

Diver-Office Premium

DEMONSTRATION EXCERCISE



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Introduction

This demonstration exercise is designed to introduce you to some of the main features available in Diver-Office Premium. The topics covered in this exercise include:

- Configuring database server settings
- Creating a new project
- Defining monitoring networks
- Importing location data
- Importing Diver data
- Compensating Diver data
- Creating Time Series plots

Before starting the exercise, both Diver-Office Premium software and a valid license must be installed on your computer.

A complete version of the demonstration project is available on the website

<http://www.swstechnology.com/groundwater-software/diver-data-management/diver-office-premium>

or on the installation DVD. To open this project,

- Navigate to the **Demonstration Exercise** folder on the installation DVD. Copy all contents of the folder to your local hard drive.
- Create a new project in Diver-Office Premium (project name: **Demo Project**, leave remaining settings as default)
- Once a new project has been created, select **Project > Manage Data > Restore** from the main menu.
- Navigate to the location on your computer where the demo project files were copied to.
- Select **Demo Project.bak** file to open the demo project.

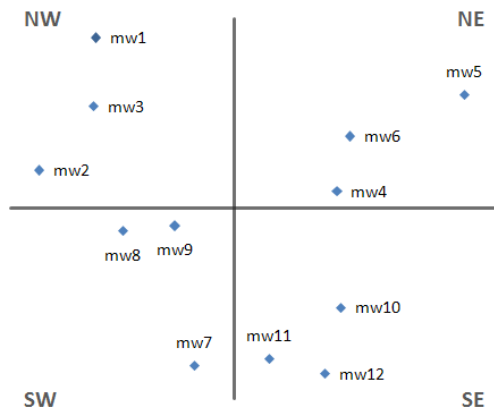
To create the demo project from scratch, follow the steps outlined in the following sections.

Background Information

Groundwater monitoring is conducted at 12 locations in the project area using SWS Diver dataloggers. Each location consists of one or more well casings that correspond with an aquifer in the subsurface system. Three aquifers have been identified: a **shallow aquifer** and a **deep aquifer**. Locations have been grouped into monitoring networks by dividing the monitoring area into four quadrants (**NW**, **NE**, **SW** and **SE**). A Mini-Diver instrument has been deployed in each well casing to record water level measurements, and a Baro-Diver instrument has been deployed above ground to record barometric pressure.

For each location, well construction details (drilling, annular filling, top of casing elevations, casing & screen data) and manual measurement data are stored in Excel worksheets.



At the end of a monitoring period, Diver data is collected, stored and then analyzed using Diver-Office Premium software.



Overview of monitoring area showing project locations grouped in monitoring networks.

Terms and Notation

For the purposes of this tutorial, the following terms and notations will be used to indicate various screen actions:

Type:	type in a given word or value
<Enter>	press the Enter key on your keyboard
<Tab>	press the tab key on your keyboard
	click the left mouse button where indicated
	double-click the left mouse button where indicated.

Setting Up the Data Repository

The project files for this demonstration exercise are located on the Diver-Office Premium installation DVD under the following directory:

E:\Demonstration Exercise\

Before proceeding, please copy all the contents of this folder to the data repository folder.

Place the installation DVD in your DVD-ROM drive.


  button in the top-right corner (to minimize Diver-Office Premium)

 **My Computer** icon (located on your desktop)

 DVD-ROM drive
The contents of the DVD will appear on your screen.

 Demonstration Exercise folder

 **Edit > Select All** (from the main menu)

 **Edit > Copy** (from the main menu)

Using **Windows Explorer**, browse to the Diver-Office Premium data repository. By default, this folder is set to the following directory:
'../My Documents\Diver-Office Premium Projects\Demo Project '



Edit > Paste (from the main menu)



Diver-Office Premium, from your windows task bar to display the Diver-Office Premium main window on your screen

Launching Diver-Office Premium

On your desktop, you will see an icon for Diver-Office Premium software.



Diver-Office Premium to start the program

The main Diver-Office Premium window will appear on your screen. Please be sure that you have installed a valid license before continuing.

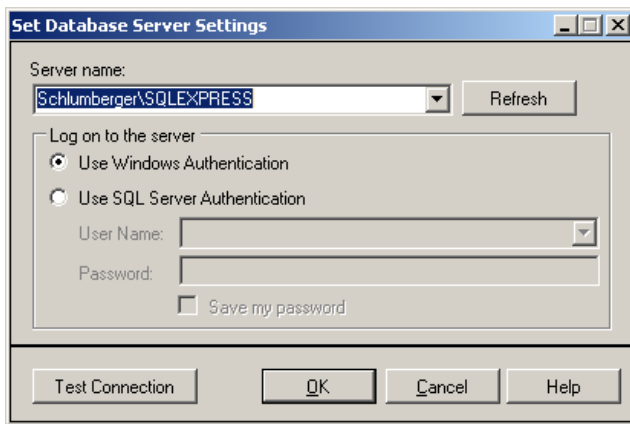
Configuring Database Server Settings

Once the main window has appeared on your screen,



Project > Set Database Server Settings, from the main menu.

The **Set Database Server Settings** dialog box will appear on your screen.



From the **Server** combo box,

- ☛ The **Server Name** to be used for the Diver-Office Premium project. If you elected to install SQL Server on your local machine, select `[computername]\sql instance`. For example, if your computer name is "Schlumberger", and the installed instance is SQLEXPRESS (default), select "Schlumberger\SQLEXPRESS" from the combo box.

- ☛ **Test Connection** button, to test the specified Server Name.

