify a particular area of the scattergraph, select the **View** > **Zoom** option or the **Zoom** toolbar button and then select the specific area of the scattergraph you want to magnify. Return to the original view (undo the zoom) by selecting the **Zoom** toolbar button, right-clicking the mouse button over the scattergraph, and selecting the **Undo Zoom** option.

Viewing the Value of a Data Point

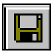
Reveal the value of any data point on the scattergraph by selecting a data point (with the mouse cursor) to display a hand symbol and then left clicking the mouse button to display the **Scatteredit** dialog.



Scatteredit dialog

The **Scatteredit** dialog displays the date, time, X and Y graph axis values, and data quality of the data on the Y axis.

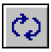
Saving a Scattergraph Screen



Save button

Save the current scattergraph screen by selecting the **File** > **Save** option or the **Save** toolbar button to save the configuration information and screen attributes to a template. The scattergraph screen is saved to the database as a template. The **Save As** dialog displays the first time you save a template. Select the **Save As** option when you want to rename a previously saved template.

Updating the Scattergraph



Refresh button

Select the **View** > **Refresh** option or the **Refresh** toolbar button to update the currently displayed scattergraph screen to reflect edits performed on the same data in either the **Tabular Editor** or the **Hydrograph Editor**. This action is necessary only when the **Scattergraph Editor** is open at the same time as the editing tool in which you are editing data.

Printing a Scattergraph

Print button

Select the **File** > **Print** option or the **Print** toolbar button to generate a hardcopy of the current scattergraph screen. **Print** sends a print request immediately to the default **Windows** printer.

Exiting the Scattergraph Editor

Close and exit the **Scattergraph Editor** by selecting the **File > Exit** option.

CHAPTER 13

Block Function Editor

To learn about:	*See page:*

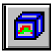
What is the Block Function Editor?

During the data editing process, you may determine that a specific edit for a monitoring point must be performed repeatedly throughout a group of data points for a specific period of time. For example, you may determine that all velocity data for a monitoring point above six feet per second should be flagged for a period of two weeks. Many individual velocity data points may be affected by the edit. Rather than manually flagging each individual data point above six feet per second, use the **Block Function Editor** to define an IF/THEN statement which specifies the acceptable limits for the data points. Those points falling outside the limits will be flagged by the **Block Function Editor**. Use the **Block Function Editor** to define and perform IF/THEN block editing statements.

When to Use the Block Function Editor

Use the **Block Function Editor** during the *Data Editing* step of the weekly routine. Refer to the *Introduction*, Chapter 1, for more information on the weekly routine.

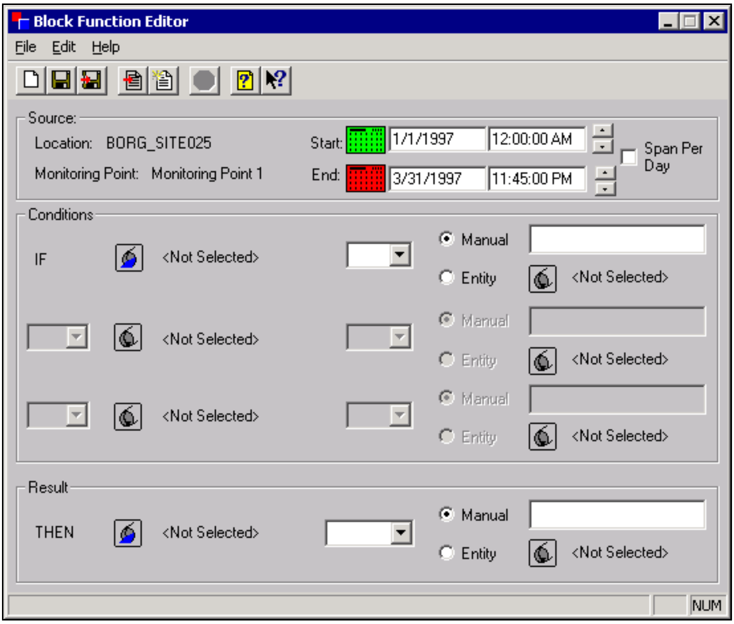
How to Use the Block Function Editor



Block Function Editor button

Access the **Block Function Editor** by selecting a monitoring point and then the **Block Function Editor** toolbar button from the **Profile** main screen.

Using the **Block Function Editor** successfully requires understanding how to create IF/THEN conditional statements. The *IF* portion of the statement establishes a comparison for which the result of the comparison must be true in order for the *THEN* action of the block edit to occur. The **Block Function Editor** provides the statement format; all you have to do is select the statement variables.



Block Function Editor dialog

The **Block Function Editor** dialog is divided and organized into three sections:

- **Source** The top section of the dialog displays the currently selected monitor location and monitoring point. Use this section to specify the beginning and ending dates and times of the block editing period. Select the **Span Per Day** checkbox when you want to perform block edits on only a limited time period within each day. For example, you may want to edit only velocity data during the period between 2 a.m. and 4 a.m for the dates specified in the **Start** and **End** fields.
- **Conditions** Use the middle section of the dialog to define the conditions that must exist in order for the block edit to occur. Select the data entity you want to evaluate, the type of comparison you want to perform on the selected data entity, and then the manually entered value or data entity to which you want to compare it.

  Note: A second and third level can be added to the IF portion of the condition statement; however, the complexity of second and third level block edits can create erroneous data if any portion of the statement is wrong (or not what you intended).

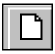
- **Result** Use the bottom section of the dialog to define the THEN portion of the IF/THEN statement. The THEN portion will be the resulting action to occur once the defined IF condition(s) exist.

Successfully use the **Block Function Editor** by performing the following tasks:

- Creating a block edit
- Saving a block edit

In addition, use the **Block Function Editor** to retrieve previously created and saved editing statements to save time when defining the same editing condition for a different monitoring point.

Changing the Selected Monitoring Point



New button

Use the **File > New** option or the **New** toolbar button to change the currently selected monitoring point. The **Monitored Items** tab will display and allow you to choose a new monitoring point.

Creating Block Edits

Create a block edit by defining the time period for the edit and selecting the variables for the IF/THEN statement. Refer to the following steps for more information:

1. Edit the beginning and ending dates and times to apply the block edit in the **Start** and **End** fields of the **Source** section.
2. (Optional) Select the **Span Per Day** checkbox when you want to perform edits on only a limited time period in each day of data (specified in the beginning and ending *times* in the **Start** and **End** fields).

Select Entity Icon

3. Select the **Select Entity** icon from the top line of the **Conditions** section to display the **Select Entity** dialog.
4. Select the entity for which you want to perform the block edit from the **Select Entity** dialog, and select **OK**.
5. Select the comparison operator from the **Condition** drop-down list on the first line of the **Conditions** section.
6. Either select the **Manual** radio button and manually enter a value or select the **Entity** radio button and a data entity to compare to the first selected entity in the **Condition** statement.
7. (Optional) Use the second and third levels of the **Conditions** section. Repeat steps 3 through 5 for each level.

Select Entity Icon

8. Select the data entity to which you want to perform the editing from the **Select Entity** icon list of the **Result** section.

9. Select the type of editing action you would like perform from the **Operation** drop-down list of the **Result** section.

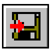
10. From the **Result** section, either select the **Manual** radio button and manually enter a value by which to affect the selected entity or select the **Entity** radio button and a data entity (from the **Select Entity** dialog) to which you want to apply the editing action.

Go button

11. Select the **Go** toolbar button to complete the block edit.

Saving a Block Edit

After creating a block editing statement, you can save it to a list in the **Block Editor**. Use a retrieved block edit to help save time when defining the same or a similar editing statement.



Save As button

1. After completing the IF/THEN statement, select the **File > Save** option or the **Save Function** toolbar button to display the **New Block Function** dialog. (Select the **File > Save As** option or toolbar button to rename and save a previously saved block edit.)

2. Enter the new block function name in the **Enter the new Block Function name** field.

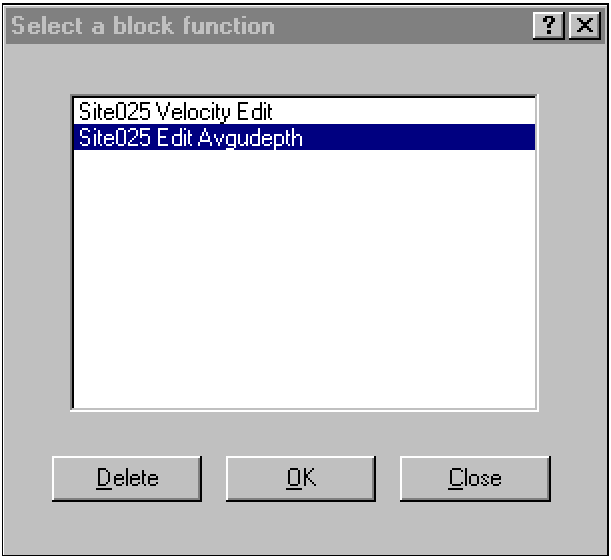
3. Select **OK** to save the block function.

Retrieving Saved Block Edits

Previously created and saved block edits can be retrieved and used when the same or a similar block function edit needs to be performed. Retrieve a previously created block function edit using the following process:

Select Function button

1. Select the **Edit** > **Select Function** option or the **Select Function** toolbar button to display the **Select a Block Function** dialog.



Select a Block Function dialog

2. Highlight the previously created and saved block edit from the list.
3. Select **OK** to retrieve and use the block edit.

Deleting a Block Edit

Select the **Edit** > **Select Function** option to delete any previously saved block function edit. The **Select a Block Function** dialog will display. Highlight the block edit you want to delete from the list, and select the **Delete** button.

Exiting the Block Function Editor

Select the **File > Exit** option to close and exit the **Block Function Editor**.

CHAPTER 14

Final Data Generator

To learn about:	*See page:*

What is the Final Data Generator?

The **Final Data Generator** allows you to generate the data entities that represent average depth (**AVGUDEPTH**), final depth (**DFinal**), final velocity (**VFinal**), and final quantity (**QFinal**). Use the **Final Data Generator** to combine specific time spans of the different depth, velocity, or quantity data entities (within the monitoring point) in order to create the final depth, velocity, or quantity data representations.

> **Note:** *Most* monitoring points should require only a single entity for the **DFinal**, **VFinal**, and **QFinal** entities. However, the **Final Data Generator** allows flexibility in situations requiring multiple entities.

For example, when multiple depth data entities, such as ultrasonic depth and pressure depth, exist for a monitoring point, the **Final Data Generator** allows you to create a final depth data representation, **DFinal**, by combining specific time spans of ultrasonic depth and/or pressure depth data. Select a depth data entity for a specific time span, and add the entry to a table. The table entries are used to generate the **DFinal** data entity. Use the **QFinal** data entity for your final flow data reports.

> **Note:** The data quality assigned to the dependent data entity **AVGUDEPTH** is the average of the quality statistics from all data entities required to generate the dependent data. The **DFinal**, **VFinal**, and **QFinal** quality statistics are based on the source entity from which **DFinal**, **VFinal**, and **QFinal** were constructed.

The table also can be used as a historical reference to view which entity or entities were selected to represent the final data entity. Generating **DFinal** allows you to generate (or regenerate) the dependent **QManning** and **QContinuity** flow quantities.

The **Final Data Generator** also is equipped with an advanced feature which allows you to create *pseudo* monitoring sites. Pseudo monitoring sites are not actual physical monitoring locations, but are a composite of **QFinal** data from any number of existing monitoring points. **QFinal** flow data can be added, subtracted, or modified from multiple monitoring locations to create models of hypothetical flow situations.

When to Use the Final Data Generator

Use the **Final Data Generator** after you have familiarized yourself with the flow data you want to use for generating the final entities. ADS recommends performing a post editing data review in order to become familiar with any data used to create **AVGUDEPTH**, **DFinal**, **VFinal**, **QFinal**, or **Pseudo Sites**.

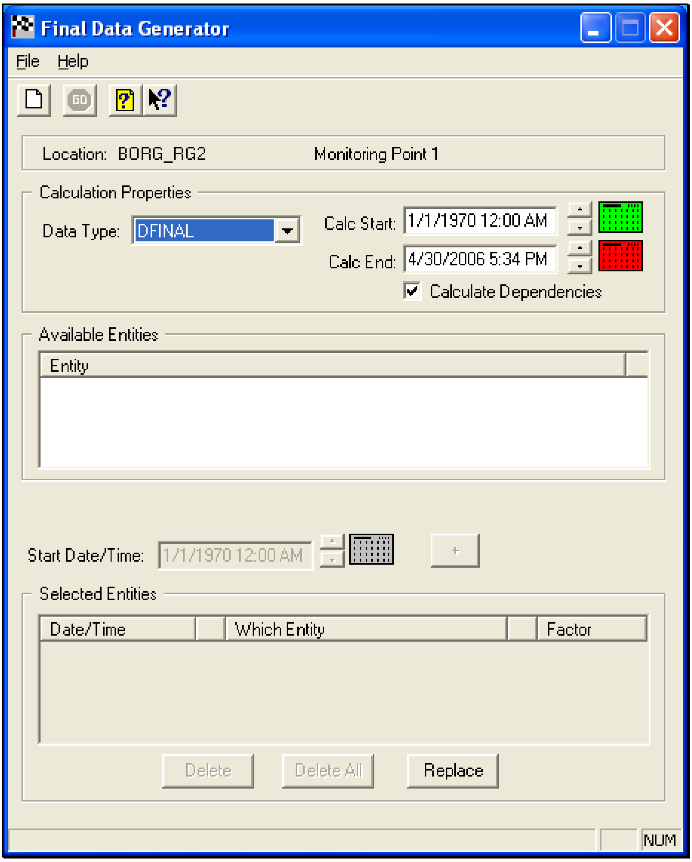
Use the **Final Data Generator** after the *Data Editing* phase of the weekly routine. Refer to the *Introduction*, Chapter 1, for more information.

How to Use the Final Data Generator

To access the **Final Data Generator**, first select a monitoring point in the **Profile** main screen.

Final Data Generator button

Select the **Final Data Generator** toolbar button from the **Profile** main screen.



Final Data Generator dialog

Use the **Final Data Generator** to generate the following entities:

- Generate the **AVGUDEPTH** data entity
- Generate the **DFinal** data entity
- Generate the **VFinal** data entity
- Generate the **QFinal** data entity
- Generate a **QPseudo** data entity (optional)

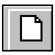
Generating AVGUDEPTH

Construct the **AVGUDEPTH** data entity when you are using depth sensor data. Select a single or combine multiple ultrasonic depth data entities, or include pressure depth data. For example, create the **AVGUDEPTH** data entity by combining the depth data from entities **U5**, **U7**, **U9**, **U12**, and **PDepth**. The data for the selected depth data entities is averaged together to create the **AVGUDEPTH** entity. Specify the date and time to begin using the selected entities as **AVGUDEPTH**. The **Final Data Generator** allows you the flexibility to change the depth entities that represent **AVGUDEPTH** as necessary. Use the **AVGUDEPTH** data entity when constructing the **DFinal** data entity.

Performing the following steps ensures the successful generation of the **AVGUDEPTH** data entity:

- Verifying the location and monitoring point for which you want to generate **AVGUDEPTH**
- Selecting the **AVGUDEPTH Data Type**
- Choosing to calculate dependent data
- Adding entries to the **AVGUDEPTH** table
- Generating **AVGUDEPTH**

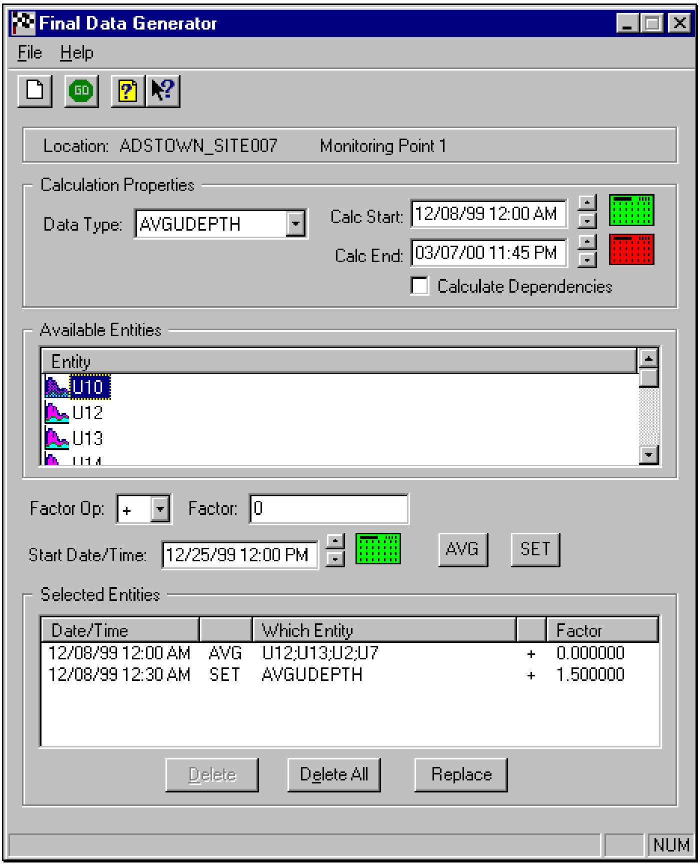
Verifying the Location and Monitoring Point


New button

Verify the selected monitor location and monitoring point displayed in the **Location** and **Monitoring Point** fields (located at the top of the **Final Data Generator** dialog). Use the **New** toolbar button to change the selection, if necessary. Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Selecting the AVGUDEPTH Data Type

Select **AVGUDEPTH** from the **Data Type** drop-down list. The available depth data entities for the selected monitoring point will display in the **Available Entities** list; these are the depth data entities from which you can choose to develop the **AVGUDEPTH** data entity.



Selecting **AVGUDEPTH**

Choosing to Calculate Data Dependencies

Select the **Calculate Dependencies** checkbox when you want to generate dependent data immediately after generating the **AVGUDEPTH** data entity.

Creating Table Entries

The **Selected Entities** table, located at the bottom of the **Final Data Generator** dialog, is a list of the selected data entities and time spans used to develop the **AVGUDEPTH** data entity. Select a single or combine multiple depth data entities from the **Available Entities** list for each entry to the **Selected Entities** table.

Generate **AVGUDEPTH** by performing the following steps:

1. Select the desired depth data entity (or entities you want to combine) to represent **AVGUDEPTH** from the **Available Entities** list.

   Note: Select multiple entities from the **Available Entities** list by holding down the **<Ctrl>** button while selecting the entities from the list.

2. Enter the date you want to begin using the selected depth entity (or entities) into the **Start Date/Time** field.
3. (Optional) Add, subtract, divide, or multiply any factor to adjust the final **AVGUDEPTH** data entity by entering the value by which you want to adjust the **AVGUDEPTH** entity to the **Factor** field and then selecting the type of mathematical operation (add, subtract, divide, or multiply) to perform on the data from the **Factor Op** drop-down list.
4. Select the **Avg** button to add the entry to the table.

   Note: It is possible to make a single entry to the **Selected Entities** table that will always represent the **AVGUDEPTH** data entity.

Each entry is added chronologically to the **Selected Entities** *table.*

5. Continue adding entries to the table, as necessary, until you have specified the entire time period for which you want to generate **AVGUDEPTH**.

Setting the Value of AVGUDEPTH

Use the **Set** button to assign a specific value to each **AVGUDEPTH** data point by performing the following steps:

1. Enter the value you want to assign to **AVGUDEPTH** into the **Factor** field.

2. Select the "**+**" or "**-**" symbol from the **Factor Op** drop-down list to distinguish the value as positive or negative.

3. Enter the date you want to begin applying the value to the **AVGUDEPTH** entity into the **Start Date/Time** field.

4. Select the **Set** button.

When **AVGUDEPTH** *generates, it will equal the* **Factor** *for the specified time span.*

Deleting AVGUDEPTH Table Entries

Delete a *single* entry from the **Selected Entities** table by highlighting the entry from the table and selecting the **Delete** button. Delete *multiple* entities from the **Selected Entities** table by holding down the **<Ctrl>** button while selecting entities from the list you want to delete and then selecting the **Delete** button.

Delete *all* entries from the table by selecting the **Delete All** button.

Generating AVGUDEPTH

Go button

After adding all necessary entries to the **Selected Entities** table for **AVGUDEPTH**, specify the time span for which you want to generate **AVGUDEPTH** in the **Calc Start** and **Calc End** fields and select the **Go** toolbar button to generate **AVGUDEPTH**.

The **Final Data Generator** will display a complete message when the data entity has finished generating. **AVGUDEPTH** will be added to the database and is now available for selection within the **Profile** tools.

Replacing a Table Entry

Replace an entry on the **Selected Entities** table using the **Replace** button.

1. Select the entry you want to replace from the **Selected Entities** table.
2. Select the **Replace** button.
3. Follow the steps in *Creating Table Entries* on page 14-9 for the replacement entry.