If the selected **Server Name** is valid, a message will appear indicating that the connection was successful. If the connection test failed, check the specified Server Name to ensure that it is correct.

- ☛ **OK** button

Creating a Project

Once the database server settings have been configured, you can create a new Diver-Office Premium project.

Project information

Select **Project > New** from the main menu

The **New Project** dialog box will appear on your screen.

In the **Name** field,

 type: Demo Project

Take note of the default **Data Repository** folder directory.


In the **Description** field,

 type: Demonstration Exercise

For the Coordinate System Information,

 [...] button

 [+] Project Coordinate Systems

 [+] State Plane


 [+] NAD 1983 (feet)

 NAD 1983 StatePlane California II FIPS 0402 (feet)

 [OK] button

For the default **Unit Settings**,

 **cm**, for the **Diameter** unit (select from combo box)

 **m**, for the **Length** unit (select from combo box)

Finally, to create the project,



[Create] button

Additional project information

For reporting purposes company and client information can be added to the project database. From the main menu choose **Project > Project Settings**,



Additional Information tab

Enter the company and client information and upload logos.




Save button

Project Settings

Project Information | **Additional Information**

Company Information

Logo: 

Name:

Address:


Contact Person:

Email:

Phone:

Fax:

Client Information

Logo: 

Name:

Address:

Contact Person:

Email:


Phone:

Fax:

Creating Monitoring Networks

Locations can be organized into logical groupings, called Monitoring Networks. Monitoring Networks must be created before location data can be entered.

To create Monitoring Networks,

- ☞  **Location** button, from the main Diver-Office Premium toolbar
- ☞ List Editor > Monitoring Network, from the main menu

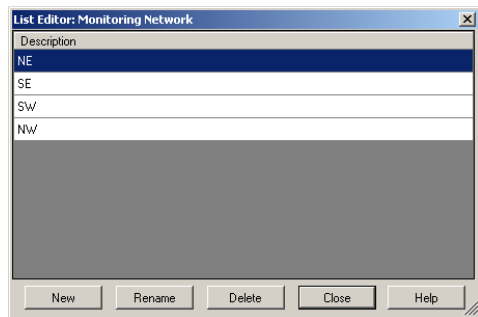
The **List Editor** window will appear on your screen.

- ☞ **[New]** button

In the **Description** field,
type: **NE**

- ☞ **[OK]** button

Repeat these steps to create monitoring networks for **NW**, **SW** and **SE**. Once finished, the **List Editor** window should appear as follows:





Close button

Setting up Locations

Once **Monitoring Networks** have been created, you can import location data. In Diver-Office Premium, a **Location** refers to a unique real-world location, with X-Y coordinates, at which data collection activities are performed. Location data can be imported from various file types including, *.TXT, *.MDB and *.XLS. Location data for this project has been saved in an Excel file.

Importing Locations



Location > Import Location Data... , from the main menu

The **Data Import Wizard** dialog will appear on your screen.

Beside the **Source File** field,



[...] button

The **Select Data Source** dialog will appear on your screen. Navigate to the data repository directory on your computer:

'..\Documents\My Demo Project\



Location_data.xls



[Open] button



[Next] button



The dialog for **Step 2** of the Import Wizard will appear on your screen.



Locations, from the Select Worksheet combo box




Header Row check box

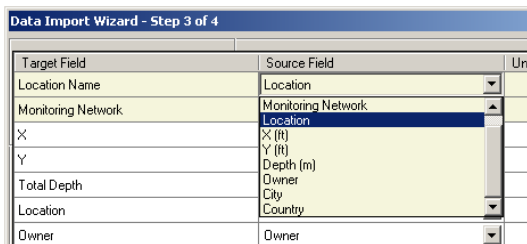


[Next] button

The dialog for **Step 3** of the Import Wizard will appear on your screen.


Under the **Source Field** Column,

- ☞  button, in the field adjacent to **Location Name**. A drop down list will appear, displaying all fields in the Excel file.
- ☞ **Location** from the combo box.

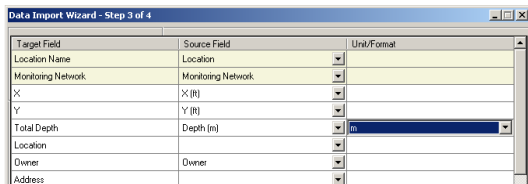


The screenshot shows the 'Data Import Wizard - Step 3 of 4' dialog box. It contains a table with three columns: 'Target Field', 'Source Field', and 'Unit'. The 'Source Field' column has a dropdown arrow next to each entry. The 'Unit' column is currently empty.

Target Field	Source Field	Unit
Location Name	Location	
Monitoring Network	Monitoring Network	
X	X (ft)	
Y	Y (ft)	
Total Depth	Depth (m)	
Location	Owner	
	City	
	Country	
Owner	Owner	

- ☞  button, in the field adjacent to **Monitoring Network**.
- ☞ **Monitoring Network** from the combo box.

Repeat the steps above to map the **X, Y** and **Total Depth** fields. Your screen should look similar to the image shown below.



The screenshot shows the 'Data Import Wizard - Step 3 of 4' dialog box after further mappings. The 'Unit/Format' column now contains 'm' for the 'Total Depth' row. The 'Source Field' dropdowns are also filled.

Target Field	Source Field	Unit/Format
Location Name	Location	
Monitoring Network	Monitoring Network	
X	X (ft)	
Y	Y (ft)	
Total Depth	Depth (m)	m
Location	Owner	
Owner	Owner	
Address		

Finally, under the **Unit/Format** column,














- ☞ **m**, for the **Total Depth** field

 [Next>]

The dialog for Step 4 of the Import wizard will appear on your screen. No errors were detected in the source data.

 [Finish] button

The imported locations will now appear in the location table.

	Monitoring Network ▾	Location ▾	X (Ft) ▾	Y (Ft) ▾	Type ▾	Purpose ▾	Status ▾	Monitoring Point
	NE	mw4	6624774	1964972				
		mw5	6625432	1965657				
		mw6	6624843	1965364				
	NW	mw1	6623535	1966063				
		mw2	6623246	1965123				
		mw3	6623526	1965579				
	SE	mw10	6624795	1964147				
		mw11	6624428	1963782				
		mw12	6624713	1963679				
	SW	mw7	6624042	1963735				
		mw8	6623678	1964689				
		mw9	6623942	1964729				


Additional location data can be entered for each location by double-clicking a row in the location table. This will open a series of data entry tabs which contain various fields and tables for entering **top of casing elevation, location ground surface elevation, drilling and annular filling data, casing and screen data, lithology data and field notes**. This data can also be imported from various file types, including *.XLS, *.MDB and *.TXT, using the same import procedure described above.

Importing Drilling Data

 Location > Import Location Data... , from the main menu

The **Data Import Wizard** dialog will appear on your screen.

From the **Data Object** combo box,

 Drilling

Beside the **Source File** field,

 [...] button

The **Select Data Source** dialog will appear on your screen. Navigate to the data repository on your computer:


‘..\Documents\My Demo Project

 Location_data.xls

 [Open] button

 [Next] button

The dialog for **Step 2** of the Import Wizard will appear on your screen.



 Drilling & Filling, from the Select Worksheet combo box.

 ☒ **Header Row** check box

 [Next] button


The dialog for **Step 3** of the Import Wizard will appear on your screen.

Under the **Source Field** column,

  button, in the field adjacent to **Location Name**. A drop down list will appear, displaying all fields in the Excel file.

 **Location**, from the combo box

  button, in the field adjacent to the **From** field

 **From (m)** from the combo box

  button, in the field adjacent to the **To** field.

 **To (m)** from the combo box

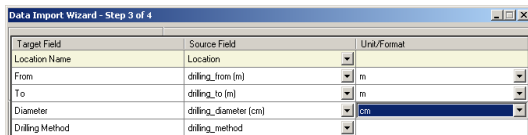
☞  button, in the field adjacent to the **Diameter** field.

☞ **Diameter (cm)** from the combo box

Finally, under the **Unit/Format** column,

☞ **m**, for the **From** and **To** fields

☞ **cm**, for the **Diameter** fields



Target Field	Source Field	Unit/Format
Location Name	Location	
From	drilling_from (m)	m
To	drilling_to (m)	m
Diameter	drilling_diameter (cm)	cm
Drilling Method	drilling_method	

☞ [Next>]

The dialog for **Step 4** of the Import wizard will appear on your screen. No errors were detected in the source data.

☞ [Finish] button

Importing Casing Data

☞ Location > Import Location Data... , from the main menu.

The **Data Import Wizard** dialog will appear on your screen.

From the **Data Object** combo box,

☞ Casing Details

Beside the **Source File** field,

☞ [...] button

The **Select Data Source** dialog will appear on your screen. Navigate to the data repository folder on your computer:

.. \Documents \My Demo Project






- ☞ Location_data.xls
- ☞ [Open] button
- ☞ [Next] button

The dialog for **Step 2** of the Import Wizard will appear on your screen.

- ☞ Casing details, from the Select Worksheet combo box
- ☞ ☒ **Header Row** check box
- ☞ **[Next]** button.

The dialog for **Step 3** of the Import Wizard will appear on your screen.

Under the **Source Field** column,

- ☞  button, in the field adjacent to **Location Name**. A drop down list will appear, displaying all fields in the Excel file
- ☞ **Location**, from the combo box
- ☞  button, in the field adjacent to the **Casing ID** field
- ☞ **Casing ID** from the combo box
- ☞  button, in the field adjacent to **From** field
- ☞ **From (m)**, from the combo box
- ☞  button, in the field adjacent to the **To** field
- ☞ **To (m)** from the combo box
- ☞  button, in the field adjacent to the **Diameter** field
- ☞ **Diameter (cm)** from the combo box

Finally, under the **Unit/Format** column,

- ☞ **m**, for the **From** and **To** fields
- ☞ **cm**, for the **Diameter** fields

 **[Next]** button


 Finish button

Importing Annular Filling, Casing, Screen, Top of Casing and Ground Surface Elevation

The Excel file, **location_data.xls**, contains worksheets for annular filling, casing, screen, top of casing and location ground surface data. Using the import procedure described in the previous sections, take some time to import this data into the project.

Importing A Location Photo

For each location a photograph can be uploaded. Double-click a row in the location table. In the default tab that opens:

 **mw1** row, in the location table

 **Upload button** in the Location tab

Navigate to the data repository directory on your computer:

‘..\\Documents\\My Demo Project\\Pictures’

 **mw1**

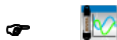
 **Open** button

Repeat this procedure for the other locations.

Setting up Monitoring Points

Importing Diver Data

All tasks related to Diver data can be performed using the **Diver Data** module. To open the **Diver Data** module,



Diver Data button from the Diver-Office Premium toolbar

The **Diver Data** module will appear on your screen.



Import > Diver Data..., from the Diver Data main menu

The **Open** dialog box will appear on your screen. Navigate to the data repository directory on your computer.