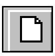
Generating DFinal

Construct **DFinal** from a single depth entity or different depth data entities for different time periods. For example, if you have 3 months of flow data for which you must generate a final depth entity, you can use the **Final Data Generator** to select **AVGUDEPTH** to represent the first month of **DFinal** data and use the **Pdepth** data entity to represent the second and third months of **DFinal** data. **Profile** requires the creation of the **DFinal** data entity in order to generate **QFinal**.

Performing the following steps ensures the successful generation of the **DFinal** data entity:

- Verifying the location and monitoring point for which you want to generate **DFinal**
- Selecting the **DFinal Data Type**
- Choosing to calculate dependent data
- Adding depth entries to the **DFinal** table
- Generating **DFinal**

Verifying the Location and Monitoring Point

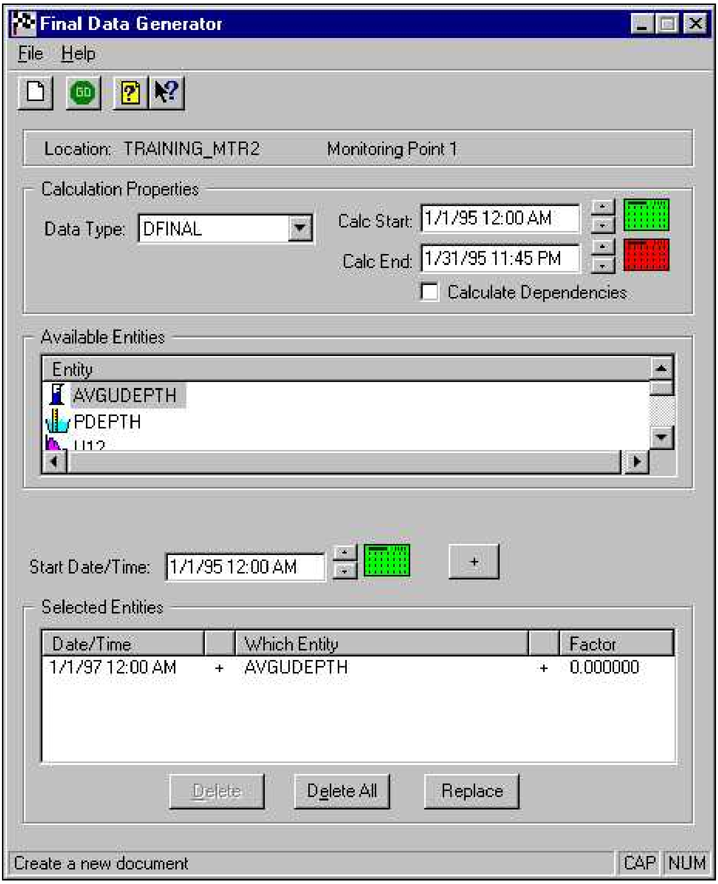


New button

Verify the selected monitor location and monitoring point displayed in the **Location** and **Monitoring Point** fields (located at the top of the **Final Data Generator** dialog). Use the **New** toolbar button to change the selection, if necessary. Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Selecting the DFinal Data Type

Select **DFinal** from the **Data Type** drop-down list. The available depth data entities for the selected monitoring point will display in the **Available Entities** list; these are the depth data entities from which you can choose to develop the **DFinal** data entity.



Selecting **DFinal**

Choosing to Calculate Data Dependencies

Select the **Calculate Dependencies** checkbox when you want to generate dependent data immediately after generating the **DFinal** data entity.

Adding Depth Entries to the Table

Add specific time spans of selected depth data to the **Selected Entities** table located at the bottom of the **Final Data Generator** dialog in order to create the **DFinal** data entity. Add depth data entities to the table using the following steps:

1. Highlight the desired depth data entity from the **Available Entities** list.
2. Enter the date you want to begin using the selected depth entity for **DFinal** in the **Start Date/Time** field.
3. Select the **+** button to add the selected data entity to the table.

The data entity is chronologically added to the **Selected Entities** *table.*

4. Continue adding depth entries to the table, as necessary, until you have specified the depth data entities and time periods you want to use to represent **DFinal**.

Deleting DFinal Table Entries

After you have made an entry to the table, you can remove it by highlighting the entity from the **Selected Entities** table and selecting the **Delete** button.

Delete all entries from the table by selecting the **Delete All** button.

Generating DFinal

Go button

After entering all of the depth entities you want to include on the **DFinal** table, specify the time span for which you want to generate **DFinal** in the **Calc Start** and **Calc End** fields and then select the **Go** toolbar button to generate **DFinal**.

The **Final Data Generator** displays a message when the data for the **DFinal** entity has finished generating. **DFinal** will be added to the database and is now available for selection in the **Profile** tools.

Replacing a Table Entry

Replace an entry on the **Selected Entities** table using the **Replace** button.

1. Select the entry you want to replace from the **Selected Entities** table.
2. Select the **Replace** button.
3. Follow the steps in *Adding Depth Entries to the Table* on page 14-14 for the replacement entry.

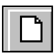
Generating VFinal

Construct **VFinal** from a single velocity entity or different velocity data entities for different time periods. For example, if you have 2 months of flow data for which you must generate a final velocity entity, you can use the **Final Data Generator** to select **AvgVel** to represent the first month of **VFinal** data and use the **Velocity** data entity to represent the second month of **VFinal** data. **Profile** requires the creation of the **VFinal** data entity in order to generate **QContinuity**.

Performing the following steps ensures the successful generation of the **VFinal** data entity:

- Verifying the location and monitoring point for which you want to generate **VFinal**
- Selecting the **VFinal Data Type**
- Choosing to calculate dependent data
- Adding velocity entries to the **VFinal** table
- Generating **VFinal**

Verifying the Location and Monitoring Point

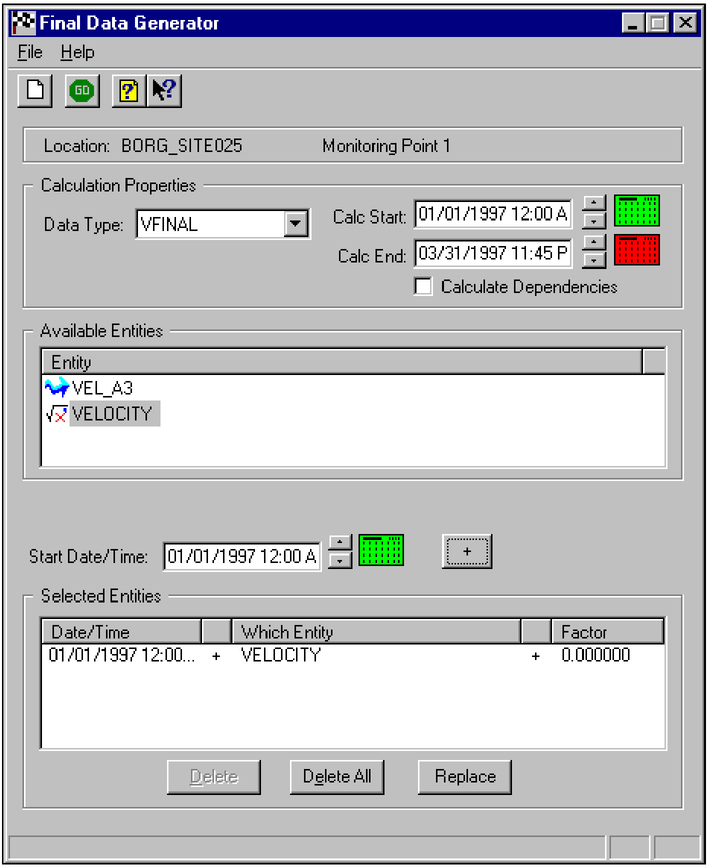


New button

Verify the selected monitor location and monitoring point displayed in the **Location** and **Monitoring Point** fields (located at the top of the **Final Data Generator** dialog). Use the **New** toolbar button to change the selection, if necessary. Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Selecting the VFinal Data Type

Select **VFinal** from the **Data Type** drop-down list. The available velocity data entities for the selected monitoring point will display in the **Available Entities** list; these are the velocity data entities from which you can choose to develop the **VFinal** data entity.



Selecting **VFinal**

Choosing to Calculate Data Dependencies

Select the **Calculate Dependencies** checkbox when you want to generate dependent data immediately after generating the **VFinal** data entity.

Adding Velocity Entries to the Table

Add specific time spans of selected velocity data to the **Selected Entities** table located at the bottom of the **Final Data Generator** dialog in order to create the **VFinal** data entity. Add velocity data entities to the table using the following steps:

1. Highlight the desired velocity data entity from the **Available Entities** list.
2. Enter the date you want to begin using the selected velocity entity for **VFinal** in the **Start Date/Time** field.
3. Select the **+** button to add the selected data entity to the table.

The data entity is chronologically added to the **Selected Entities** *table.*

4. Continue adding velocity entries to the table, as necessary, until you have specified the velocity data entities and time periods you want to use to represent **VFinal**.

Deleting VFinal Table Entries

After you have made an entry to the table, you can remove it by highlighting the entity from the **Selected Entities** table and selecting the **Delete** button.

Delete all entries from the table by selecting the **Delete All** button.

Generating VFinal

Go button

After entering all the velocity entities you want to include on the **VFinal** table, specify the time span for which you want to generate **VFinal** in the **Calc Start** and **Calc End** fields and then select the **Go** toolbar button to generate **VFinal**.

Final Data Generator displays a message when the data for the **VFinal** entity has finished generating. **VFinal** will be added to the database and is now available for selection in the **Profile** tools.

Replacing a Table Entry

Replace an entry on the **Selected Entities** table using the **Replace** button.

1. Select the entry you want to replace from the **Selected Entities** table.
2. Select the **Replace** button.
3. Follow the steps in *Adding Velocity Entries to the Table* on page 14-18 for the replacement entry.

Generating QFinal

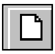
Generate **QFinal** for a monitoring point by combining quantity information from multiple quantity data entities within the monitoring point.

> **Note:** User's must generate a **DFinal** data entity prior to generating the **QFinal** data entity. Manning and continuity flow quantities are dependent on **DFinal**.

Performing the following steps ensures the successful generation of the **QFinal** data entity:

- Verifying the location and monitoring point
- Selecting the **QFinal Data Type**
- Choosing to calculate data dependencies
- Adding quantity entries to the table
- Generating **QFinal**

Verifying the Location and Monitoring Point

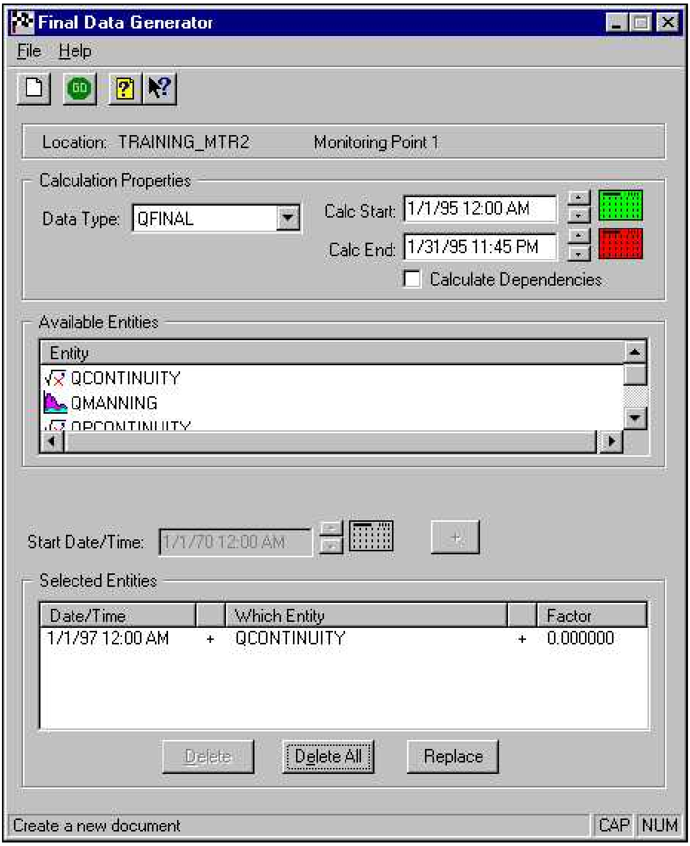


New button

Verify the selected monitor location and monitoring point displayed in the **Location** and **Monitoring Point** fields at the top of the **Final Data Generator** dialog. Use the **New** toolbar button to change the selections, if necessary. Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Selecting the QFinal Data Type

Select **QFinal** from the **Data Type** drop-down list. All available quantity data entities for the monitoring point will display in the **Available Entities** list; these are the quantity data entities from which you can choose to develop the **QFinal** data entity.



Generating **QFinal**

Choosing to Calculate Data Dependencies

Select the **Calculate Dependencies** checkbox when you want to generate dependent data immediately after generating the **QFinal** data entity.

Adding Quantity Entries to the Table

Add specific time spans of quantity data from the selected monitoring point to the **Selected Entities** table to create **QFinal**. Add quantity data entities to the table using the following steps:

1. Select a quantity data entity from the **Available Entities** list you want to use to represent the final quantity entity.
2. Enter the beginning date in the **Start Date/Time** field to use the selected quantity entity to represent **QFinal**.
3. Select the "+" button to add the data entity to the **QFinal** table.

The selected data entity is added chronologically to the **Selected Entities** *table.*

4. Continue adding quantity entries to the table, as necessary, until you have specified the quantity data entities and time periods you want to use to represent **QFinal**.

Deleting QFinal Table Entries

After you have made an entry to the table, you can remove it by highlighting the entity from the **Selected Entities** table and selecting the **Delete** button.

Delete all entries from the table by selecting the **Delete All** button.

Generating QFinal

Go button

After entering the final depth entities to the **QFinal** table, specify the time span for which you want to generate **QFinal** in the **Calc Start** and **Calc End** fields and select the **Go** toolbar button to generate the **QFinal** data.

The software displays a message when the **QFinal** entity has finished generating. **QFinal** is now available as a data entity for selection in any of the **Profile** software tools.

Replacing a Table Entry

Replace an entry on the **Selected Entities** table using the **Replace** button.

1. Select the entry you want to replace from the **Selected Entities** table.
2. Select the **Replace** button.
3. Follow the steps in *Adding Quantity Entries to the Table* on page 14-22 for the replacement entry.

Generating a QPseudo Data Entity

While *pseudo* monitoring sites are not actual physical monitoring locations, they are a composite of **QFinal** data from any number of existing monitoring points. Generate **Pseudo Sites** after defining the **QFinal** entity for your monitoring locations. Use the **QFinal** data from multiple monitoring locations to add to, subtract from, or modify the hypothetical flow situation.

> **Note:** All **QFinal** data for the monitoring locations making up the **Pseudo Site** must be available for the corresponding quantity to generate.

Performing the following steps ensures successfully generating a pseudo site:

- Creating a new monitor location
- Selecting the **QPseudo Data Type**
- Selecting a data averaging **Interval**
- Adding entries to the table
- Generating the **Pseudo Site**

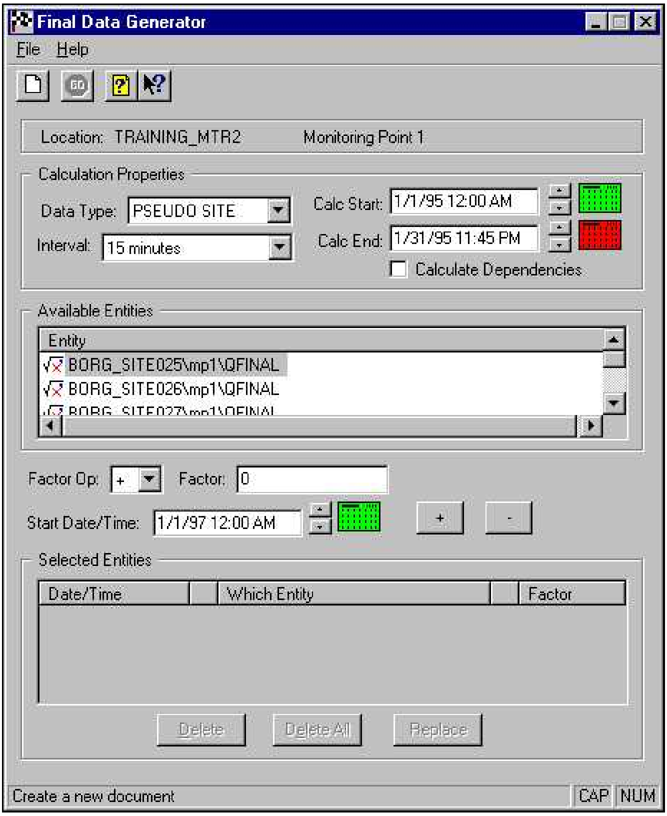
> **Note:** Always leave the **Calculate Dependencies** checkbox unchecked when creating **Pseudo Sites**. **Pseudo Sites** have no data dependencies.

Creating a New Monitor Location

The first step to creating a **Pseudo Site** is to create a new monitor location within the group for which you want to generate the **Pseudo Site**. Create new monitor locations using the **Profile** main screen. After creating and naming the monitor location, select the monitoring point associated with the new location (from the main screen) and then select the **Final Data Generator** toolbar button to open the **Final Data Generator** tool.

Selecting the Pseudo Site Data Type

Select **Pseudo Site** from the **Data Type** drop-down list to display the quantity data entities; choose from these quantity data entities when developing the **Pseudo Site**. The **Available Entities** list will display all available **QFinal** data from which you can use to develop the **Pseudo Site**.



Generating a **QPseudo** data entity

Entering the Pseudo Site Time Span

Enter the beginning and ending dates and times for which you want to generate **QPseudo** data in the **Calc Start** and **Calc End** fields.

Selecting a Data Averaging Interval

Select a data averaging interval from the **Interval** drop-down list. This will be the data interval generated for the **Pseudo Site**. For example, select **15-Minute** to generate four data points for every hour of **Pseudo Site** data.

Adding Entries to the Table

Add specific time spans of selected **QFinal** data to the **Selected Entities** table (located at the bottom of the **Final Data Generator** dialog) in order to create the **Pseudo Site**. Add **QFinal** entities to the table using the following steps:

1. Select a **QFinal** entity from the **Available Entity** list by selecting the framed **+** symbol to the left of each location and monitoring point level. **QFinal** entities are located just below the monitoring point level.
2. Enter the date you want to begin using the selected entity in the **Start Date/Time** field.
3. (Optional) Select a **Factor Op** and enter a **Factor** by which to adjust the selected **QFinal**.
4. Select the "+" button to add the **QFinal** quantity to the table, or select the "–" button to subtract the **QFinal** quantity from the **Pseudo Site**.

The data entity is chronologically added to the **Selected Entities** *table.*

5. Continue adding entries to the table, as necessary, until you have specified all of the **QFinal** entities you want to include in the **Pseudo Site**.

Deleting Pseudo Site Table Entries

After you have made an entry to the table, you can remove it by selecting the row from the **Selected Entities** table you want to delete and then selecting the **Delete** button.

Delete all entries from the table by selecting the **Delete All** button.

Generating the Pseudo Site

Go button

After entering all of the **QFinal** entities necessary to the table, specify the time span for which you want to generate **Pseudo Site** in the **Calc Start** and **Calc End** fields and select the **Go** toolbar button to generate the **Pseudo Site**.

The **Final Data Generator** displays a message when the **Pseudo Site** has finished generating. The **Pseudo Site** will be added to the database and is now available for selection in the **Profile** tools.

Replacing a Table Entry

Replace an entry on the **Selected Entities** table using the **Replace** button.

1. Select the entry you want to replace from the **Selected Entities** table.

2. Select the **Replace** button.

3. Follow the steps in *Adding Entries to the Table* on page 14-26 for the replacement entry.

Note: All entries for the selected time period will be replaced.

Exiting the Final Data Generator

Select the **File > Exit** option to close and exit the **Final Data Generator**.

CHAPTER 15

Balance Reporter

To learn about:	***See page:***

What is the Balance Reporter?

Flow quantities should increase as you progress farther downstream in a sewer system. Therefore, downstream monitoring points should experience a greater amount of flow than the upstream monitoring points in the same line. This is the flow balancing concept. The **Balance Reporter** is a **Profile** tool that allows you to generate balance reports comparing the flow totals for a downstream monitoring point to a composite of all upstream and overflow monitoring points.

Common terms used in the **Balance Reporter** include the following:

Schematic *Schematics* are maps that define the upstream and overflow monitoring points associated with a downstream monitoring point.

Downstream Monitoring Point A *downstream monitoring point* is the currently selected monitoring point for which you are developing the balance reports.

Composite A *composite* is the sum of all upstream monitoring points minus the sum of the overflow monitoring points. Composites are developed using information from schematics. Compare the composite flows to downstream flow during flow balancing.

Upstream Monitoring Point An *upstream monitoring point* is a monitoring point located upstream of and flowing into the currently selected downstream monitoring point. Flows from these monitoring points will be added to the **Composite**.

Overflow Monitoring Point *Overflow monitoring points* are those monitoring points located upstream of, but whose flows do not flow through, the currently selected downstream monitoring point. Flows from these monitoring points will be subtracted from the **Composite**.