'..\Documents\My Demo Project\Time Series\first'



MON (*.MON) from the Files of Type: combo box.

While holding the **Ctrl** key on your keyboard,



Each file .MON file displayed in the **Open** dialog.



[Open] button

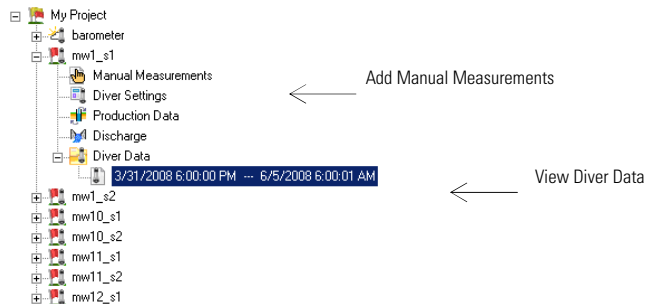
Once the files have been imported,



[Close] button

The imported diver data will be listed in the monitoring point tree (shown below). Each node in the tree represents a **Monitoring Point**. Each monitoring point corresponds to a casing at one of the imported locations.

There are 23 regular monitoring points (where Diver data is collected) and 1 barometer monitoring point (where barometric data is collected). When a monitoring point node is expanded, by clicking the **[+]** button, various subnodes will appear which allow you enter manual measurements and associated production and discharge data for that particular monitoring point. You can view the time series data measured at a monitoring point by expanding the **Diver Data** node, and selecting a time series.



The data at each monitoring point will now be compensated using manual measurements and barometric data measured at the **barometer** monitoring point.

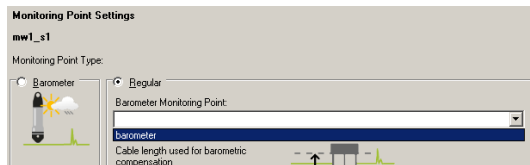
Assigning Barometric Data to Monitoring Points

Each regular monitoring point must be assigned a corresponding barometer monitoring point before its data can be compensated for variations in barometric pressure. Barometer monitoring point "**Barometer**" will be assigned to **all** regular monitoring points in the tree.

☞ **mw1_s1**, from the monitoring point tree

The settings for monitoring point **mw1_s1** will appear in the adjacent window.

☞ Barometer, from the Barometer Monitoring Point combo box



☞ **mw1_s2**, from the monitoring point tree

The settings for monitoring point **mw1_s2** will appear in the adjacent window.

☞ Barometer, from the Barometer Monitoring Point combo box.

Repeat this procedure for each regular monitoring point in the monitoring point tree.

Importing Manual Measurements

Manual Measurements can be used to reference water levels with respect to the top of the casing. Manual measurements can be entered manually, or imported from a *.TXT, *.MDB, or .XLS file. To import manual measurement data for a monitoring point, follow the steps below:

☞ **[+]mw1_s1**, from the monitoring point tree

☞ Manual Measurements node

☞ **[Import..]** button, located at the bottom of the adjacent window.

The **Select Data Source** dialog will appear on your screen.

Navigate to the following directory on your computer:

'..\Documents\My Demo Project\

☞ manual_measurements.xls



☞ **[Open]** button.

The **Data Import Wizard** dialog will appear on your screen.

- ☞ mw1_s1, from the Select Worksheet combo box
- ☞ ☒ **Header Row** check box
- ☞ **[Next]** button

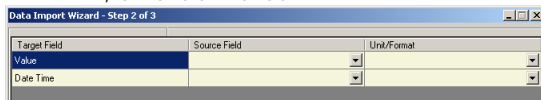
The dialog for **Step 2** of the import wizard will appear on your screen.

Under the **Source Field** column,

- ☞  button, in the field adjacent to **Value**. A drop down list will appear, displaying all fields in the Excel file.
- ☞ Manual Measurement (m) from the combo box.
- ☞  button, in the field adjacent to **Date Time**.
- ☞ **Date/time** from the combo box.

Under the **Unit/Format** column,

- ☞ **m**, for the **Value** field.
- ☞ **D – M – Y**, for the Date Time field



- ☞ **[Next >]** button
- ☞ **[Next>]** button to finish the import process
- ☞ The imported manual measurements for monitoring point “mw1_s1” will appear on your screen.

	Default	Date Time	Value (cm)
▶	<input checked="" type="checkbox"/>	Thursday, April 03, 2008 6:00:00 PM	729
	<input type="checkbox"/>	Thursday, June 05, 2008 6:00:00 AM	754
	<input type="checkbox"/>	Wednesday, August 13, 2008 12:00:00 AM	776

- ☞ ☒ Check box in the first row of the manual measurement list. This manual measurement value will be used in barometric compensation calculations.

Using the procedure described above and the **manual_measurements.xls** file, import manual measurements for the remaining regular monitoring points. The excel file contains a worksheet for each monitoring point in the tree. Be sure to select the correct excel worksheet in **Step 1** of the import process. The selected worksheet name should match the monitoring point name for which the manual measurements are being imported. Once all monitoring points have manual measurement data, proceed to the next section.





Setting barometric compensation options

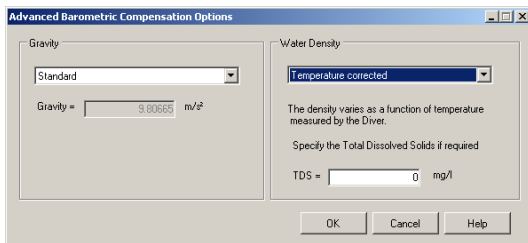
The pressures recorded by the Diver need to be converted to water levels. This is done by the QA/QC module of Diver-Office Premium. The water column WC above the Diver is calculated using the following formula:

$$WC = \frac{P_{Diver} - P_{baro}}{\rho \cdot g}$$

where P_{Diver} pressure measured by the Diver, P_{baro} is the barometric pressure, ρ is the water density and g is the acceleration of gravity.