Net *Net* flows equal the average, minimum, or maximum for the day of the differences between the downstream and composite flows.

When to Use the Balance Reporter?

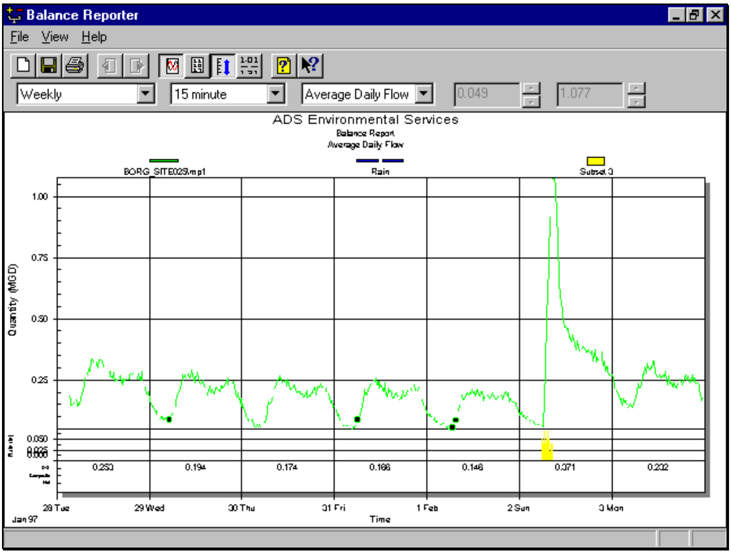
The **Balance Reporter** uses the **QFinal** data entity from the downstream, upstream, and overflow monitoring points to generate accurate flow composites; therefore, use the **Balance Reporter** only when the **QFinal** data entity is available for the downstream, upstream, and overflow monitoring points.

Refer to the *Introduction*, Chapter 1, for more information.

How to Use the Balance Reporter

Balance Reporter button

Access the **Balance Reporter** by selecting the monitoring point for which you want to generate the balance report and then the **Balance Reporter** toolbar button.

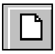


The **Balance Reporter**

Generating balance reports requires performing the following steps:

- Verifying the downstream monitoring point and time span
- Creating a schematic
- Setting up the balance report
- Printing the balance report
- Saving the report

Verifying the Downstream Monitoring Point and Time Span



New button

Select the **New** toolbar button to access the **Monitored Items** and **Date Selection** tabs. If necessary, use the **Monitored Items** tab to change the currently selected *downstream* monitoring point. Use the **Date Selection** tab to change the time span of data displayed on the balance report.

Creating a Schematic

The **Balance Reporter** uses information from schematics to develop flow composites. Developing a schematic includes identifying the monitoring points located upstream of the current monitoring point. All flows from upstream monitoring points will be *added* to the flow composite; all flows from upstream overflow monitoring points will be *subtracted* from the flow composite.

Create a schematic for each monitoring point using one of the following methods:

- Importing and reviewing **QuadraScan** schematics
- Using the **Profile** main screen in order to create and save the schematic to the **Profile** database
- Using the **Balance Reporter** to create a variety of flow scenarios to check flow balancing

Reviewing Imported QuadraScan Schematics

During **QuadraScan** data imports, **Profile** retrieves and stores schematics to the database. Review imported **QuadraScan** schematics for accuracy, and perform updates to the schematics, if necessary.

1. From the **Profile** main screen, select the monitoring point you want to review.

2. Select the **Edit > Properties** option to display the monitoring point **Properties** dialog.

3. Select the **Schematic** button to display the **Schematic Definition** dialog.

4. Review the schematic and change, if necessary. Refer to *Creating the Schematic Using the Main Screen*, next, for more information on changing the schematic.

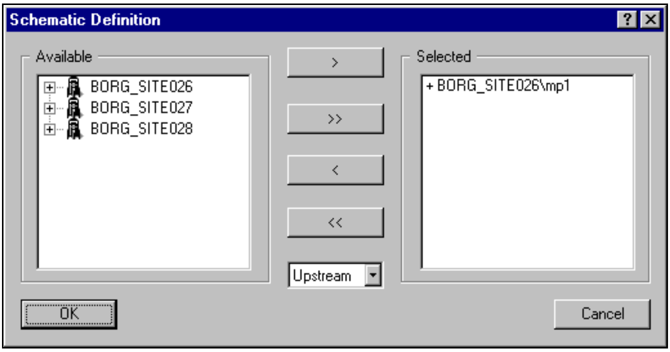
Creating the Schematic Using the Main Screen

Use the **Profile** main screen to develop a schematic and save it to the monitoring point. After the schematic is created on the main screen, it will be available each time you use the **Balance Reporter**.

1. From the **Profile** main screen, select the monitoring point for which you want to develop the schematic.

2. Select the **Edit > Properties** option.

3. Select the **Schematic** button to display the **Schematic Definition** dialog.



Schematic Definition dialog

4. Develop the schematic by selecting the upstream and overflow monitoring points from the **Available** list and adding them to the **Selected** list using the > button. Each time you add a monitoring point to the **Selected** list, indicate the type of monitoring point you are adding by selecting **Upstream** or

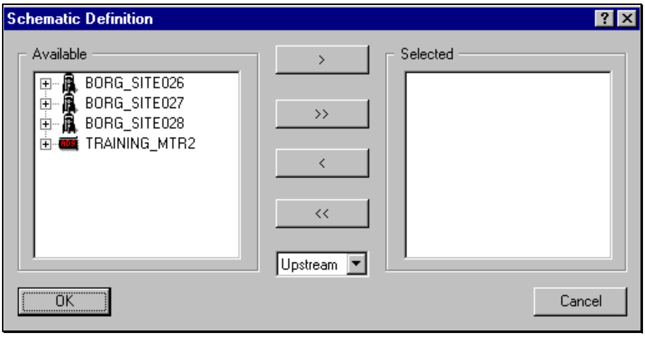
Overflow from the dialog. **QFinal** flows from **Upstream** monitoring points will be added to a flow composite. A "+" symbol next to the monitoring point in the **Selected** list indicates an **Upstream** monitoring point. **QFinal** flows from **Overflow** monitoring points will be subtracted from a flow composite. A "–" symbol next to the monitoring point in the **Selected** list indicates an **Overflow** monitoring point.

5. Select **OK** to close and exit the dialog.

Creating the Schematic Using the Balance Reporter

Create *temporary* schematics using the **Balance Reporter**. The **Balance Reporter** allows you to create a variety of flow scenarios and generate preliminary balance reports. However, temporary schematics can only be saved to a template. They cannot be saved to the database. Use the **Profile** main screen to develop schematics which are saved to the monitoring point.

1. From the **Balance Reporter** main screen, select the **View > Schematic > Manual** option to display the **Schematic Definition** dialog.



Schematic Definition dialog

2. Develop the schematic by selecting the upstream and overflow monitoring points from the **Available** list and adding them to the **Selected** list using the > button. Each time you add a monitoring point to the **Selected** list, indicate the type of monitoring point you are adding by selecting **Upstream** or

Overflow from the dialog. **QFinal** flows from **Upstream** monitoring points will be added to a flow composite. A "+" symbol next to the monitoring point in the **Selected** list indicates an **Upstream** monitoring point. **QFinal** flows from **Overflow** monitoring points will be subtracted from a flow composite. A "**–**" symbol next to the monitoring point in the **Selected** list indicates an **Overflow** monitoring point.

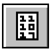
3. Select **OK** to close and exit the dialog.

Setting Up the Balance Report

Setting up the balance report includes selecting the report attributes. Set up the balance report by selecting from the following reporting options:

Selecting the Report Type

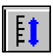

Graphical button


Tabular button

Select a report type for the balance report. Select the **Graphical** or **Tabular** toolbar buttons to display the balance report in either a hydrograph format or a tabular format.

Adjusting Graph Scales Manually or Automatically

Note: This applies to the flow scales on *graphical* balance reports only.


Autoscale button

Automatically adjust the flow scales for a **Graphical** balance report using the **Autoscale** option or toolbar button. **Autoscale** automatically sets the graph scales based on the highest and lowest flow quantities during the reported period.

Manually set the graph scales by de-selecting the **Autoscale** toolbar button and manually incrementing the **Minimum Y** and **Maximum Y** fields (located below the toolbar) to the desired values.

Selecting the Display Type

Select a format from the **Display Type** drop-down list in which to display the flow data. Select from **Daily**, **Weekly**, or **Monthly** to display one-day, 7-days, or the remaining number of days in the current month of graphical or tabular data at a time on the balance report.

Selecting the Averaging Type

> **Note:** This applies to *graphical* balance reports only.

Select a data averaging interval from the **Averaging Type** drop-down list. The averaging interval determines how many data points (from the database) are averaged together and displayed as one point on the graphical balance report. Select from **15 minute**, **Hourly**, or **Daily** averaging intervals. For example, selecting the **Hourly** averaging interval for data stored in 15-minute intervals causes four 15-minute data points to be averaged together and displayed as one on the graphical balance report.

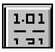
Selecting the Flow Type

Select the type of flow totals to display on the report from the **Flow Type** drop-down list. Select from **Average Daily Flow**, **Minimum Daily Flow**, or **Maximum Daily Flow** to display the average flow, lowest flow, or highest flow for each 24-hour period for the downstream, composite, and net values.

> **Note:** A graphical balance report view will display the daily values of the selected **Flow Type** values along the X axis.

Displaying Partial Days

Balance Reporter allows you to view daily minimums, maximums, and averages for QFinal at individual monitoring points and for composite and net quantities. However, some days may include missing data. For periods of less than 2 contiguous hours of missing data, **Profile** automatically interpolates and fills in the data based on the surrounding data to provide these values. For periods of 2 contiguous hours or more of missing data, **Profile** will not interpolate the data. Instead, it implements the *partial days* feature. This feature displays the daily minimums, maximums, and averages for quantity based on the existing data.



Partial Days button

Balance Reporter uses the partial days feature by default. Disable this feature by selecting the **Partial Days** toolbar button. When this feature is disabled, **Balance Reporter** will display the "--" symbol for daily minimums, maximums, and averages on days with at least one 2-hour or longer period of missing data.

Balance Report Options

The **Balance Reporter** allows you to print and save balance reports. Refer to the following topics for more information.

Printing the Balance Report

After setting up the graphical or tabular balance report, generate hardcopies.

Print button

Select the **Print** toolbar button to send a balance report immediately to the **Windows**-configured printer.

Select the **File > Print** option to specify the number of balance report copies or to schedule the print activity for a later, more convenient time.

Select the **File > Print Setup** to select the printer and printer options.

Saving the Balance Report

Save button

Select the **File > Save** option or the **Save** toolbar button to save the current balance report configuration as a template. The balance report configuration and schematic are saved to a template.

> **Note:** Temporary schematics created through the **Balance Reporter** are saved only to the template. They are not saved to the database.

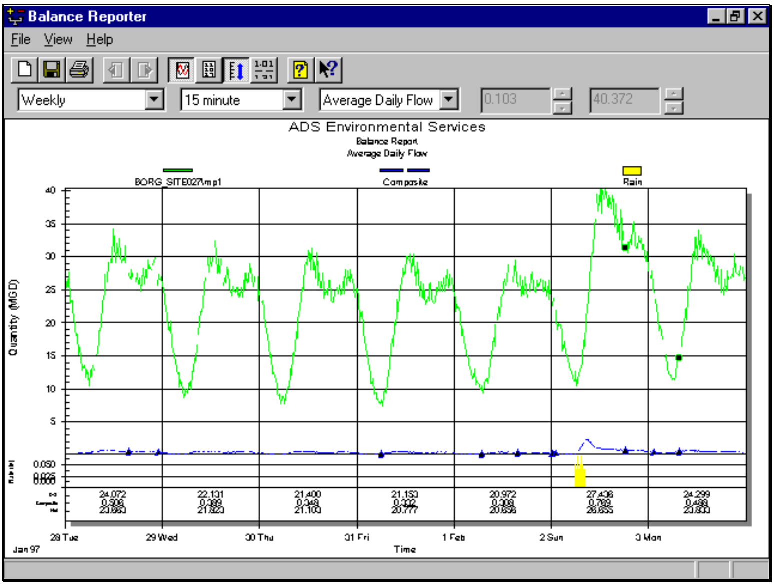
Select the **File > Save As** option to save and rename a previously saved template.

Graphical and Tabular Balance Reports

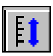
Refer to the following sections for reference information on graphical and tabular balance reports.

Graphical Balance Reports

Following is a sample graphical balance report:



Sample *graphical* balance report



Autoscale button

The graph's flow scales are based on the highest and lowest flow values during the period. Select the **Autoscale** toolbar button to automatically set the flow scales. Manually set the flow scales by de-selecting the **Autoscale** toolbar button and entering new values into the **Minimum Y** and **Maximum Y** fields.

Rain data is displayed on a bar graph below the flow scale, when applicable. This scale cannot not be set manually.

Select from a variety of **Display Types** (**Daily**, **Weekly**, or **Monthly**) on which to display the flows, and select the **Averaging Type** (**15 minute**, **Hourly**, or **Daily**) to determine how many data points are averaged to display as one point on the graph.

The corresponding **Average**, **Minimum**, or **Maximum** flow values for the downstream, composite, and net flows are displayed along the Y graph axis for the **Daily** or **Weekly Display Types**.

Tabular Balance Reports

The following columns display on a *tabular* balance report:

Balance Report
BORG_SITE027\mp1
Average Daily Flow (MGD), Rain (in)

Day	Date	Rain	D/S	Net	Composite	Site 1	Site 2
Tue	01/28/1997	0.00	24.072	23.663	0.506	0.253	0.247
Wed	01/29/1997	0.00	22.131	21.823	0.389	0.194	0.195
Thu	01/30/1997	0.00	21.400	21.103	0.348	0.174	0.174
Fri	01/31/1997	0.00	21.153	20.777	0.332	0.166	0.167
Sat	02/01/1997	0.00	20.972	20.656	0.308	0.146	0.162
Sun	02/02/1997	0.50	27.436	26.655	0.769	0.371	0.397
Mon	02/03/1997	0.00	24.299	23.833	0.488	0.232	0.254
Total Rain		0.50					
Averages			23.066	22.644	0.449	0.219	0.228
Minimums			20.972	20.656	0.308	0.146	0.162
Maximums			27.436	26.655	0.769	0.371	0.397

Site 1: BORG_SITE025\mp1, Upstream (+)
Site 2: BORG_SITE026\mp1, Upstream (+)

Sample *tabular* balance report

- **Day** This column displays the day of the week corresponding to the flows.
- **Date** This column displays the date corresponding to the flows. The date is formatted according to the **Windows**-configured date format.

- **Rain** This column displays the rain totals for the assigned rain gauge for the downstream monitoring point, when applicable.
- **D/S** This column displays the flows from the currently selected downstream monitoring point.
- **Net** This column displays the average, minimum, or maximum of the differences between the downstream and composite flows, depending on the currently selected **Flow Type** (**Average**, **Minimum**, or **Maximum**).
- **Composite** This column displays the sum of all upstream monitoring points minus the sum of the overflow monitoring points.
- **Site 1, Site 2** These columns display the values for the **Flow Type** (**Average**, **Minimum**, or **Maximum**) for each upstream or overflow monitoring point defined in the schematic.
- **Total Rain** This row displays the sum of the rain data for the specified time span based on the assigned rain gauge from the downstream monitoring point.
- **Averages** This displays the average of the quantities displayed in each column of the tabular report.
- **Minimums** This displays the minimum of the quantities displayed in each column of the tabular report.
- **Maximums** This displays the maximum of the quantities displayed in each column of the tabular report.

Exiting the Balance Reporter

Select the **File > Exit** option to exit the **Balance Reporter.**

CHAPTER 16

Hydrograph Reporter

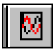
What is the Hydrograph Reporter?

The **Hydrograph Reporter** is a **Profile** tool that allows you to generate customized, printed hydrograph flow data reports. A hydrograph report graphically displays flow data on an XY graph, with the X axis representing time and the Y axis representing one or more data entities. Use the **Hydrograph Reporter** to report data in a wide variety of formats. Overlay several monitor locations for comparison reports. Generate and format the reports on-screen before printing, and then save the report configuration to a template to retrieve later when you want to create the same or a similar report. For more information, refer to *Creating and Using Templates* in Chapter 1.

When to Use the Hydrograph Reporter

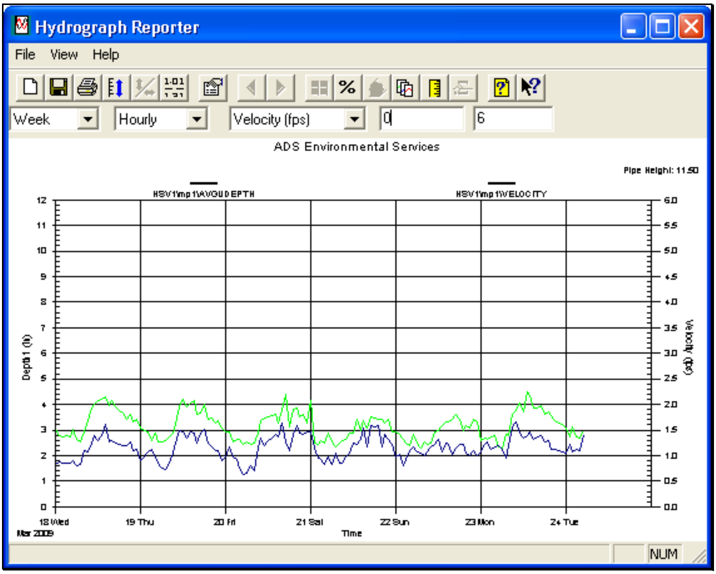
Use the **Hydrograph Reporter** during the *Data Reporting* phase of the weekly routine. For more information on the weekly routine, refer to the *Introduction*, Chapter 1.

How to Use the Hydrograph Reporter



Hydrograph Reporter button

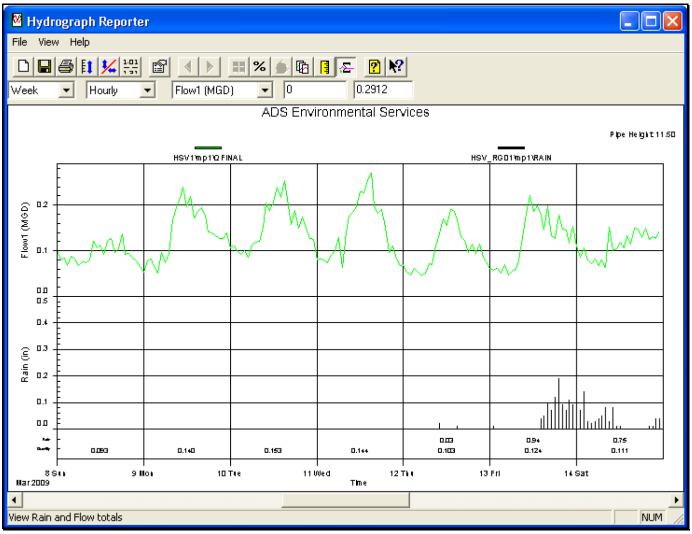
Access the **Hydrograph Reporter** by selecting at least one data entity (such as depth and velocity) or a previously saved hydrograph report template from the **Profile** main screen and then selecting the **Hydrograph Reporter** toolbar button.



The **Hydrograph Reporter**

The flow data plots along the hydrograph's X axis and typically displays as a curve with lower flows in the early morning hours, higher later in the day, and then lower again in the later evening. This is called the *diurnal* flow pattern.

All weekly and monthly hydrographs displaying **QFinal** and **Rain** show totals in the status bar.



QFinal and **Rain** Totals Displayed

> **Note:** A "+" symbol displaying in a hydrograph represents a single data point that exists within a gap of missing data. However, this symbol displays only when no other data is available within 2 hours on both sides of the data point.

There are two major tasks to using the **Hydrograph Reporter** successfully:

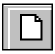
- Setting up the hydrograph report
- Printing the hydrograph report

Refer to *Setting Up the Hydrograph Report*, next, and *Using Hydrograph Reporting Options* on page 16-19, for more information on setting up and printing the report.

Setting Up the Hydrograph Report

Begin using the **Hydrograph Reporter** by setting up the report.

Verifying the Selected Data Entities

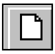


New button

Use the **New** option to access the **Monitored Items** tab, which allows you to change the selected data entities that display on the hydrograph report.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Verifying the Time Span



New button

Use the **New** option to access the **Date Selection** tab, which allows you to change the hydrograph report time span.

> **Note:** The hydrograph will display the beginning and ending date span from the last configuration until an update is performed.

Refer to *Changing the Time Span* in Chapter 2 for more information.

Selecting a Hydrograph Report Format

Select a report format in which to display the hydrograph data from the **Report Format** drop-down list. Select from **Day**, **Week**, **Month**, **Quarter**, **Year**, or **Manual** depending on the amount of flow data you want to display on a single hydrograph screen.