For each monitoring point the water density and gravity can be altered. The default values are $\rho = 1000 \text{ kg/m}^3$ and $g = 9.80665 \text{ m/s}^2$. To change the default settings

-  **mw1_s1** from the monitoring point tree
-  [Set Advanced Options...] in the Barometric Compensation Options section
-  Temperature corrected in the Water Density section.
-  [OK] button



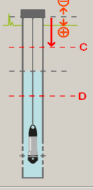
Repeat this step for each desired monitoring point.

Setting QA/QC notification limits

For each monitoring point the limits for the QA/QC notification can be set.

- ☞ **mw1_s1** from the monitoring point tree
- ☞ [Set Advanced Options...] in the QA/QC Options section
- ☞ **C** textbox and enter 720
- ☞ **D** textbox and enter 770
- ☞ **E** textbox and enter 4

Diver QA/QC Settings

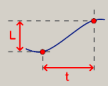


Reference:
Top of casing

Upper Control Limit:
C = 720 cm

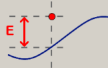
Lower Control Limit:
D = 770 cm

Water Level Variation



Water Level Change Threshold(LA):
cm/hour

Diver and Manual Measurement Difference



Maximum allowed difference between Diver and Manual Measurement:
E = 4 cm

Ok Cancel Help

Use the tables below to fill out the control limits for the monitoring points in the project. Use 4 cm for the value of **E**.

Note: If there is no value in a textbox the data points will not be verified against the rule.

Monitoring point	C	D
mw1_s1	720	770
mw1_s2	1020	1070
mw2_s1	240	300
mw2_s2	590	640
mw3_s1	110	190
mw3_s2	440	550
mw4_s1	260	340
mw4_s2	950	980
mw5_s1	650	740
mw5_s2	970	990
mw6_s1	140	160
mw6_s2	360	420
mw7_s1	290	320

Monitoring point	C	D
mw7_s2	600	700
mw8_s1	140	170
mw8_s2	460	510
mw9_s1	300	370
mw9_s2	650	710
mw10_s1	530	580
mw10_s2	860	890
mw11_s1	50	100
mw11_s2	390	420
mw12_s1	220	260

	min	max
barometer	1010	1045

Creating an Aquifer List

At most locations, data is collected for multiple aquifers, namely: **Deep** and **Shallow**.

Next, use the **List Editor** to create an aquifer list.



Location button, from the Diver-Office Premium toolbar



List Editor > Aquifer, from the main menu

The **List Editor: Aquifer** dialog box will appear on your screen.



[New] button

In the **Description** field,

- ☞ type: **Deep**
- ☞ **[OK]** button
- ☞ **[New]** button, again

In the **Description** field,

- ☞ type: Shallow
- ☞ [OK] button
- ☞ [Close] button


Assigning Monitoring Points to Locations

You will see that all the imported monitoring points are listed in the **Monitoring Point** list (the left side of the window).

Monitoring Point	Monitoring Network	Location	X (FL)	Y (FL)	Monitoring Point
<input type="checkbox"/> barometer	NE	mw4	6624774	1964972	
<input type="checkbox"/> mw1_s1		mw5	6625432	1965657	
<input type="checkbox"/> mw1_s2		mw6	6624843	1965364	
<input type="checkbox"/> mw10_s1	NW	mw1	6623535	1966063	
<input type="checkbox"/> mw10_s2		mw2	6623246	1965123	
<input type="checkbox"/> mw11_s1		mw3	6623526	1965579	
<input type="checkbox"/> mw11_s2	SE	mw10	6624795	1964147	
<input type="checkbox"/> mw12_s1		mw11	6624428	1963782	
<input type="checkbox"/> mw12_s2		mw12	6624713	1963679	
<input type="checkbox"/> mw2_s1	SW	mw7	6624042	1963735	
<input type="checkbox"/> mw2_s2		mw8	6623678	1964689	
<input type="checkbox"/> mw3_s1		mw9	6623942	1964729	
<input type="checkbox"/> mw3_s2					
<input type="checkbox"/> mw4_s1					
<input type="checkbox"/> mw4_s2					
<input type="checkbox"/> mw5_s1					
<input type="checkbox"/> mw5_s2					
<input type="checkbox"/> mw6_s1					
<input type="checkbox"/> mw6_s2					
<input type="checkbox"/> mw7_s1					
<input type="checkbox"/> mw7_s2					

The next task is to assign each monitoring point to the appropriate location casing.

Note: Before continuing, please be sure that you have imported the casing details for each location. This procedure is described in the *Importing Location Data* section.

 **mw1** row, in the location table


The **Location Data Entry** tabs will appear on your screen.

 Casing & Screen tab

From the Monitoring Point List,

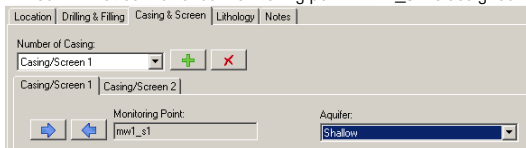
- ☞ the check box beside monitoring point **mw1_s1**

Under the **Casing & Screen** tab,

- ☞  Add Monitoring Point button

- ☞ **Shallow**, from the **Aquifer** combo box

- ☞ You will notice that once monitoring point **mw1_s1** is assigned to Casing 1, it is removed from the monitoring point list.



- ☞ Location **mw1** also contains a separate casing that is screened over the **Deep** aquifer. To assign a monitoring point to Casing 2,

- ☞ Under the **Casing & Screen** tab,

- ☞ Casing/Screen 2 tab

- ☞ Using the same procedure described above, assign monitoring point **mw1_s2** to casing 2.

- ☞ From the monitoring point list,

- ☞ the check box beside monitoring point **mw1_s2**

- ☞ Under the **Casing & Screen** tab,

- ☞  Add Monitoring Point button

- ☞ **Deep**, from the **Aquifer** combo box


Location | Drilling & Filling | Casing & Screen | Lithology | Notes

Number of Casing:
Casing/Screen 2 + -

Casing/Screen 1 Casing/Screen 2

Monitoring Point: mw1_s2 Aquifer: Deep

Once both monitoring points have been assigned to location **mw1**,

 **[OK]** button, located at the bottom of the **Casing/Screen** tab.

The location table will be updated to show the assigned monitoring points.

Monitoring Network	Location	X (Ft)	Y (Ft)	Type	Purp	Statu	Monitoring Point
NE	mw4	6624774	1964972				
	mw5	6625432	1965657				
	mw6	6624843	1965364				
Nw/	mw1	6623535	1966063				mw1_s1 mw1_s2
	mw2	6623246	1965123				
	mw3	6623526	1965579				

Using the same procedure described above, assign the remaining monitoring points to the appropriate locations. The monitoring points ending with **s1** should be assigned to the **Shallow** aquifer and those ending in s2 to the **Deep** aquifer.

Assign the monitoring point **barometer** to location **mw12**. A separate casing needs to be created for the **barometer**. There are no drilling/casing details for this casing.

Note: All locations contain more than one casing, where location **mw12** is an exception, because it has only one real casing and the second casing has the **barometer** assigned to it.

Once each monitoring point is assigned to the appropriate location, your location table should appear similar to the one shown in the image below.

Monitoring Network	Location	X (Ft)	Y (Ft)	Type	Purp	Statu	Monitoring Point
NE	mw4	6624774	1964972				mw4_s1
							mw4_s2
	mw5	6625432	1965657				mw5_s1
							mw5_s2
	mw6	6624843	1965364				mw6_s1
							mw6_s2
NW	mw1	6623535	1966063				mw1_s1
							mw1_s2
	mw2	6623246	1965123				mw2_s1
							mw2_s2
SE	mw3	6623526	1965579				mw3_s1
							mw3_s2
	mw10	6624795	1964147				mw10_s1
							mw10_s2
SW	mw11	6624428	1963782				mw11_s1
							mw11_s2
	mw12	6624713	1963679				mw12_s1
							barometer
	mw7	6624042	1963735				mw7_s1
							mw7_s2
	mw8	6623678	1964689				mw8_s1
							mw8_s2
	mw9	6623942	1964729				mw9_s1
							mw9_s2

Validating Diver Data

The **QA/QC** module must be used to compensate the Diver pressure data to water level data. In addition, erroneous data can be corrected or deleted. To open the QA/QC module,



QA/QC button, from the Diver-Office Premium toolbar

Filtering the data

Before any regular Diver data can be validated the barometric data must be approved. The first step is to filter the barometric data to be validated.

For the Monitoring Point Type field,

☞ Barometer

For the **Start Date** field,

☞ 31/Mar/2008 – 12:00:00 AM

For the **End Date** field,

☞ 06/Jun/2008 – 11:59:00 PM

☞ **[Filter]** button

Filter

Data Status: [Approved and Unapproved] Monitoring Point Type: [Barometer] Monitoring Network: [All]

Monitoring Points with Barometer: [All] Monitoring Points with Reference: [All]

Time Period

Start Date: [3/31/2008] [12:00:00 AM] To: End Date: [6/6/2008] [11:59:00 PM]

[Filter]

In the selected time series section the **barometer** appears with a question mark icon.

☞ **[Apply QA/QC Rules]** button to reveal the status of the time series

The image below shows the result where a warning is shown.

Selected Time Series		
Errors Warnings Passed		
Status	Monitoring point	Description
Warning	barometer	One or more barometric data points are outside the control limits.

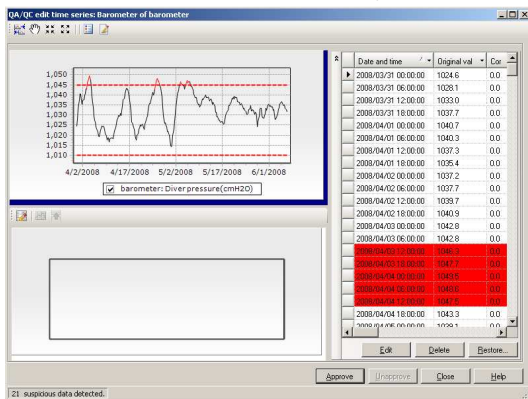


Barometer row in the Selected Time Series table



[Edit Time Series] button to view the time series

The red dashed lines in the upper graph indicate the control levels that were entered for the **barometer** monitoring point. The red sections of the graph and the red labeled cells in the table indicate the data points that exceed the control levels.



button in the toolbar of the **QA/QC edit time series** window to view view the QA/QC parameters

Change the value of the Upper Limit (max) to 1050 and



[OK] button

Now verify that the data is within the control limits.