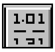
- **Day** This option displays the data in a 24-hour graph format.
- **Week** This option displays the data in a 7-day graph format.
- **Month** This option uses a 31-day graph format.
- **Quarter** This option displays the data in a 92-day graph format.
- **Year** This option displays the data a 365-day graph format.
- **Manual** This option allows you to enter starting and ending dates and times for the hydrograph report format.

Selecting a Data Averaging Interval

Select a data averaging interval from the **Average Interval** drop-down list. Select from **None, 5 minutes**, **15 minutes**, **Hourly**, or **Daily** depending on how many data points you want to display on the graph for each actual data point. For example, if the database has a data point for each 15-minute sensor reading and you select **Hourly** averaging, then the four 15-minute readings for each hour will be averaged together so that only one data point will display.

Displaying Partial Days

Hydrograph Reporter allows you to view the daily averages and totals for each data entity. However, some days may include missing data. For periods of less than 2 contiguous hours of missing data, **Profile** automatically interpolates and fills in the data based on the surrounding data to provide this information for the report. For periods of 2 contiguous hours or more of missing data, **Profile** will not interpolate the data. Instead, it implements the *partial days* feature. This feature displays the daily totals and averages on the report based on the existing data.



Partial Days button

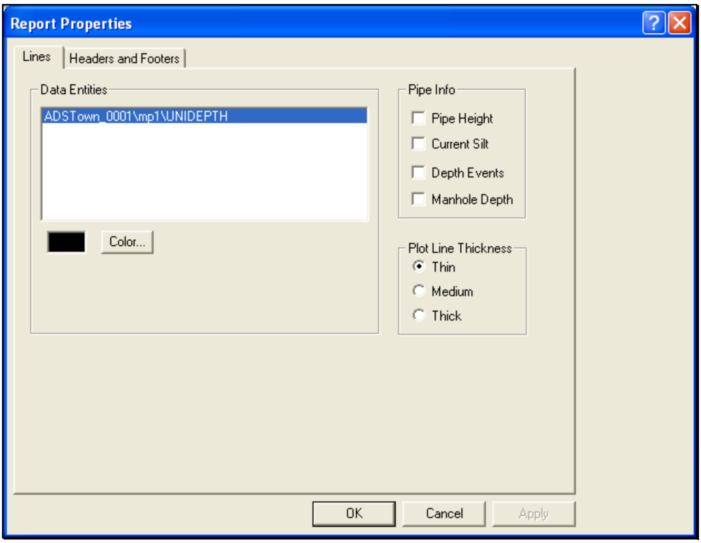
Hydrograph Reporter uses the partial days feature by default. Disable this feature by selecting the **Partial Days** toolbar button. When this feature is disabled, **Hydrograph Reporter** will not provide daily totals and averages for days with at least one 2-hour or longer period of missing data.

Changing the Data Entity Colors

Perform the following steps to change the color assigned to an entity on the hydrograph report.

Report Properties button

1. Select the **Report Properties** toolbar button to display the **Report Properties** dialog.



Report Properties dialog with **Lines** tab displayed

2. Select the entity you want to change from the **Data Entities** list on the **Lines** tab.

3. Select the **Color** button to display the **Color** dialog.
4. Choose a new color to represent the data entity.
5. Select **OK** to apply the new color selection.

Changing the Thickness of the Plot Lines

Change the thickness of the plot lines on the hydrograph by selecting the **Report Properties** toolbar button and selecting the desired thickness from the options available in the **Plot Lines Thickness** section on the **Lines** tab.

Setting the Hydrograph Scales

Set the current hydrograph scale values manually or allow **Profile** to set the scales.

> **Note:** **Profile** automatically will save the minimum and maximum scales displayed on the hydrograph for the selected site to the database when you exit **Hydrograph Reporter**. Therefore, the next time you bring up that same site in either **Hydrograph** or **Scattergraph Reporter**, the graph will display based on these scales, regardless of the date/time range or the method used for setting the scales.

Manually Setting the Hydrograph Scales

1. Select the **View** > **Manual** option.
2. Select the graph scale you want to adjust from the **Scale Type** drop-down list (located under the toolbar).
3. Enter new Y axis minimum and maximum values in the **Minimum Y Value** and **Maximum Y Value** fields (located under the **Help** toolbar buttons).

Setting the Hydrograph Scales Based on Data

Autoscale button

Select the **View** > **AutoScale** option or the **AutoScale** toolbar button to allow **Profile** to set the hydrograph's Y scale value automatically based on the highest and lowest data values during the period that appears on the current graph.

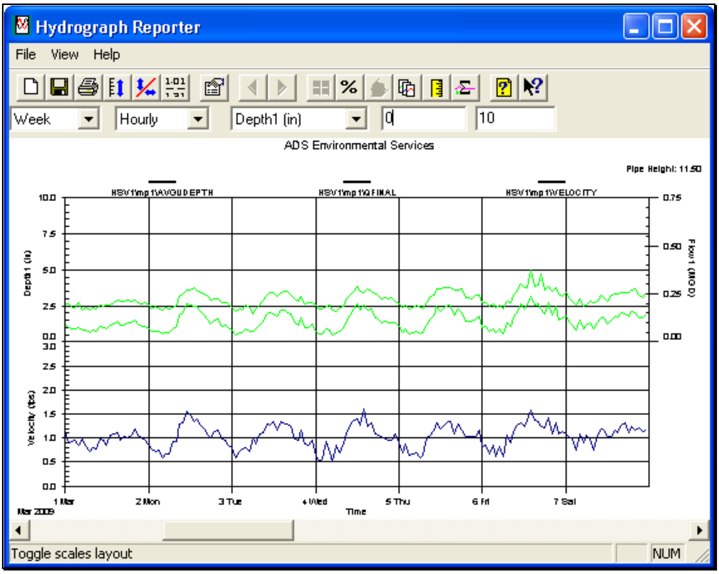
Setting the Hydrograph Scales Based on Default Values

Select the **View** > **Default** option when depth and velocity data entities are displayed on the hydrograph to allow **Profile** to set the hydrograph's Y scale values. The maximum scale values are the pipe height for depth, 10 feet per second for velocity, and the maximum capacity (rounding to the nearest whole number) for quantity.

Converting the Scales Layout

Scales Layout button

Toggle the **Scales Layout** toolbar button to alternate between using a stacked hydrograph scale and using two separate graph scales. For example, if you have 3 data entities displaying on the hydrograph and two of the entities display in a stacked scale (the top scale displays the first two entities and the bottom scale displays the third entity), select the **Scales Layout** toolbar button to create two separate (side-by-side) graph scales.



Stacked hydrograph scales

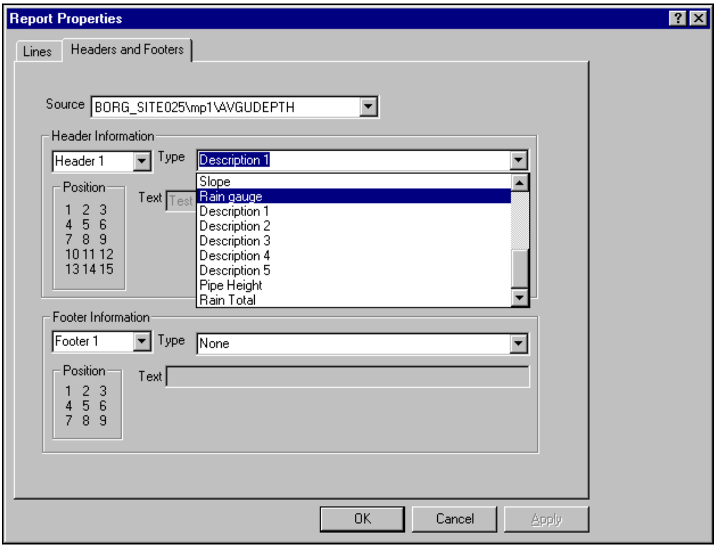
Editing the Report Headers and Footers

Use the **Report Properties** to edit the hydrograph report header and footer information in the following way:

Editing a Report Header

Report Properties button

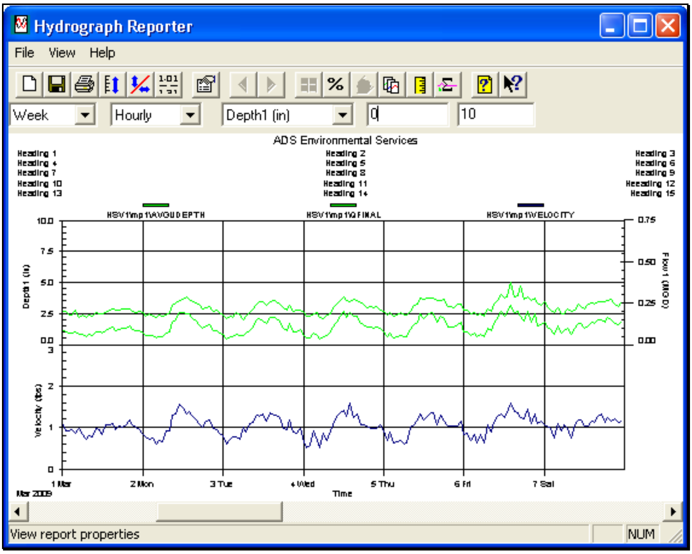
1. Select the **View** > **Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.
2. Select the **Headers and Footers** tab.



Report Properties dialog with **Type** drop-down list

3. Select the entity from the **Source** drop-down list from which you want to retrieve the header information.

4. Select a header number from the **Header Information** drop-down list. Each header from the list represents a different position on the hydrograph report. There are 15 different possible report header positions.



Report header positions 1 - 15

5. Select a pre-defined header entry from the **Type** drop-down list, or select **Manual**. If you selected **Manual**, enter the header information in the **Text** field.

6. Select **OK**.

Editing a Report Footer

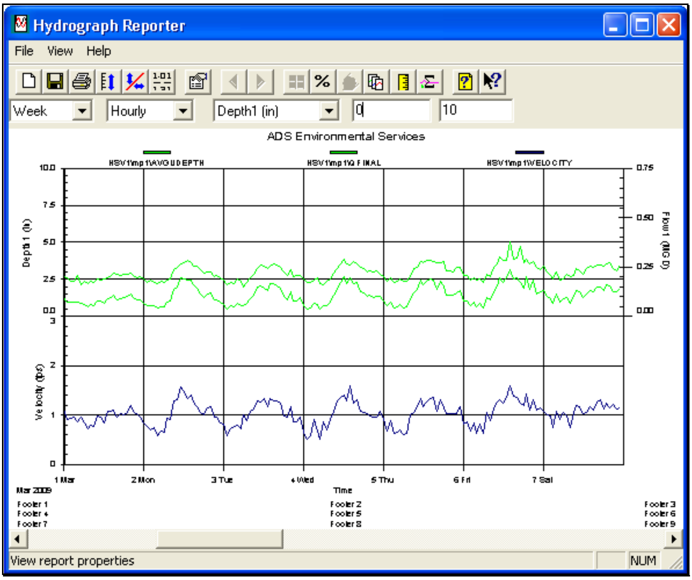
Report Properties button

1. Select the **View > Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.

2. Select the **Headers and Footers** tab.

3. Select the entity from the **Source** drop-down list from which you want to retrieve the footer information.

4. Select a footer number from the **Footer Information** drop-down list. Each footer from the list represents a different position on the hydrograph report. There are 9 possible report footer positions.



Report footer positions 1 - 9

5. Select a pre-defined footer entry from the **Type** drop-down list, or select **Manual**. If you selected **Manual**, enter the footer information in the **Text** field.

6. Select **OK**.

Displaying Field Confirmations

Confirmation button

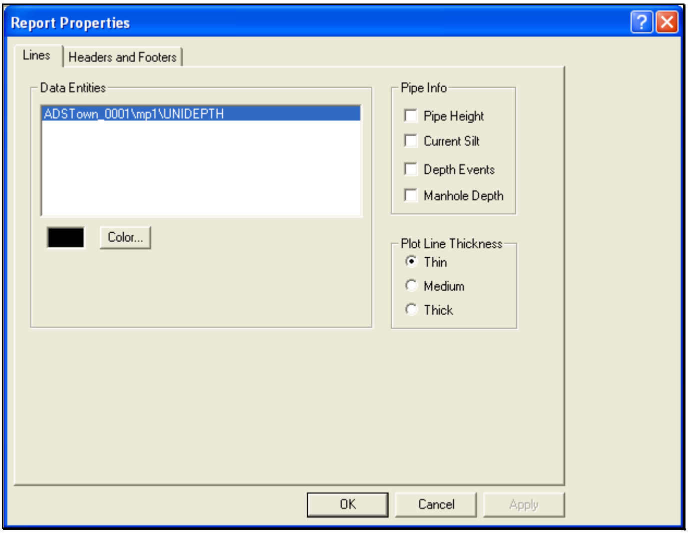
Use the **Confirmations** toolbar button to display all associated field confirmations for the selected monitor locations. Toggle the confirmations button to show or hide the confirmations. Depress the button to show the confirmations; deselect this button to hide the confirmations.

Each confirmation type displays as a unique symbol: circles represent *velocity* confirmations; inverted triangles represent *depth* confirmations; and squares represent *quantity* confirmations.

Displaying Monitoring Point Information

The **Hydrograph Reporter** tool allows you to display the monitoring point's pipe height, current silt depth, manhole depth, and depth event thresholds on the hydrograph report.

Select the **View** > **Report Properties** option (or the **Report Properties** toolbar button), the **Lines** tab, and the appropriate checkboxes from the **Pipe Info** section.



Hydrograph Report Properties

Displaying Questionable Data

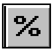
Questionable Data button

Toggle the **Questionable Data** toolbar button to alternate between displaying or hiding hydrograph data that has questionable quality. Depress the button to display questionable quality data; deselect the button to hide the data.

> **Note:** Select **None** from the **Average Interval** drop-down list to enable the **Questionable Data** toolbar button.

Questionable Data is first determined by establishing **Tolerances** in the **Scattergraph Editor**. Any data falling outside the scattergraph **Tolerance** range is defined as **Questionable Data**. Refer to the *Scattergraph Editor*, Chapter 12, for more information on setting up the **Questionable Data** for the hydrograph.

Displaying the Data Quality



Quality Range button

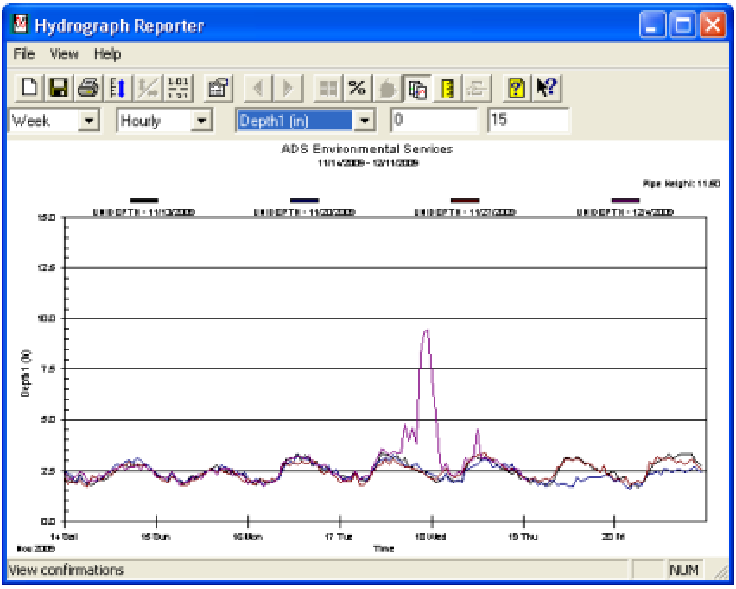
Select the **Quality Range** toolbar button to display the monitor data quality statistics on the hydrograph.

As the monitor generates flow data, it assigns each flow data point a quality statistic between 0% and 100%. When the **Quality Range** toolbar button is selected, a multi-colored legend displays on the hydrograph's Y axis, indicating 10 levels of data quality from 0 to 100%. Low quality (0%) is indicated at the bottom of the legend in red, and high quality (100%) is indicated at the top of the legend in green. Each data point on the hydrograph is assigned a quality percent color corresponding to the legend.

Overlaying Hydrograph Data

Overlay button

Use the **Overlay** toolbar button when you have requested more data than can be displayed on the current hydrograph format and you want to superimpose the additional data over the first data. For example, select the **Overlay** toolbar button when you have requested 14 days of data, but have selected a 7-day hydrograph report format. Selecting **Overlay** superimposes the additional 7 days of data over the first 7 days.



Using the **Overlay** option

Viewing Multiple Monitoring Point Data

Separate monitoring points

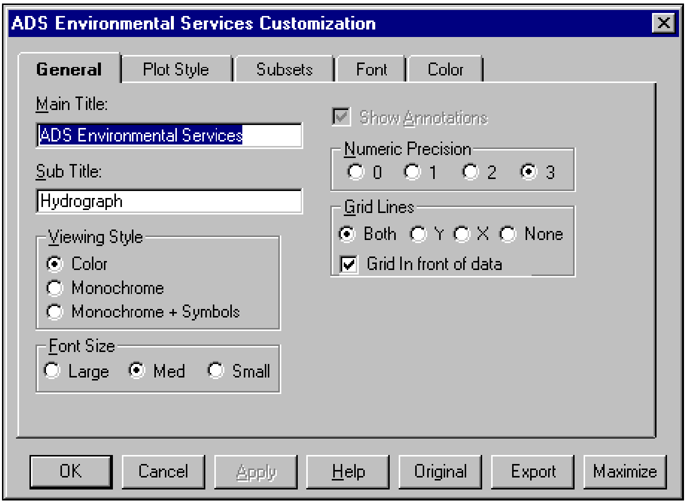
When displaying hydrograph data from multiple monitoring points, **Profile** allows you to toggle between graphing the data one monitoring point at a time or simultaneously on the same graph using **Separate monitoring points**.

Choose the **View > Separate monitoring points** option or the **Separate monitoring points** toolbar button to toggle between the views. Use the **Next** and **Previous** toolbar buttons to move between monitoring points when each monitoring point is being viewed individually.

Customizing the Graph

Further customize the hydrograph report using the **Customization** tabs or the **Graph Options**.

Access the **Customization** tabs by double-clicking the hydrograph.



Customization tabs

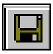
Access the **Graph Options** menu by right-clicking the hydrograph.

Graph Options menu

Using Hydrograph Reporting Options

After setting up the hydrograph report, save it as a template or print the hydrograph report.

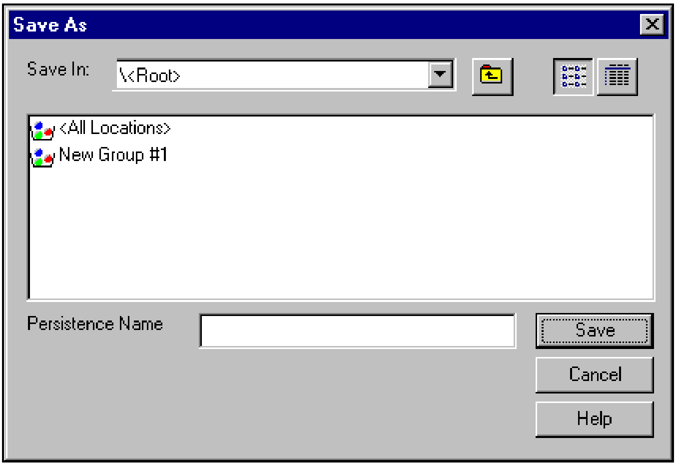
Saving a Hydrograph Report



Save button

Select the **File** > **Save** option or the **Save** toolbar button to save the current hydrograph report configuration as a template for future use. The **SaveAs** dialog displays and allows you to name the template. The first time you save a template, the **Save As** dialog displays.

Save and rename a previously saved template using the **File** > **Save As** option.



Save As dialog

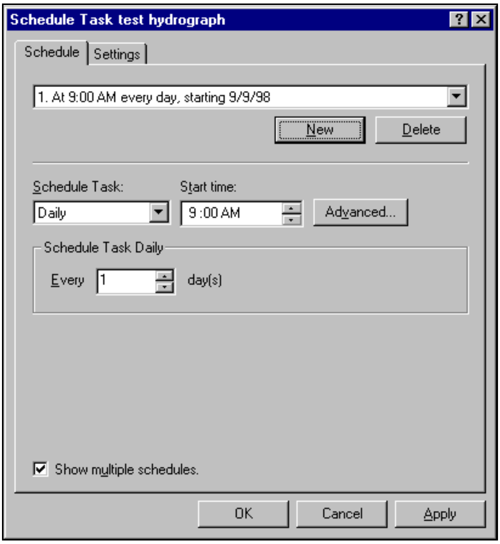
Printing a Hydrograph Report

Use the **Print** option to request hardcopy hydrograph reports.

> **Note:** Select the **File > Print Setup** option to select your printer and printer options.

1. Select the **File > Print** option to display the **Print** dialog.
2. Enter the number of copies you want to generate in the **Number of copies** field.
3. Select the **OK** button to print the report to the **Windows-**configured printer, or select the **Schedule** button to delay the printing.
4. If you selected the **Schedule** button, the **Save As** dialog will display the first time you save the scheduled activity to a template. Enter a name in the **Template Name** field to save the scheduled print request.

The **Schedule** *and* **Settings** *tabs will display.*



Schedule and **Settings** tabs

5. Use the **Schedule** tab to schedule the frequency of the task (**Schedule Task** drop-down list) and to set other relevant schedule options.

6. Use the **Settings** tab to configure the task management options.

7. Select **OK** to add the task to the **Task Scheduler**.

Warning: If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled report. Therefore, *do not* log off from the network when reports are scheduled for generation.

Exiting the Hydrograph Reporter

Select the **File > Exit** option to close and exit the **Hydrograph Reporter**.

CHAPTER 17

Tabular Reporter

To learn about:	*See page:*

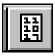
What is the Tabular Reporter?

The **Tabular Reporter** tool allows you to generate hardcopy flow data reports of numerical flow data. Choose from a variety of report formats, including 15-minute, hourly, daily, or monthly data averages. Report either synchronous or asynchronous data using the **Tabular Reporter**. Save reports as templates so you can retrieve them later in the same or a similar configuration. The **Tabular Reporter** also allows you to copy data to other **Windows** spreadsheet applications.

When to Use the Tabular Reporter

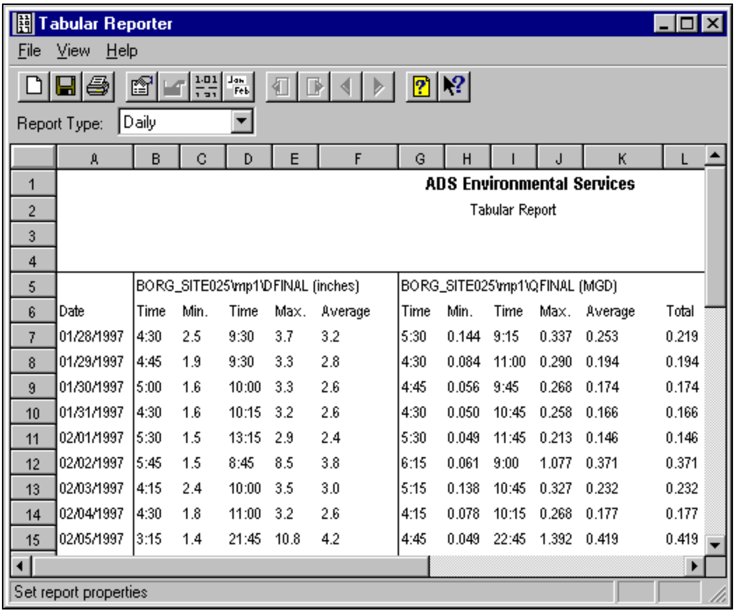
Use the **Tabular Reporter** during the *Data Reporting* phase. Refer to the *Introduction*, Chapter 1, for more information.

How to Use the Tabular Reporter



Tabular Reporter button

Access the **Tabular Reporter** tool by first selecting the data entities you want to include on the tabular report (such as depth and velocity) and then selecting the **Tabular Reporter** toolbar button from the **Profile** main screen. It also is accessible by selecting a previously saved tabular report template.



The **Tabular Reporter**

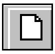
Perform the following tasks to generate tabular reports successfully:

- Set up the tabular report
- Print the tabular report

Setting Up the Tabular Report

The tabular report printing process begins by setting up the tabular report. The **Tabular Reporter** allows you to change the selected data entities, change the selected time span included on your report, update the report headers, and select the format in which to display the tabular data.

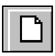
Changing the Selected Data Entities


New button

Change the selected data entities using the **File > New** option or the **New** toolbar button. **New** allows access to the **Monitored Items** tab, which you can use to change the selected report data entities.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information on changing the selected data entities for the tabular report.

Changing the Time Span


New button

Change the selected tabular report time span using the **File > New** option or the **New** toolbar button. **New** allows access to the **Date Selection** tab, which you can use to change the selected report time span.

> **Note:** The default beginning and ending date span will display the last configuration until an update is performed.

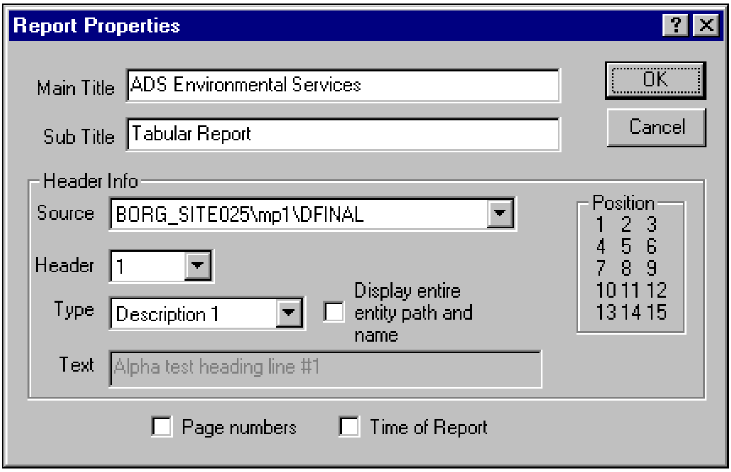
Refer to *Changing the Time Span* in Chapter 2 for more information on changing the tabular report time span.

Updating the Tabular Report Headers

Perform the following steps to update the header information on the tabular report:

Report Properties button

1. Select the **Edit** > **Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.



Report Properties dialog

2. Enter a new **Main Title** and **Sub Title**, or use the default values.

3. If you are using **<Group Entities>**, select the monitoring point from the **Source** drop-down list from which you want to retrieve the report header information.

4. Select the header number you want to update from the **Header** drop-down list. Fifteen different tabular report header positions are available.

5. Select the header description to apply to the selected **Header** from the **Type** drop-down list, or select **Manual** to manually enter a header text description. Manually enter header

information to the **Text** field if you selected **Manual** from the **Type** drop-down list.

6. Select the appropriate checkboxes to display report page numbers and the time the report generated.
7. Select **OK** to display the updated header information on the tabular report.

Selecting the Report Type

Select the amount of data you want to display on the tabular report from the **Report Type** drop-down list. Select from **15 Minute**, **Hourly**, or **Daily**. The data points included in the currently defined report will be averaged based on the selection. For example, if the data is stored in 15-minute intervals, selecting **Hourly** will cause four 15-minute data points to be averaged and displayed as one value on the tabular report.

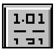
Tabular Reporter also provides two formats for displaying the **Daily** report type: Break-On Month and 31-Day. The *Break-On Month* format will display data only for the remaining days of the month on the first page of the report. Data for the following month will display on the second page of the report. The *31-Day* format will display up to 31 days of data on one page.

Break-On Month button

Tabular Reporter displays data in the Break-On Month format by default. To display data in the 31-Day format, select the **Break-On Month** toolbar button.

Displaying Partial Days

Tabular Reporter allows you to view the daily total, minimum, maximum, and average values for each data entity. However, some days may include missing data. For periods of less than 2 contiguous hours of missing data, **Profile** automatically interpolates and fills in the data based on the surrounding data to provide these values for the report. For periods of 2 contiguous hours or more of missing data, **Profile** will not interpolate the data. Instead, it implements the *partial days* feature. This feature displays the daily total, minimum, maximum, and average values on the report based on the existing data.



Partial Days button

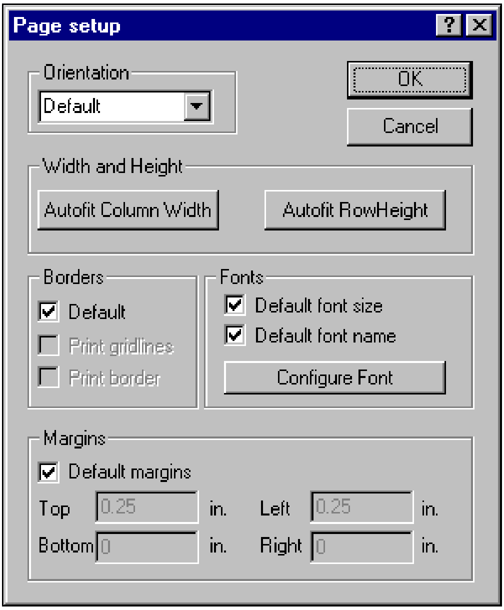
Tabular Reporter uses the partial days feature by default. Disable this feature by selecting the **Partial Days** toolbar button. When this feature is disabled, **Tabular Reporter** will display the "--" symbol for daily totals, minimums, maximums, and averages on days with at least one 2-hour or longer period of missing data.

Customizing the Tabular Report

Profile allows you to customize how the tabular report displays by providing several options for adjusting page setup, table display, and font style/size. Access these options by selecting the **File > Page Setup**. The following options are available:

- **Orientation** This option allows you to select the orientation (**Landscape**, **Portrait**, or **Default**) in which you would like to display the tabular report. The **Default** setting displays the table in the most practical orientation based on the data available for display.
- **Width and Height** This section allows you choose how **Profile** sizes the individual columns and rows in the tabular report. Selecting the *Autofit* options ensures **Profile** sizes the cells based on the amount of data displayed in each column or row. You also can change the column width and row height directly on the tabular report. Simply position your cursor over a column or row boundary line surrounding the report, and then click and drag the boundary to the desired position.
- **Borders** This section allows you to select whether to display the tabular report with or without borders and gridlines. The **Default** setting only displays gridlines on the table.

- **Fonts** This section allows you to select the font for the tabular report manually (**Configure Font**) or based on default settings.
- **Margins** This section enables you to set the margins for the tabular report manually or based on the default settings.



Page setup dialog

Select the **OK** button on the **Page setup** dialog after choosing any new options to implement changes to the tabular report.

Selecting a Pump Data Format

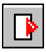
Note: This option applies to asynchronous pump station data only.

Use the **Pump Data** toolbar button to toggle asynchronous pump station data between the **Pump Cycles** view and the **Pump Run Time** view. The **Pump Cycles** tabular view displays how many times the pump turned on or off. The **Pump Run Time** tabular view displays the total duration of the selected (on/off) pump activity.

Moving Around the Tabular Report

Use the following options while you are using the **Tabular Reporter** to both move through the on-screen tabular data and to move between monitoring points (when **<Group Entities>** are in use).

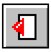
Scrolling Forward Through the Data



Next Page button

Select the **Edit** > **Next Page** option or the **Next Page** toolbar button to move forward in time through the tabular data when more data is available than can be displayed on the spreadsheet.

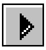
Scrolling Backward Through the Data



Previous Page button

Select the **Edit** > **Previous Page** option or the **Previous Page** toolbar button to move backward in time through the tabular data when more data is available than can be displayed on the spreadsheet.

Changing the Selected Monitoring Point



Next Report

Previous Report

When you are using **<Group Entities>**, use the **Edit** > **Next Report** and **Edit** > **Previous Report** options or the **Next Report** and **Previous Report** toolbar buttons to move between the monitoring points included in the group.

Using Tabular Report Options

After successfully setting up your tabular report, the **Tabular Reporter** allows you to copy tabular data to the **Windows** clipboard for pasting into other spreadsheet or word processing applications, print the tabular report, and save the current tabular report as a template.

Copying Tabular Data

Copy tabular data to the **Windows** clipboard for pasting into a **Windows** spreadsheet or word processing application by performing the following steps:

1. Select the information from the current tabular report you want to copy.
2. Select the **Edit > Copy** option (or right-click and select **Copy)**.

The selected text and data is placed onto the **Windows** *clipboard and is available to* **Paste** *to a* **Windows** *spreadsheet or word processing application.*

Printing Tabular Reports

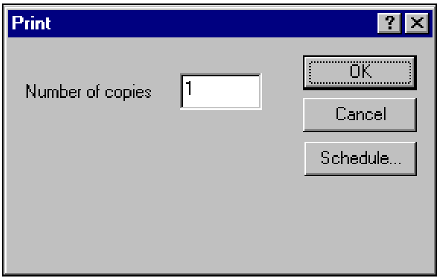
Use the **Print** option to produce hard copies of tabular reports.

> **Note:** Select the **File > Print Setup** option to select your printer and printing options.

Print button

1. Select the **Print** toolbar button to print *only the portion* of the report currently displayed *or* the **File > Print** option from the main menu to print *all* data generated for the tabular report(s). The second option also enables you to schedule printing to occur at a later date/time.

Based on the selected print method, **Profile** *will print the portion of the report currently displayed to the* **Windows** *configured printer or display the* **Print** *dialog to enable you to designate the number of copies you want to print of the complete report(s) and/or schedule printing to occur at later time.*



Print dialog

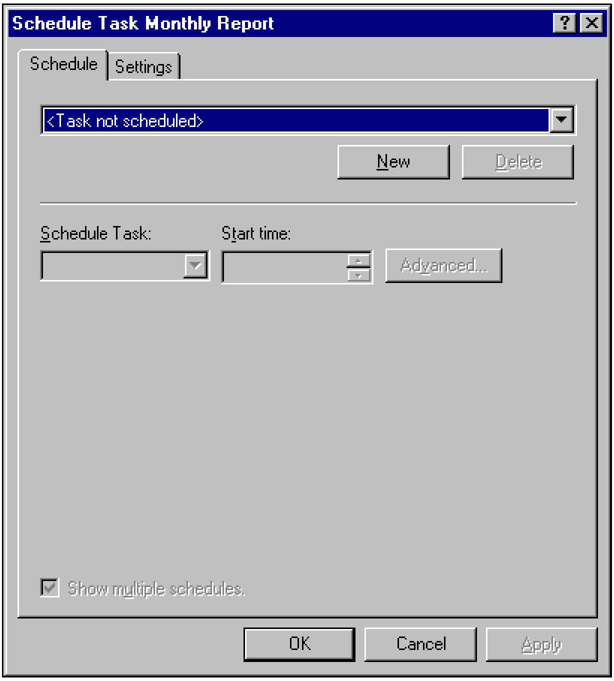
2. Enter the number of copies of the tabular report(s) you want to generate in the **Number of copies** field.

3. Select the **OK** button to print the tabular report(s) to the **Windows** configured printer *or* select the **Schedule** button to delay printing until a later time designated by the user. Continue steps 4 through 7 to setup and implement the scheduling feature.

The **Save As** *dialog will display.*

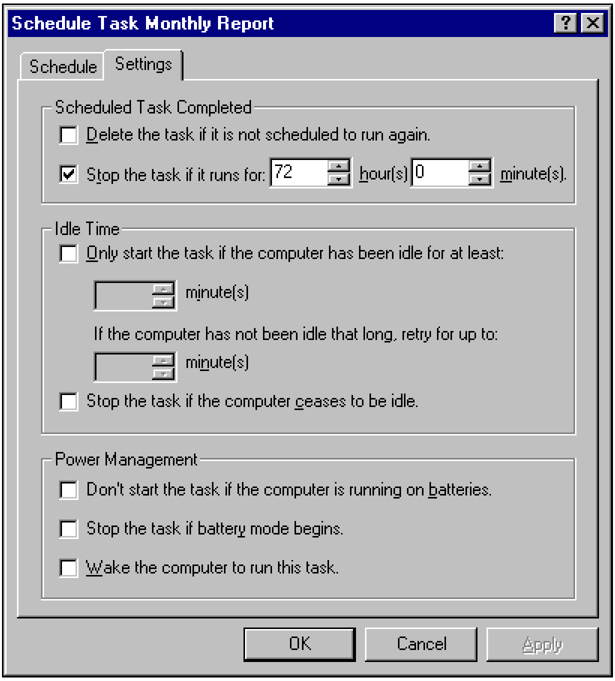
4. Enter a name in the **Template Name** field of the **Save As** dialog and then select the **Save** button to save the scheduled print request (if you selected the **Schedule** button).

The **Schedule** *tab will display.*



Schedule tab

5. Use the **Schedule** tab to schedule the frequency of the task (**Schedule Task** drop-down list) and to set other relevant schedule options.



Settings tab

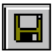
6. Select the **Settings** tab to configure the task management options.
7. Select **OK** to add the print activity to the **Task Scheduler**.

The **Task Scheduler** *will perform the activity at the scheduled time.*

> **Warning:** If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled report. Therefore, *do not* log off from the network when reports are scheduled for generation.

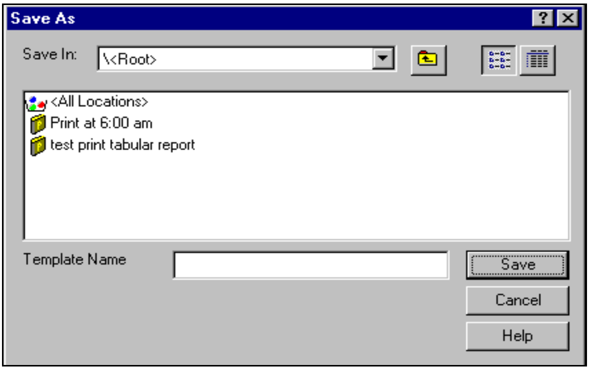
Saving a Tabular Report

Use the **Save** option to save the current tabular report configuration to the database as a template. Retrieve the saved template later to create the same or a similar tabular report.



Save button

Save the current report configuration by selecting the **File** > **Save** option or the **Save** toolbar button. The **Save As** dialog displays the first time you save a report configuration. Select the **File > Save As** option to save a previously saved tabular report configuration to a new name. Enter a **Template Name** for the report in the **Save As** dialog. The template will be saved to the **<Root>** level which is the main database level.



Save As dialog

Exiting the Tabular Reporter

Select the **File > Exit** option to close and exit the **Tabular Reporter**.

CHAPTER 18

Scattergraph Reporter

To learn about:	*See page:*

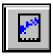
What is the Scattergraph Reporter?

The **Scattergraph Reporter** tool allows you to generate customized scattergraph flow data reports. Scattergraphs allow you to graphically display the relationship of one data entity to another, typically velocity and depth. For example, set up the scattergraph report with depth values plotted on the X axis and velocity values plotted on the Y axis. The resulting scattergraph report displays the relationship between the depth and velocity data as a curve. Use the **Scattergraph Reporter** to customize the look of your scattergraph reports and then print copies to a **Windows**- configured printer. Save the scattergraph screen configuration as a template to generate the same or a similar scattergraph report screen at a later date.

When to Use the Scattergraph Reporter

Use the **Scattergraph Reporter** during the *Data Reporting* phase of the weekly routine (after data editing has been performed). See the *Introduction*, Chapter 1, for more information on the weekly routine.

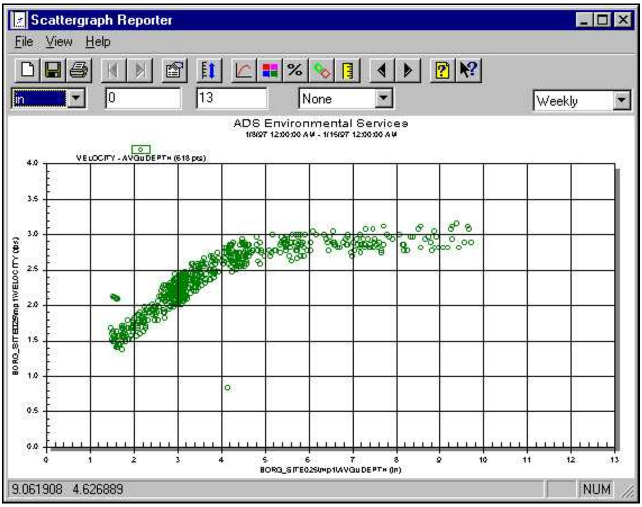
How to Use the Scattergraph Reporter



Scattergraph Reporter button

Access the **Scattergraph Reporter** by selecting at least 2 (maximum of 3) data entities, such as depth and velocity, and the **Scattergraph Reporter** toolbar button or by selecting a previously saved **Scattergraph Report** template from the **Profile** main screen.

> **Note:** For accurate data representations, it is important to edit data prior to using the **Scattergraph Reporter**.



The **Scattergraph Reporter**

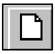
Successfully printing scattergraph reports includes performing the following steps:

- Setting up the scattergraph screen
- Generating a scattergraph curve
- Displaying scattergraph curve attributes
- Using the scattergraph reporting options

Setting Up the Scattergraph Screen

Setting up the scattergraph screen is the first step to generating a scattergraph report. This step includes options which allow you to change (if necessary) the selected scattergraph data entities and report time span; change the selected the X and Y axis data entities; change the color of the scattergraph data; adjust the scattergraph scale values; change the report headers and footers; and customize the scattergraph.

Verifying the Selected Data Entities

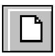


New button

Use the **New** option to access the **Monitored Items** tab for changing the selected scattergraph data entities, if necessary.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Verifying the Time Span



New button

Use the **New** option to access the **Date Selection** tab for changing the selected scattergraph time span, if necessary.

> **Note:** The beginning and ending date span will display the last date and time configuration entered until an update is performed.