[Approve] button

The following window appears:



[Approve] button

In the **Filter** section change the **Monitoring Point Type** field,



All



[Filter] button



[Apply QA/QC Rules] button

The status of the monitoring points will now be updated. The **Selected Time Series** table should appear similar to the one shown in the image below.

Status	Monitoring point	Description
	barometer	
	mw1_s1	One or more data points are outside the control limits.
	mw1_s2	One or more data points are outside the control limits.
	mw10_s1	One or more data points are outside the control limits.
	mw10_s2	One or more data points are outside the control limits.
	mw11_s1	One or more data points are outside the control limits.
	mw11_s2	One or more data points are outside the control limits.
	mw12_s1	One or more data points are outside the control limits.
	mw2_s1	One or more data points are outside the control limits.
	mw2_s2	One or more data points are outside the control limits.
	mw3_s1	One or more data points are outside the control limits.
	mw3_s2	One or more data points are outside the control limits.
	mw4_s1	One or more data points are outside the control limits.
	mw4_s2	One or more data points are outside the control limits.

The **Status** icon of the barometer is a lock. This means that the data is approved. To view the time series data with the warning icon

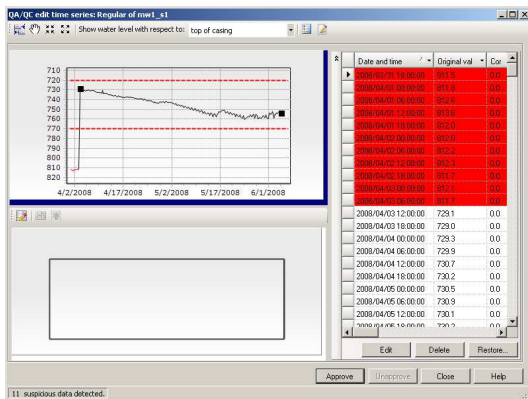


mw1_s1 row in the Selected Time Series table



[Edit Time Series] button to view the time series

The following time series data appears. The first 11 data points were taken when the Diver was not deployed yet and should therefore be deleted.



To delete the highlighted red data points,

- ☞ on the top data point and keep the shift key pressed
- ☞ on the last highlighted data point
- ☞ **[Delete]** button

In the message box enter or edit the comment and

- ☞ **[Delete]** button

Repeat the same steps for the other monitoring points.

In case data points were accidentally deleted they can be restored:


☞ **[Restore...]** button

Select the data points to be restored and

☞ **[Restore]** button

Reporting Diver and Location Data

All features related to time-series plotting can be accessed in the **Time Series Plotting** module. To open the plotting module,

☞  **Time Series** button, from the Diver-Office Premium toolbar

Creating a Plot Page

The first step is to create a new plot page.

☞ Time Series > New, from the main menu

The **New Plot Page** dialog box will appear on your screen.

In the **Name** field,

☞ type: Demo Plot Page

In the **Description** field,

type: Water Levels with respect to vertical reference datum

For the **Start Date** field,

☞ 31/Mar/2008

For the **End Date** field,

☞ 06/Jun/2008

☞ **[OK]** button



The **New Plot** window will appear on your screen.

In the **Parameters** tree, under the **Water Level** node,



With respect to vertical reference datum check box

Under the Manual Measurements node,

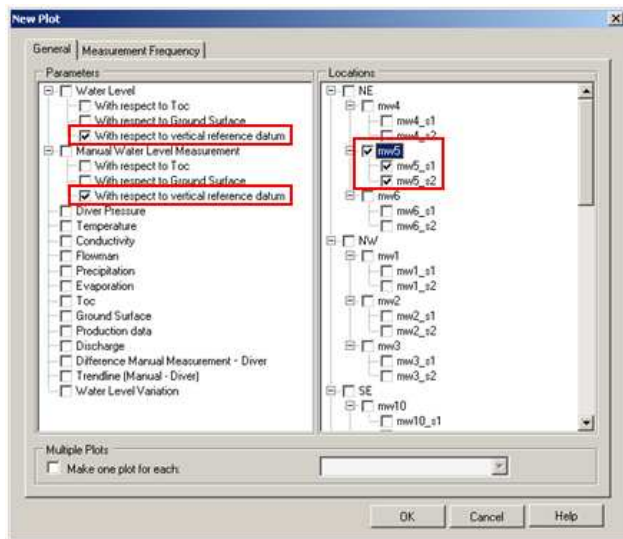


With respect to vertical reference datum check box

In the **Locations** tree,



mw5 location (all subnodes will automatically be selected)



OK button

A new plot will be added to the plot page, showing water level and manual measurement time series data for monitoring points **mw5_s1** and **mw5_s2**.

- ☞ To increase the size of the plot, simply click and drag the bottom-right corner of the time series plot. To move the time series plot to a different location on the plot page, click anywhere along the blue area located at the bottom of the time series plot, and drag the time series plot to a new location.

The time series module provides various options for customizing the appearance and style of time series plot elements. To access the various options available, right-click on the plot and select **Edit Plot Settings...**, from the pop-up menu.