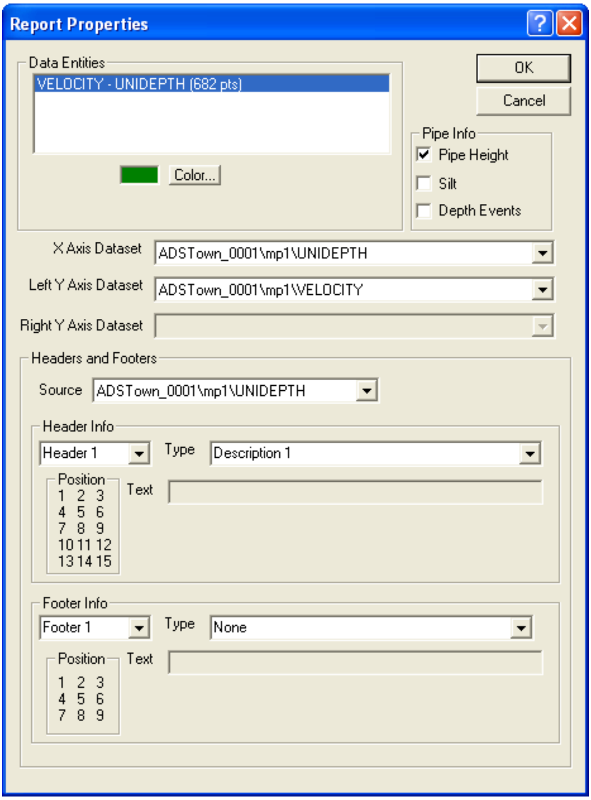
Refer to *Changing the Time Span* in Chapter 2 for more information on changing the time span.

Selecting the X and Y Axis Data Entities

If necessary, change which data entity displays on the scattergraph's X and Y axes using the **Report Properties** tab.

Report Properties button

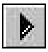
1. Select the **View** > **Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.



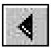
Report Properties dialog

2. Choose the X axis and Y axis data entities from the **X Axis Dataset** and the **Left Y Axis Dataset** drop-down lists. When a third scattergraph data entity is displayed, select the **Right Y Axis Dataset**.
3. Select **OK**.

Selecting the Graph Period



Next Period



Previous Period

Use this option to view a smaller sub-set of data from a larger time span. Choose the sub-set amount of data you want to view from the **Graph Period** drop-down list. Select the **Manual Graph Period** to specify the **Start** and **End** dates and times.

Use the **Next Period** and **Previous Period** toolbar buttons to move among multiple pages of the report period.

Changing the Color of the Scattergraph Data

Perform the following steps to change the color assigned to a data entity displayed on the scattergraph:

Report Properties button

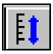
1. Select the **Report Properties** toolbar button to display the **Report Properties** dialog.
2. Select the entity you want to change from the **Entities** list.
3. Select the **Color** button to display the **Color** dialog.
4. Choose a new color to represent the data entity.
5. Select the **OK** button to apply the new color selection.

Adjusting the Scattergraph Scale Values

The **Scattergraph Reporter** allows you to set the scattergraph scale values automatically or manually.

> **Note: Profile** automatically will save the minimum and maximum scales displayed on the scattergraph for the selected site to the database when you exit **Scattergraph Reporter**. Therefore, the next time you bring up that same site in either **Scattergraph** or **Hydrograph Reporter**, the graph will display based on these scales, regardless of the date/time range or the method used for setting the scales.

Automatically Setting the Scattergraph Scale Values



Autoscale button

Allow **Profile** to set the scattergraph's scale values automatically based on the highest and lowest data value during the selected graph period. Select the **View** > **Autoscale** option or the **Autoscale** toolbar button and the **Scattergraph Reporter** will set the scale values automatically.

Manually Setting the Scattergraph Scale Values

Manually adjust the scattergraph scale values using the **Scale Type** drop-down list located under the toolbar.

1. Select the scattergraph scale you want to change from the **Scale Type** drop-down list.

2. Enter the new scale minimum and maximum values in the **Minimum Scale** and **Maximum Scale** fields.

The scattergraph scales will adjust according to the new entries.

Changing the Report Headers and Footers

Use the **Report Properties** to change the scattergraph report header and footer information in the following way:

Editing a Report Header

Report Properties button

1. Select the **View > Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.
2. Select the entity from the **Source** drop-down list from which you want to retrieve the header information.
3. Select a header number from the **Header Info** drop-down list. Each header from the list represents a different position on the scattergraph report. There are 15 possible report header positions.
4. Select a pre-defined header entry from the **Type** drop-down list, or select **Manual** and enter your own information. If you selected **Manual**, enter the header information in the **Text** field.
5. Select **OK**.

Editing a Report Footer

Report Properties button

1. Select the **View > Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.
2. Select the entity from the **Source** drop-down list from which you want to retrieve the footer information.
3. Select a footer number from the **Footer Info** drop-down list. Each footer from the list represents a different position on the scattergraph report. There are 9 possible report footer positions.

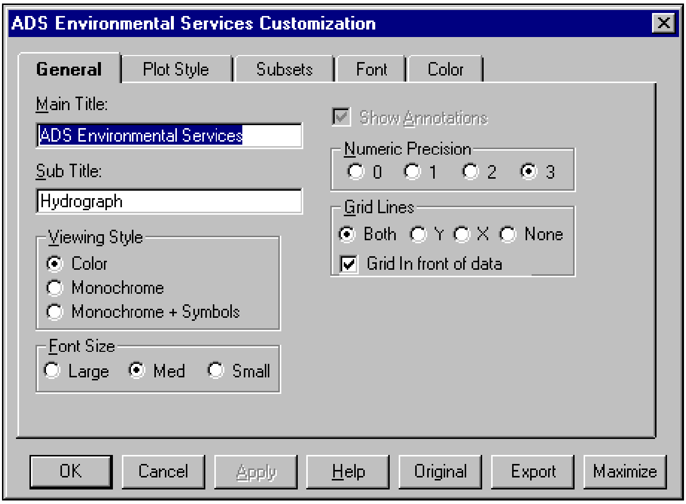
4. Select a pre-defined footer entry from the **Type** drop-down list, or select **Manual** and enter your own information. If you selected **Manual**, enter the footer information in the **Text** field.

5. Select **OK**.

Customizing the Graph

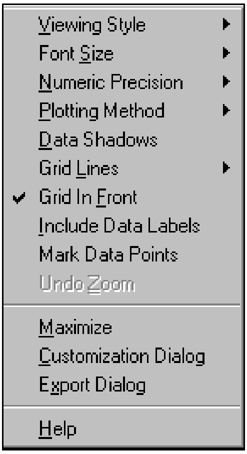
Further customize the graph using the **Customization** tabs or the **Graph Options**.

Access the **Customization** tabs by double-clicking on the graph.



Customization tabs

Access the **Graph Options** menu by right-clicking on the hydrograph.



Graph Options menus

Generating a Scattergraph Curve

The **Scattergraph Reporter** allows you to generate and display three different curve types to display on scattergraph reports: Bestfit, Colebrook-White, and Manning.

> **Note:** To use this option, the scattergraph's X-axis data entity must be a depth entity, the left Y-axis data entity must be a quantity or velocity, and a pipe must be associated with the monitoring point (e.g., you cannot generate curves for weirs, flumes, or lookups).

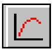
Generate a scattergraph curve by performing the following steps:

- Set up the curve parameters.
- Generate a Bestfit curve.
- Use a previously generated Bestfit curve.
- Generate a Colebrook-White curve.
- Generate a Manning curve.

> **Note:** It is important to use edited flow data prior to generating curves using the **Scattergraph Reporter**.

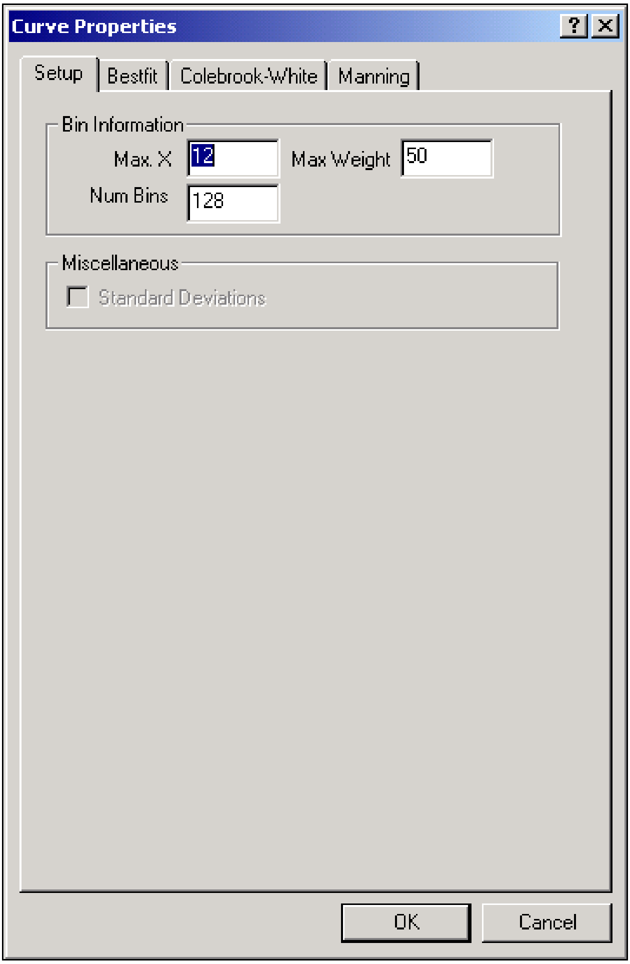
Setting Up the Curve Parameters

Before selecting the type of curve you want to generate, define the curve parameters. Typically, you should use the default values for the curve parameters; however, there will be situations where changing the default values will be necessary. Access and update the curve parameters by performing the following steps:



Curve Properties button

1. Select the **View > Curves** option or the **Curve Properties** toolbar button.
2. Select the **Setup** tab.



Curve Properties > Setup tab

3. In the **Max X** field, use the default value of the maximum depth for the data range selected, or adjust this value to use only the scattergraph points below the **Max X** field value to generate a curve.

4. In the **Num Bins** field, use the default value or enter the number of vertical bins (points) you want to use to generate the curve.

   Note: Increasing this value will result in a smoother curve.

5. In the **Max Weight** field, use the default value, or enter another weighting value to use for all bins when generating the curve.

   Note: The weight of each bin is equal to the number of points in the bin up to Max Weight.

6. Select **OK**.

The **Setup** *tab closes.*

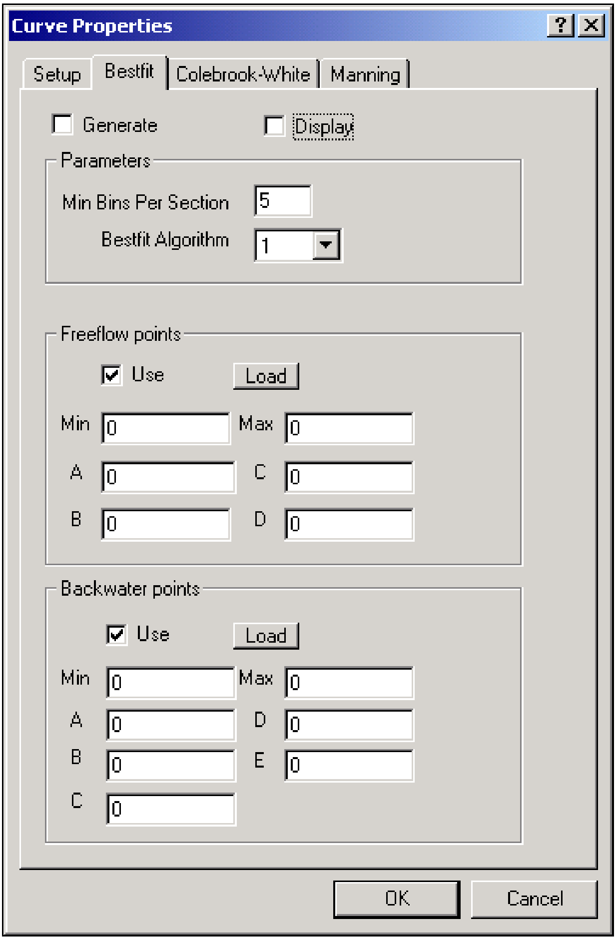
Generating a Bestfit Curve

Generate a Bestfit scattergraph curve after editing any required scattergraph data and setting up the curve parameters. The **Scattergraph Reporter** generates Bestfit curve coefficients after vertically segmenting the scattergraph into equal parts (bins) and averaging the data points within each bin to derive the Bestfit curve points. The default enables you to generate a Bestfit curve representing freeflow data points *and* backwater data points. You also can display either the freeflow set of data points *or* the backwater set of data points separately by clicking (off) the appropriate **Use** box.

Generate and display a Bestfit curve for the current scattergraph using the following steps:

1. Select **View > Curves** option or the **Curve Properties** toolbar button.

2. Select the **Bestfit** tab.



Curve Properties > Bestfit tab

3. Select the **Generate** checkbox to allow **Profile** to generate the Bestfit curve.

4. Select the **Display** checkbox to display the curve.

5. Keep the recommended default value of *5* for the **Min Bins per Section**. If the bestfit curve is unacceptable, you can change the value to *3* or *4*.

6. Keep the default value of *1* for the **Bestfit Algorithm**. If the Bestfit curve is unacceptable, select *2* from the drop-down list.

   Note: Clicking the **Use** checkbox (off) under **Freeflow points** or **Backwater points** enables you to display either set of data points on the BestFit curve.

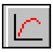
   Note: Clicking the **Load** button enables you to load a previously generated Bestfit curve. Bestfit coefficient values must be stored before you can load a Bestfit curve.

   Note: Clicking the **Store** button enables you to store a Bestfit curve. The **Store Data** dialog enables you to store and save the curve with a start date and description.

7. Select **OK** to generate and display the Bestfit curve.

Using a Previously Saved Bestfit Curve

You can load and use a previously generated and stored Bestfit curve using the **Load** option.

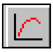


Curve Properties button

1. Select the **View > Curves** option or the **Curve Properties** toolbar button.
2. Select the **Bestfit** tab.
3. Select the **Load** button.
4. Select the previously created Bestfit curve you want to use from the list.
5. Select **OK** to load the Bestfit points to the **Bestfit** tab.
6. Select **OK** to display the Bestfit curve.

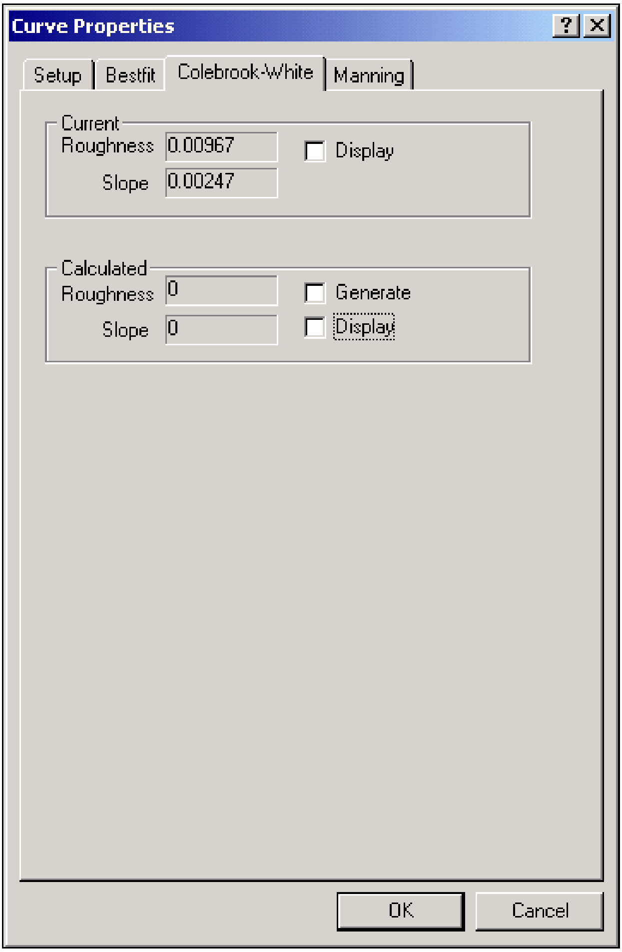
Generating a Colebrook-White Curve

Generate a Colebrook-White curve after setting up the curve parameters (on the **Setup** tab). The Colebrook-White curve is generated using the depth and velocity relationship on the scattergraph and solving for the appropriate roughness and slope. Generate a curve for the current data based on the Colebrook-White flow equation using the following steps:



Curve Properties button

1. Select the **View > Curves** option or the **Curve Properties** toolbar button.
2. Select the **Colebrook-White** tab.



Curve Properties > Colebrook-White tab

3. Select one or both of the following:

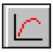
   - ❑ Select the **Display** checkbox in the **Current** section of the tab to display a Colebrook-White curve based on the current roughness and slope factors from the database (select this only if valid roughness and slope values display in the **Roughness** and **Slope** fields).

- ❑ Select the **Generate** and **Display** checkboxes in the **Calculated** section of the tab to generate and display a Colebrook-White curve based on calculated **Roughness** and **Slope** factors for the current scattergraph data.

4. Select **OK** to generate and display the curve(s).

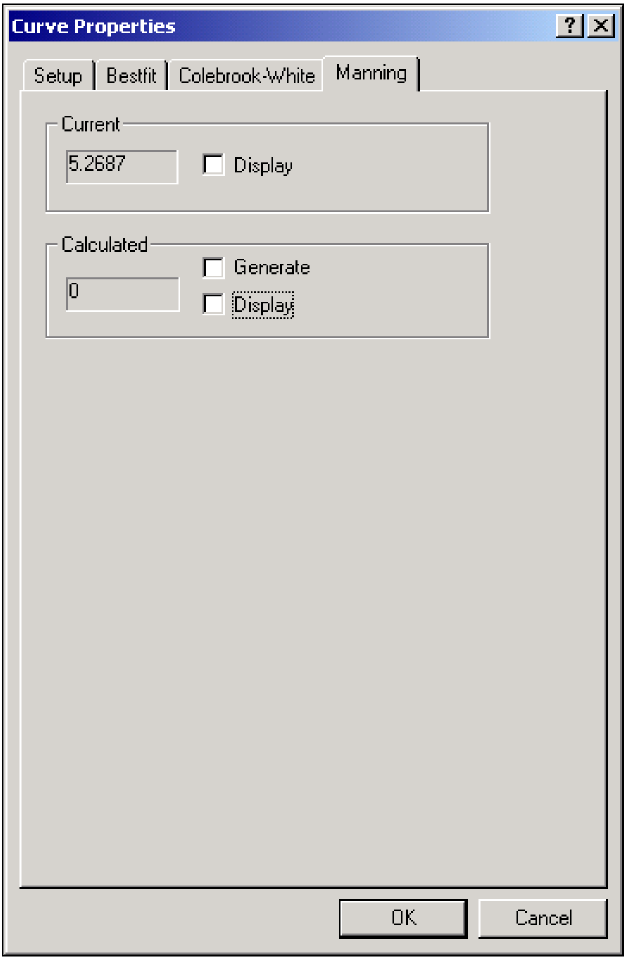
Generating a Manning Curve

Generate a Manning scattergraph curve using the depth-to-velocity relationship for the currently displayed scattergraph data points to calculate a hydraulic coefficient. Generate a Manning curve (after setting up the curve parameters) using the following steps:



Curve Properties button

1. Select the **View** > **Curves** option or the **Curve Properties** toolbar button.
2. Select the **Manning** tab.



Curve Properties > Manning tab

3. Select one or both of the following:

   - Select the **Display** checkbox in the **Current** section of the tab to display a Manning scattergraph curve based on the most current HC in the database (select this option only if there is an HC value in the **Current** section). The **Current** section displays the current hydraulic coefficient as stored in the database for the Y axis data entity.

- Select the **Generate** and **Display** checkboxes in the **Calculated** section of the tab to generate and display a Manning curve based on the current scattergraph data.

4. Select **OK** to generate and display the curve(s).

Displaying Graphical Information

Customize the scattergraph report by selecting the curve attributes or options you want to display. Display any of the following on your scattergraph report:

- Bestfit curve standard deviation
- Questionable data
- Data quality
- Field confirmations
- Iso-Q lines
- Iso-Froude lines
- Pipe Height, current silt depth, and depth event thresholds

Displaying a Bestfit Curve Standard Deviation

Use this option after loading or generating a Bestfit curve to display the average variance of each generated curve point as compared to the data for each bin on the Bestfit scattergraph curve.

> **Note:** You must generate a Bestfit scattergraph curve prior to using this option.

Select the **Standard Deviation** checkbox on the **Edit > Curves > Setup** tab to display the standard deviation calculated for each bin of the Bestfit curve. The standard deviation values display as bars on the scattergraph's X axis.

Displaying Questionable Data

Questionable data is any data that falls outside defined tolerance ranges and may be of questionable quality. Perform the following steps to display questionable data on the scattergraph report:

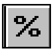
1. Establish the tolerances using the **Scattergraph Editor** tool. See *Displaying the Data Tolerance Ranges* in Chapter 12 for more information.

Questionable Data button

2. From the **Scattergraph Reporter** toolbar, select the **Questionable Data** toolbar button.

All *questionable data points* display as blue data points.

Displaying Data Quality



Quality Range button

Select the **Quality Range** toolbar button to display a multi-colored legend on the scattergraph's Y axis indicating 10 levels of data quality from 0 to 100%. Each data point on the scattergraph is assigned a color corresponding to the legend indicating its quality. As the monitor generates data, it assigns each point a quality statistic. 0% quality is indicated at the bottom of the legend in red, and 100% quality is indicated at the top of the legend in green.

Displaying Field Confirmations

Display all field confirmations or a specific time span of confirmations on the scattergraph. Confirmations display as diamond symbols; green diamonds indicate *included* confirmations, and red diamonds indicate *ignored* confirmations.

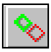
> **Note:** Confirmations can also be viewed in the **Quantity Coefficient Generator** tool.

Displaying All Field Confirmations

Confirmation button

Select the **Confirmations** toolbar button to display all field confirmations associated with the current monitor location.

Displaying a Specific Time Span of Field Confirmations



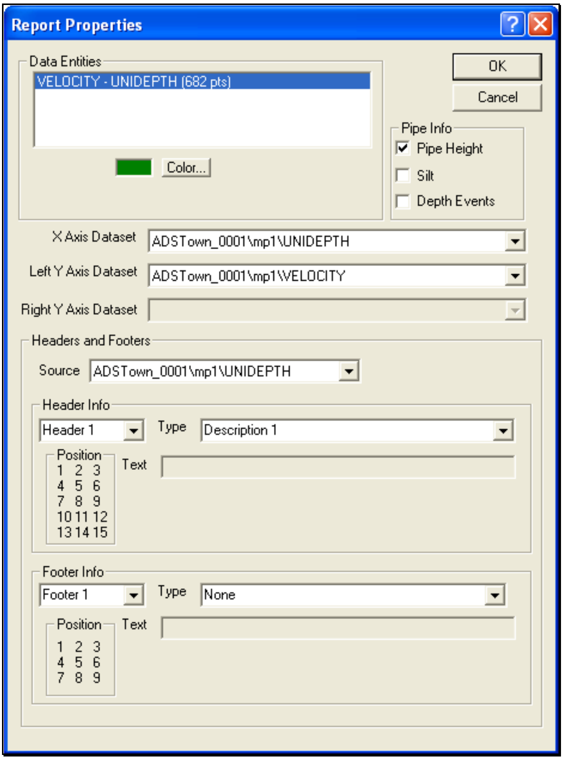
Confirmations in Span button

Select the **Confirmations in Span** toolbar button to display the field confirmations for the time period specified on the **Date Selection** tab (accessed through the **New** toolbar button).

Displaying Pipe Height, Silt Depth, or Depth Event Thresholds

Display the currently selected monitoring point's pipe height, silt depth, and depth event thresholds on the scattergraph report using the **Report Properties** dialog.

Select the **View > Report Properties** option or the **Report Properties** toolbar button to access the **Report Properties** dialog. Select the **Pipe Height, Silt**, or **Depth Events** checkboxes (located at the bottom of the dialog).



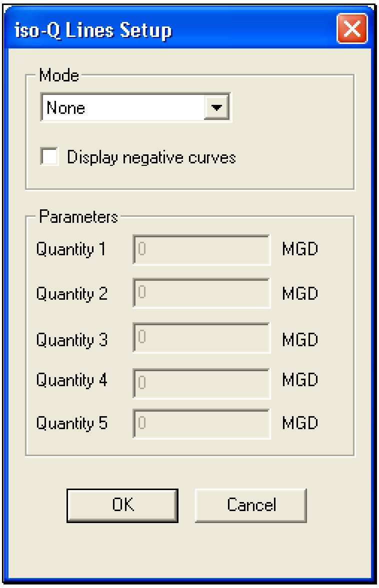
Scattergraph Report Properties

Displaying Iso-Q™ Lines

Display user-defined iso-Q lines using the **iso-Q** toolbar button. Iso-Q lines are graph lines showing a constant quantity relationship to the graphed data (typically depth and velocity). Profile allows you to display up to five user-defined iso-Q lines.

Iso-Q button

1. Select the **iso-Q** toolbar button to display the **iso-Q Lines Setup** window.



Iso-Q Lines Setup window

2. Select **Specified** from the **Mode** drop-down list to enable the **Parameters** section.

 Note: To remove iso-Q lines from the scattergraph, select **None** from the **Mode** drop-down list.

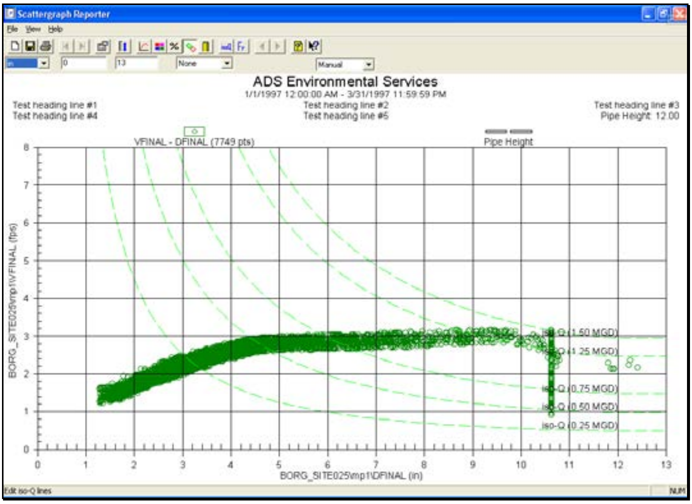
3. Enter the quantity values you wanted graphed as lines in the **Quantity** fields. Display up to five iso-Q lines. Entering a 0 in a **Quantity** field results in no line displayed.

4. Select the **Display negative curves** checkbox when you have negative flow (velocity, for example) data. **Profile** displays the negative data plotted with the negative iso-Q lines.

 Note: Save the scattergraph report as a template and all configured iso-Q lines will save in the template.

5. Select **OK** to close and save the information.

Profile *displays the iso-Q lines on the scattergraph.*



Scattergraph displaying iso-Q lines

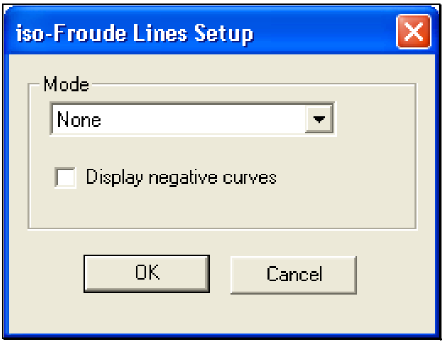
Displaying Iso-Froude Lines

Profile includes the ability to display iso-Froude lines on scattergraphs. Use iso-Froude lines on a scattergraph to reveal and identify conditions such as hydraulic jumps, sewer bores, and undular jumps and help provide insight into your flow data. Display the three most important areas of flow: subcritical, critical, and supercritical using this option.

> **Note:** For best results when evaluating data using iso-Froude lines, use edited data.

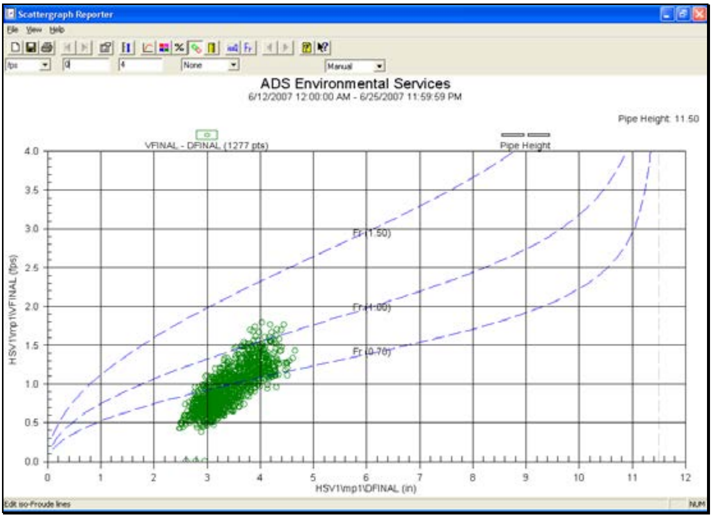
Iso-Froude button

Display iso-Froude lines by selecting the **iso-Froude** toolbar button to display the **iso-Froude Lines Setup** window. Choose the desired **Mode** to display the lines on the scattergraph.



Iso-Froude Lines Setup window

- **1** Select this iso-Froude line to display the area of flow defined as *critical* or unstable.
- **0.7, 1, 1.5** Select this to display 3 transitional flow conditions of subcritical or tranquil (0.7), critical or unstable (1) and supercritical or unstable (1.5).
- **Display negative curves** Select this when you have negative flow data (velocity, for example) and you want negative iso-Froude lines to display with the data.



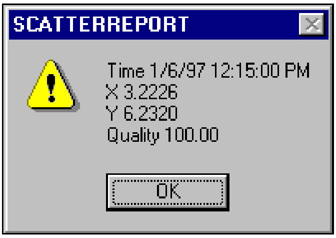
Scattergraph displaying iso-Froude lines

Using the Scattergraph Options

Once the scattergraph report screen has been set up, view the value of specific data points on the graph, print a scattergraph report, and save the scattergraph report as a template.

Viewing the Value of a Data Point

Place your mouse cursor over any data point on the scattergraph (cursor changes to hand symbol) to display the data point's value. Click on the data point to display the **SCATTERREPORT** dialog.



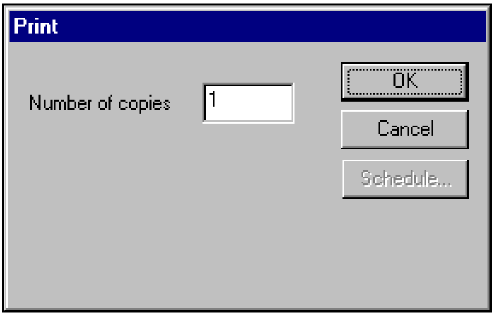
SCATTERREPORT dialog

The **SCATTERREPORT** dialog displays the date, time, X and Y graph axis values, and quality of the data on the Y axis.

Printing Scattergraph Reports

Print button

Use **Print** to generate hardcopies of edited scattergraph data. Select the **File > Print** option to access the **Print** dialog, or select the **Print** toolbar button to send a print request immediately to the **Windows-**configured printer. Select the **File > Print Setup** option to select the printer or printer options.

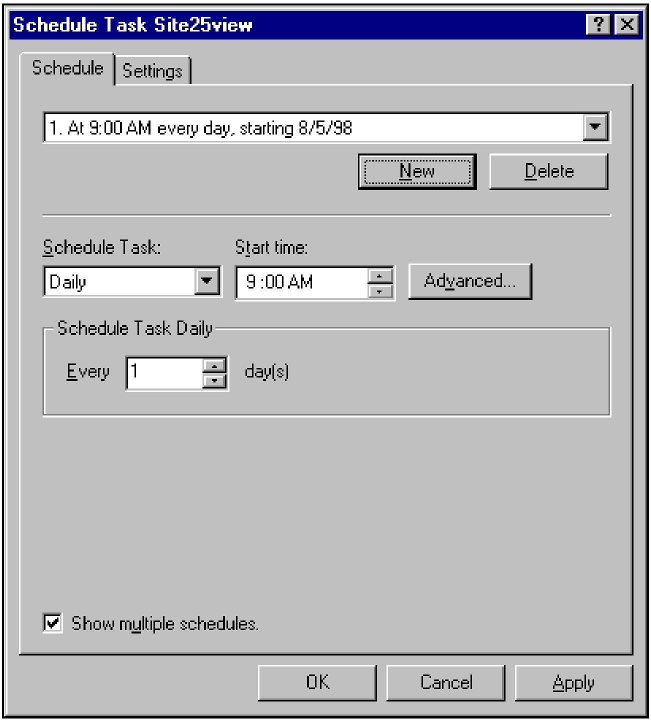


Print dialog

Printing a Scattergraph Report

1. Select the **File > Print** option to display the **Print** dialog.
2. Enter the number of copies you want to generate in the **Number of copies** field.
3. Select the **OK** button to print the report to the **Windows-** configured printer, or select the **Schedule** button to delay the printing.
4. If you selected the **Schedule** button, the **Save As** dialog will display the first time you save the scheduled activity to a template. Enter a name in the **Template Name** field to save the scheduled print request.

The **Schedule** *and* **Settings** *tabs will display.*

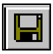


Schedule and **Settings** tabs

5. Use the **Schedule** tab to schedule the frequency of the task (**Schedule Task** drop-down list) and to complete the other relevant schedule options.
6. Use the **Settings** tab to configure the task management options.
7. Select **OK** to add the task to the **Task Scheduler**.

Warning: If the **Profile** database resides on a network, it is essential that your local system is logged onto the network for the task scheduler to initiate a scheduled report. Therefore, *do not* log off from the network when reports are scheduled for generation.

Saving a Scattergraph Report



Save button

Save the current scattergraph report as a template to preserve the report attributes by selecting the **File > Save As** option or the **Save** toolbar button. The **Save As** dialog will display, allowing you to name the template and save it to the database.

Save As dialog

1. Enter the name to which you want to save the template in the **Template Name** field.
2. Select the template destination (or leave in the default level) from the **Save In** drop-down list.
3. Select the **Save** button.

The new template is added to the database.

Exiting the Scattergraph Reporter

Select the **File > Exit** option to close and exit the **Scattergraph Reporter**.

CHAPTER 19

Data Uptime Reporter

To learn about: See page:

What is the Data Uptime Reporter?

The **Data Uptime Reporter** tool allows you to generate on-screen and printed flow data uptime reports. The **Data Uptime Reporter** calculates and displays a rating for each day of flow data based on the percentage of available individual flow data readings compared to individual missing data readings. One of three ratings (*Good, Partial,* or *Missing*) is assigned to each day based on the uptime calculation results. *Good* days are indicated on the report by a green block beneath the day in question; *Partial* days are indicated in yellow; and *Missing* days are indicated in red. **Profile** allows you to manually specify the percentage of available readings that each day must contain in order to receive a rating of *Good*. The default value for a *Good* rating is 80, meaning that at least 18 of 24 hours of the data for the day must be available in order to receive a *Good* rating. *Partial* ratings are assigned when there is some data for the day, but there is not enough to qualify as *Good.* A rating of *Missing* is assigned to any day when there is no available data.

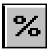
Flagged and modified data can be included or excluded in the uptime rating calculation. Flagged data is data that is flagged for questionable quality; modified data is data that has been manually altered. For example, if you include flagged data in the uptime calculation, all data will be included as *Good* unless a data point is missing. Generally, reports should include modified data, but not flagged data.

Print graphical or tabular uptime reports with report format options that include either **Monthly** (31 days) data or **Quarterly** (90 days) data. The **Data Uptime Reporter** allows you to display multiple locations and multiple data entities simultaneously.

When to Use the Data Uptime Reporter

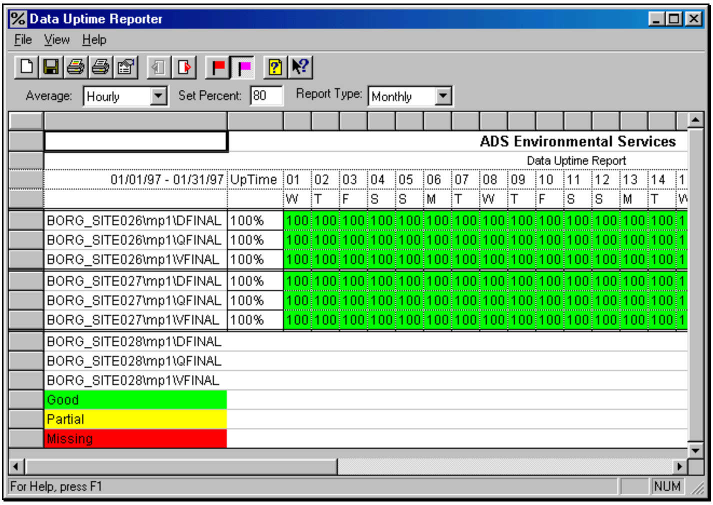
Use the **Data Uptime Reporter** once a month after performing the data editing step from the weekly routine. Refer to the *Introduction*, Chapter 1, for more information on the weekly routine.

How to Use the Data Uptime Reporter



Data Uptime Reporter button

Access the **Data Uptime Reporter** by selecting either data entities and the **Data Uptime Reporter** toolbar button or a previously saved **Data Uptime Reporter** template from the **Profile** main screen.



Data Uptime Reporter

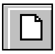
Successfully generating data uptime reports includes performing the following steps:

- Setting up the report view
- Determining the qualifying data
- Printing copies of the report and saving the report configuration as a template for future use

Setting Up the Data Uptime Report

Set up the report by changing the selected data entities, setting the report time span, and selecting the report format.

Changing the Selected Data Entities

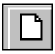


New button

Use the **New** option to access the **Monitored Items** tab when you want to add or remove the data entities from the data uptime report.

Refer to *Changing the Selected Database Objects* in Chapter 2 for more information.

Changing the Time Span



New button

Use the **New** option to access the **Date Selection** tab when you want to change the uptime report time span.

> **Note:** The beginning and ending date span displays the last configuration entered until an update is performed.

Refer to *Changing the Time Span* in Chapter 2 for more information.

Selecting the Report Format

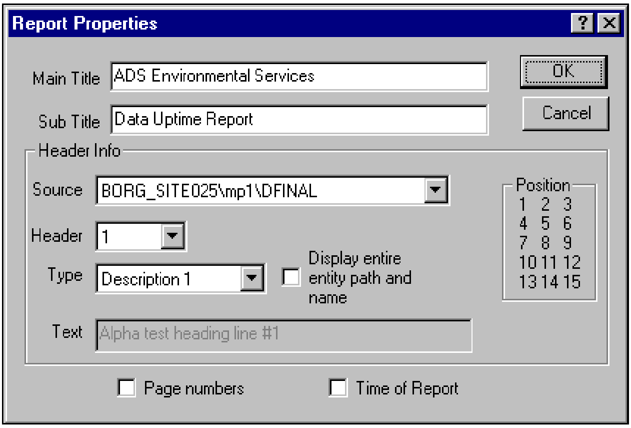
Select a report format, **Monthly** or **Quarterly**, from the **Report Type** drop-down list. The data is displayed in whole days in either a **Monthly** 31-day format or a **Quarterly** 3-month format.

Changing the Report Header

Update the report header information for the uptime report using the **View** > **Report Properties** option or the **Report Properties** toolbar button to access the **Report Properties** dialog. Perform the following steps to update uptime report headers:

Report Properties

1. Select the **View** > **Report Properties** option or the **Report Properties** toolbar button to display the **Report Properties** dialog.



Report Properties dialog

2. Enter a new **Main Title** and **Sub Title** or use the default values.

3. If you are using **<Group Entities>**, select the monitoring point from the **Source** drop-down list from which you want to retrieve the report header information.

4. Select the header number you want to update from the **Header** drop-down list. There are 15 different tabular report header positions.

5. Select the header description to apply to the selected **Header** from **Type** drop-down list, or select **Manual** to enter a header text description manually.

6. Manually enter header information to the **Text** field if you selected **Manual** from the **Type** drop-down list.
7. Select the appropriate checkboxes to display the following on the report: report page numbers (**Page numbers**), the time the report generated (**Time of Report**), or the long form of the monitoring point name (**Display entire entity path and name**).
8. Select **OK** to display the updated header information on the uptime report.

Determining the Qualifying Data

After setting up the data uptime report, *optionally* update the default values for the following:

- the data average interval
- which data to include in the uptime calculation (flagged data and/or manually modified data)
- the **Good** percent to indicate the percent of data that must be available for each day to qualify the day as *Good*

> **Note:** The **Data Uptime Reporter** calculates the rating of *Good*, *Partial*, or *Missing* based on the total number of data points available and marked as good for the selected data averaging interval.

Selecting the Data Averaging Interval

Select the averaging interval you want the **Data Uptime Reporter** to use for uptime calculations. Select the **1 Minute**, **5 Minute**, **15 Minute**, **Hourly**, or **Daily** averaging interval from the **Average** drop-down list.

Avoid misleading uptime calculations by using the same averaging interval in which the data is stored. For example, selecting the **1 Minute** or **5 Minute** averaging interval for data actually generated in 15-minute intervals will result in grossly overstated missing data and a *Partial* uptime rating.

Including/Excluding Flagged Data

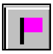
Use the **Quality Flagged** option to include or exclude flagged data from the uptime calculation. Flagged data is data that has been marked by the user.

Quality Flagged button

Include the flagged data in the uptime calculation by checking the **View > Quality Flagged** option or depressing the **Quality Flagged** toolbar button.

Including/Excluding Manually Modified Data

Use the **Manually Modified** option to include or exclude manually modified data from the uptime calculation. Manually modified data includes any data that has been altered by the user.



Manually Modified button

Include manually modified data in the uptime calculation by checking the **View > Manually Modified** option or depressing the **Manually Modified** toolbar button.

Entering the Good Percent

Enter a value in the **Set Percent** field to determine what percent of each day's data must be available in order for that day to receive a rating of *Good*. The default value for the *Good* rating is 80 percent, which means that at least 18 of the 24 hours of data for each day must be available in order for that day to be rated as *Good*.

Printing and Saving Uptime Reports

After successfully setting up the data uptime report and calculating the uptime percent, generate hard copies or save the report configuration as a template.

Printing Data Uptime Reports

Print Graphical

Print Tabular

Generate hard copies of data uptime reports in graphical or tabular formats using the **File > Print** option or the **Print Graphical** and **Print Tabular** toolbar buttons.

Copy data from an uptime report to the Windows clipboard by selecting any area of the report and choosing the **View > Copy** option. The data can then be pasted into other Windows applications.

Saving the Current Data Uptime Report

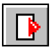
Save button

Save the current data uptime report as a template by selecting the **File** > **Save** option or the **Save** toolbar button. The current data uptime report configuration is saved to the database as a template. The **Save As** dialog displays the first time you save a report as a template.

Select the **File > Save As** option to save or rename a previously saved data uptime report template.

Select the **File** > **Print Setup** option to select the printer or printer options.

Moving Around the Uptime Report



Next

Previous

When more data is available than can be displayed on the screen, use the **View > Next** or **View > Previous** options or the **Next** or **Previous** toolbar buttons to scroll through the data.

Exiting the Data Uptime Reporter

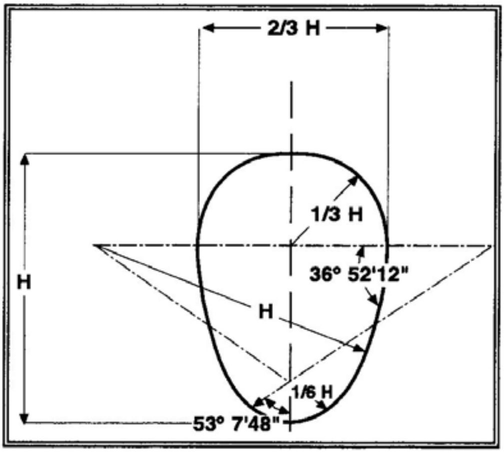
Select the **File > Exit** option to close and exit the **Data Uptime Reporter**.

APPENDIX A

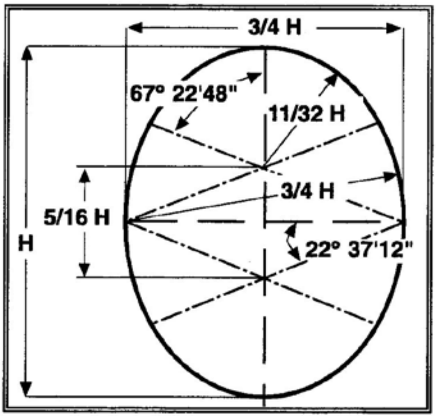
Technical Reference

Pipe Shapes

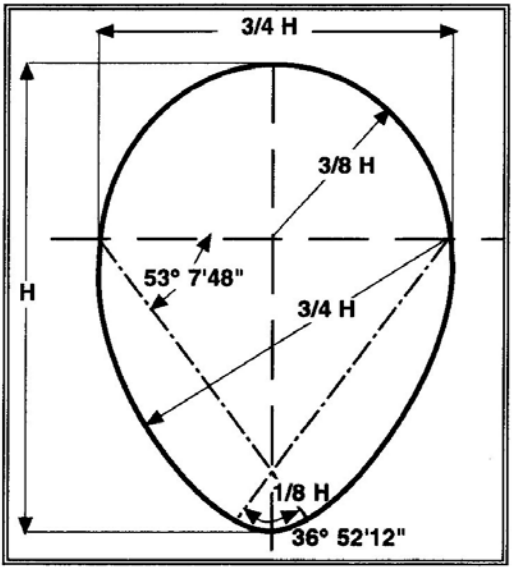
The following drawings identify different pipe shapes.



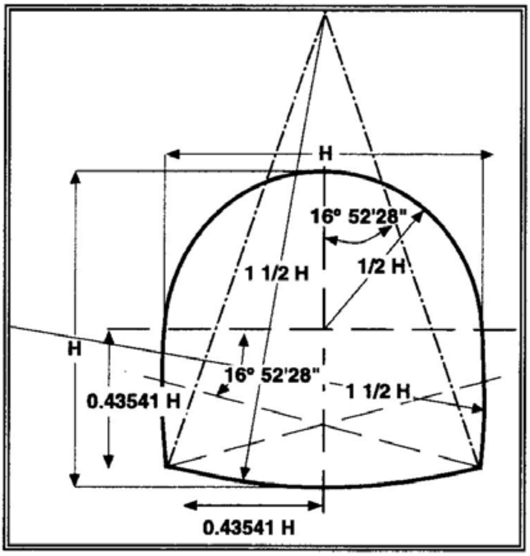
Standard Egg Pipe table



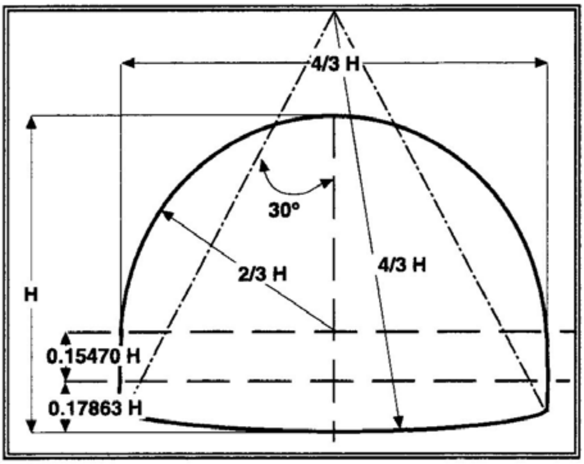
1 x 3/4 Oval Pipe Table



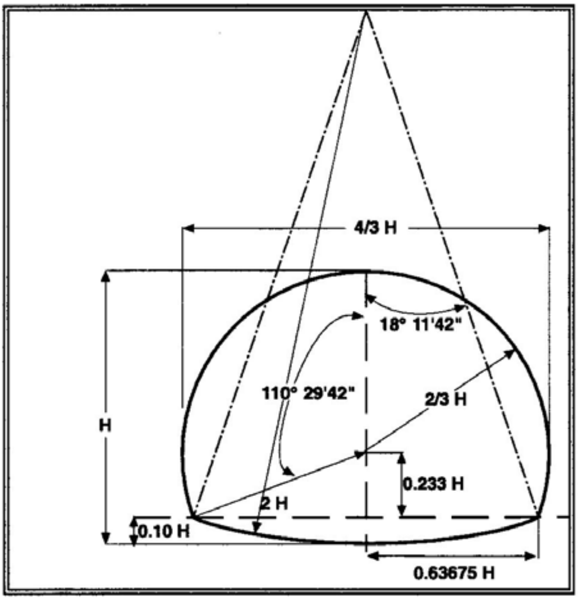
Ovoid Pipe Table



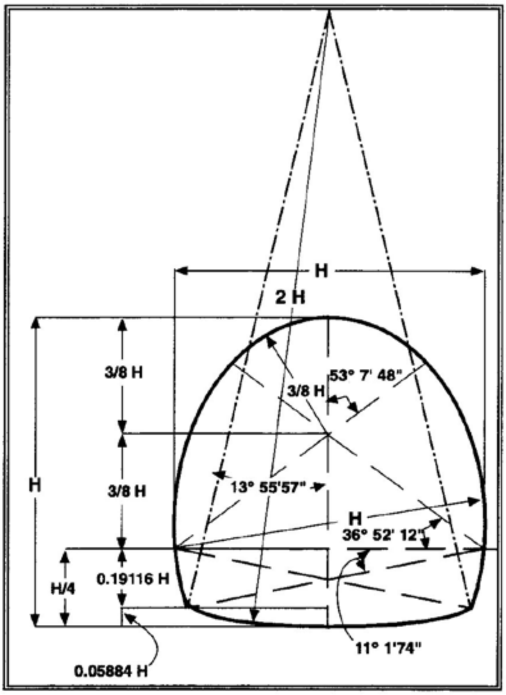
Standard Horseshoe Pipe Table



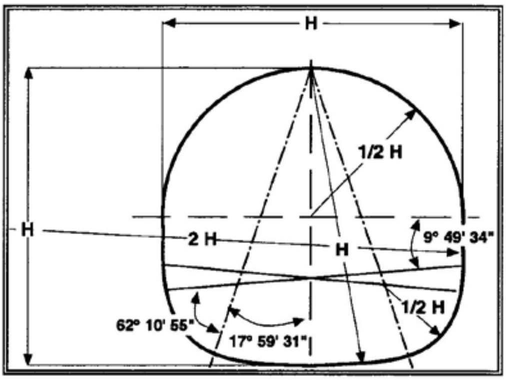
Modified Horseshoe Type 1 Pipe Table



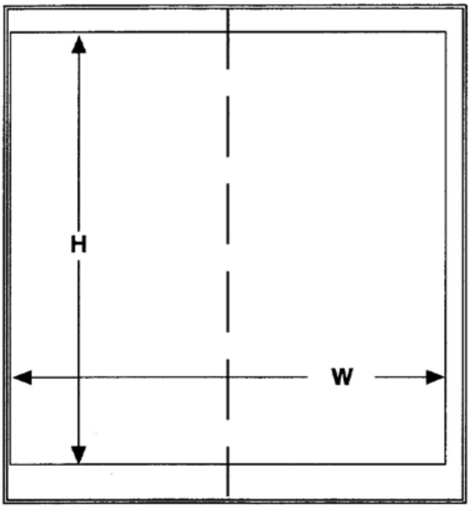
Modified Horseshoe Type 2 Pipe Table



Semi-elliptical Pipe Table



Basket Handle Pipe Table



Rectangular Pipe Table

APPENDIX B

Error Messages

This appendix contains the list of possible error messages the user may encounter while collecting data from a QuadraScanX500/X600 monitor using **Profile**.

QuadraScan X500/X600 Monitor Error Messages

3000 The monitor did not respond within required time limit.

3001 The monitor did not acknowledge communication properly.

3003 The monitor did not recognize a command.

3004 IO error

3005 Monitor failed to respond.

3006 MIO_E_NOLINK

3007 Incorrect command acknowledgement

3008 Monitor did not recognize command.

3009 Monitor has transmitted too many incorrect checksums.

3010 Monitor transmitted an illegal character.

3011 IO error

3012	An inspect command exceeded the maximum inspect range.
3013	MIO_E_FILEEXIST
3014	The monitor failed to answer.
3015	The monitor failed to answer or failed to transmit a carrier signal.
3016	MIO_E_MODEMCMD
3017	No dial tone at computer phone line
3018	The called number was busy.
3019	An off-hook condition occurred at called number.
3020	Modem returned an unexpected message.
3021	Communication error
3022	MIO_E_PAIRSET
3023	Sampler table cannot be generated.
3024	MIO_E_WRONGV
3025	MIO_E_NOSCRIPT
3026	MIO_E_SCRIPTERROR
3027	MIO_E_OUTBUFFERFULL
3028	MIO_E_INTERNALERR
3029	MIO_E_DBCONN
3999	MIO_E_LAST
4000	Unrecognized communication port
4001	Incorrect parity
4002	Incorrect baud rate
4003	Incorrect stop bits
4004	Com port has not been initialized.
4005	Monitor's ID does not match.

4006	Attempted to read address outside of address range
4007	The monitor information is not complete.
4008	Insufficient computer memory available
4009	MIO_F_UNRTASK
4010	Incorrect link path
4011	Error opening modem script
4012	Missing or incorrect command line arguments
4013	Sampling rate mismatch. Database and monitor do not agree.
4014	Could not open the log file
4015	Could not write to the log file
4016	Could not close the log file
4017	Improper sensor select word in monitor
4018	Improper patch length
4019	Failure to write monitor memory
4020	Failure to patch monitor memory
4021	Current monitor seconds exceed the sampling rate.
4022	MIO_F_SAVEDB
4023	Unknown error
4024	Error setting file pointer
4025	Error reading log file
4026	End of file error
4027	This monitor cannot be activated. It is already active.
4028	This monitor cannot be activated: This computer is not the master computer.
4029	You may not collect this monitor: This monitor is not active.

4030	The parameters in the monitor do not match the database.
4031	Unable to open raw data file
4032	Null file pointer in file initialization
4033	Error setting raw data file pointer
4034	Error writing raw data file
4035	MIO_F_RDFREAD
4036	MIO_F_INSPECT
4037	This monitor does not have any active devices.
4038	This monitor has not stored any data.
4039	Unable to open data transfer file
4040	Unable to write to transfer file
4041	Incorrect format in data transfer file
4042	Error reading transfer file
4043	Monitor sent more data than requested.
4044	MIO_F_OVERRUN
4045	Unable to initialize QuadraScan message subsystem
4046	Error writing location information file
4047	MIO_F_PORTWRITE
4048	DECNET has failed.
4049	Access violation attempting to write communication port
4050	Communication device is offline.
4051	Communication port quota has been exceeded.
4052	Illegal flag
4053	Invalid communication channel
4054	System privileges conflict
4055	Unassigned flag

4056	No links
4057	No such node
4058	VAX communication error
4059	Communication device is offline.
4060	Communications channels have not been defined.
4061	Could not find executable
4062	Could not initialize variable system
4063	Spawn failed.
4064	A series-specific task attempted to operate on wrong series.
4065	Could not open the Collect Summary.
4066	MIO_F_XLOGWRITE
4067	The Collect Summary has been corrupted: Parameter error.
4068	Unable to allocate communications port
4069	The monitor is grossly out of synchronization with computer.
4070	Unable to find window file
4071	MIO_F_NOTHOST
4072	MIO_F_DBLCHR
4073	Unable to write historical LIF to Hardware Log
4074	This monitor's timer has stopped.
4075	Error generating Sampler Lookup Table
4076	Incorrect minimum data pointer. Reactivate at 416.
4077	Communication link with monitor has been lost.
4078	Ultrasonic device is not responding.
4079	Abort request
4080	This device is not responding.

4200	Communication timeout
4201	CRC error
4202	Command ID mismatch
4204	Destination ID mismatch
4208	Origin ID mismatch
4209	Transmit message to monitor failed.
4210	MIO_F_LIFREAD
4211	Collect End Date is prior to Collect Start.
4212	ERROR
4213	PRESSURE LOSS
4214	3500 internal pressure loss
4215	3500 internal comm error
4216	3500 internal BASIC code error
4217	Monitor has no array.
4218	Monitor reported incorrect basic code CRC.
4219	Error: %d
4220	Syntax
4221	FOR missing NEXT
4222	NEXT missing FOR
4223	Code oversized
4224	Incorrect CONTINUE
4225	OPEN statement
4226	WRITE statement
4227	READ statement
4228	INPUT statement
4229	CLOSE statement

4230	File not open
4231	Incorrect Type/ID
4232	Undefined line #
4233	Max FOR LOOPS
4234	Max GOSUBS
4235	Return without GOSUB
4236	Out of Data
4237	Illegal function call
4238	Overflow
4239	Out of Memory
4240	Subscript out of range
4241	Duplicate definition
4242	Division by Zero
4243	Illegal direct
4244	Out of string space
4245	String too Long
4246	Can't Continue
4247	Missing Operand
4248	Line buffer overflow
4249	Device Timeout
4250	Collected data is out of sequence.
4251	Cannot read BASIC file
4252	Cannot read BASIC symbol definition file
4253	Illegal BASIC variable
4254	Cannot upload BASIC code
4255	Upload code CRC error

4256	MIO_F_PRNBCODE
4257	Error in reading V3 velocity
4258	Error in reading P2 pressure
4259	Error in reading pressure coefficient file
4260	Pressure coefficients not found
4261	Cannot open device %s
4262	Too many variables
4263	No monitoring point information is available.
4264	Too many strings
4265	Cannot find custom monitor definition file
4266	Cannot find BASIC array file
4267	Cannot find BASIC string array file
4268	Cannot find custom monitor BASIC variable file
4269	Bad file number
4270	Device I/O Error
4271	Bad file name
4272	Too many files
4273	Device Unavailable
4274	Invalid Basic Code
4275	Monitor's memory is full. Monitor has an older EPROM. Please split collect.
4276	Pipe number does not exist.
4277	No Historical HC available, Q's will not be generated.
4278	MIOD:Error from offset/gain %d (%s,%s)
4279	Unknown error
4280	LIF Monitor Record is NULL for %s
4281	MIO ERROR: %d Location: %s

4282	DB_ReadLif Error: %d Location: %s
4283	\n Sac fail to verify
4284	\n Ultrasonic pairs failed to verify
4285	\n Sampling rate failed to verify
4286	Cannot perform diagnostics on sets
4287	No location selected
4288	Could not convert variable in CFG file
4289	#ENDIF without #IF in CFG file
4290	#IF without #ENDIF in CFG file
4291	Unable to create array
4292	Unable to assign array
4293	Syntax error
4294	Cannot evaluate expression
4295	Cannot create variable
4296	Attempting to assign array outside of boundaries
4297	Cannot create an array that already exists.
4298	Duplicate line number
4299	Device does not exist.
4300	Cannot decipher variable name
4301	Syntax error
4302	Incorrect monitoring point type for this request.
4303	Incorrect series type for this request
4304	This device does not exist.
4305	Event's trigger device is not active.
4306	Configuration file detected an error.
4307	#WHILE without matching #DO

4326	Monitor sent data block out of sequence.
4327	Zero length message received from monitor
4328	No response received from monitor
4329	Received MONITOR BUSY response to sensor request message
4330	No Roughness or Slope available; Q's will not be generated.
4331	No SIMK table; velocities will not be generated.
4340	MIO_LS_BREAKDETECTED
4341	MIO_LS_BUFFEROVERRUN
4342	MIO_LS_FRAMINGERROR
4343	MIO_LS_HARDWAREOVERRUN
4344	MIO_LS_PARITYERROR
4345	MIO_LS_NOCARRIER

APPENDIX C

Bin File Processor

To learn about:	*See page:*

What is the Bin File Processor?

The raw data collected from a monitor must undergo processing to convert it into a useful form for analysis and reporting. When the user collects the raw data through **Profile** to the primary computer, the software automatically processes the data based on the LIF for that monitor location and saves the data to the **Profile** database. The primary computer represents the system used for data analysis and reporting activities.

Collecting the data using another system may introduce possible errors during data processing. This potential exists because a different computer may not contain the most current configuration (LIF) containing the proper parameters for the location.

The **Bin File Processor** tool is specifically designed for processing raw (binary) data files collected using a computer other than the primary system and/or a software package other than **Profile**. It also ensures processed data is saved to the **Profile** database for future analysis and reporting.

> **Note:** This procedure does not apply to **Accusonic 7510** data. Data from this monitor does not require processing.

When to Use the Bin File Processor

Use the **Bin File Processor** tool during the *Data Retrieval* phase of the project. Refer to *Introduction*, Chapter 1, for more information.

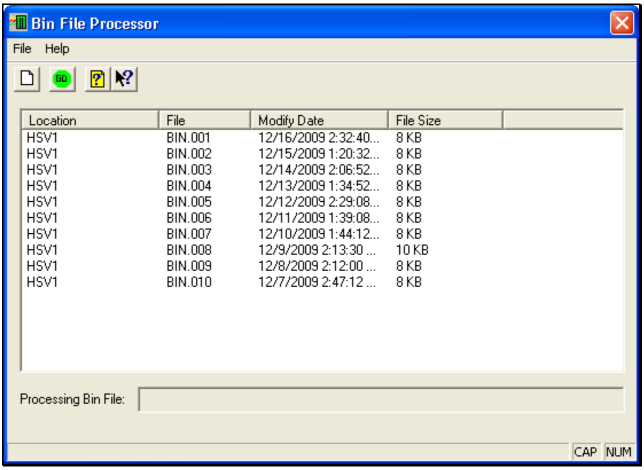
How to Use the Bin File Processor

Use the **Bin File Processor** to process **QuadraScan** and **FieldScan** data in the following way:

1. Select a single monitor location, multiple monitor locations, or a group from the **Profile** main menu.

Bin File Processor button

2. Select the **Tools > Bin File Processor** option or the **Bin File Processor** toolbar button to display the **Bin File Processor**.



Bin File Processor window

3. Select the binary data files you want to process from the **Location** list on the table. You may select multiple files using your **<Ctrl>** key.

Go button

4. Select the **File > Go** option or the **Go** toolbar button to begin processing the data.

*The **Processing Bin File** section displays the file name of the binary data file **Bin File Processor** is currently processing.*

Exiting the Bin File Processor

Select the **File > Exit** option to close and exit the **Bin File Processor**.

INDEX

M

R

S

T