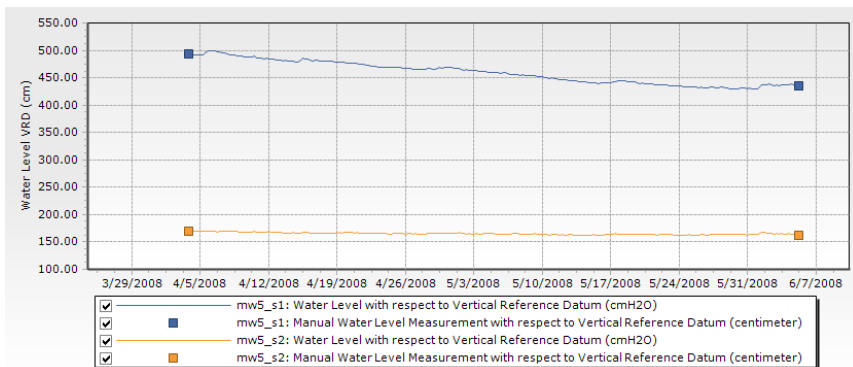
To edit the plot series settings, right-click on the plot and select **Edit Plot Series...**, from the pop-up menu. For example, you can change the appearance of the manual measurement time series from a solid line to individual points. To do so, right-click anywhere on the plot,

- ☞ Edit Plot Series , pop-up menu.

The **Edit Plot Series** window will appear on your screen.

In the **Axis tab**,

- ☞ **Title** and enter Water Level VRD (cm) in the title text box
- ☞ Close button, in the lower-right corner to close the window.
- ☞ The manual measurement time series data will now display as:



Take some time to experiment with the various options available in time series module, before proceeding to the next section.

To **Save** the plot page,


☞ Time Series > Save Plot Page from the main menu

To close the plot page

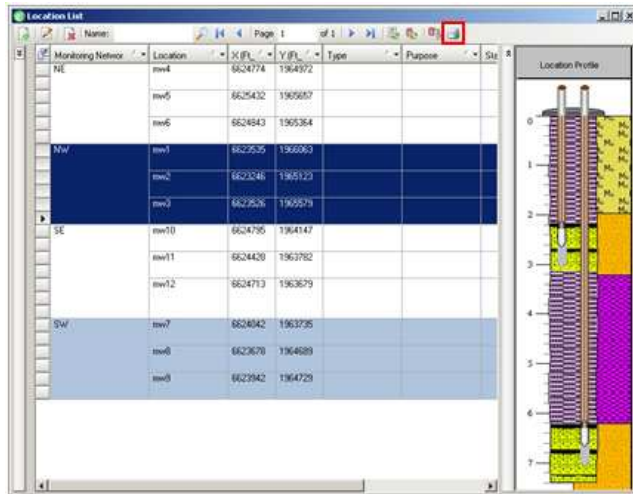
☞ **Time Series > Exit** from the main menu

Creating a Detailed Report

☞ All features related to location reporting can be accessed in the **Location** module. To open the location module,

☞  **Location** button, from the Diver-Office Premium toolbar

In the location list select the locations to be reported by holding down the **Shift** or **Ctrl** button and selecting the locations using the mouse.



printer button, from the Location toolbar

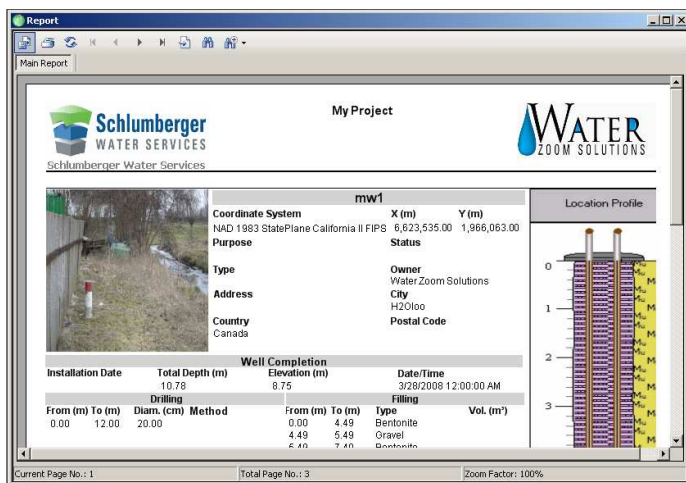


Select the "Detailed – One location per page" option



OK

A new window will open with the report



Using the buttons in the toolbar the report can be printed or exported as for example a Word document.

Exporting Data

Open the **Diver Data** module to export time series data



Diver Data button from the Diver-Office Premium toolbar



Data button on the Diver Data toolbar

Select the time series to be exported and



Export button

In the window that opens:



Compensated option

The 'Export Files' dialog box has a title bar with standard window controls. The 'Export Folder' field contains the path 'C:\Documents and Settings\All Users\Application Data\DriverOffice\My Project\' with a folder icon on the right. Below this are two radio buttons: 'Uncompensated' (unselected) and 'Compensated' (selected). Under the 'Compensated' radio button is a list box containing three items: 'All uncorrected data' (highlighted), 'All uncorrected data', and 'Approved corrected data'. Below the list box is a 'Time interval' section with a checkbox (unchecked) and two rows of date and time pickers. The 'From' row shows '1/ 1/1990' and '12:00:00 AM'. The 'To' row shows '11/27/2010' and '10:20:19 AM'. At the bottom is an 'Export file type(s)' field containing the text 'MON'. At the very bottom are three buttons: 'OK', 'Close', and 'Help'.

A drop-down list will appear with two options:

- [All uncorrected data] – the raw data will be exported; including deleted data points and no corrections will be applied.
- [Approved corrected data] – only approved data (see QA/QC section) will be exported. Deleted data point will not be exported and corrections will be applied.

Select one of the two options. Finally,



OK button to export the data.

Conclusion

This concludes the Diver-Office Premium demonstration tutorial. For more information on the various features available in Diver-Office Premium please refer to the Diver-Office Premium User's Manual. The manual content can be accessed by selecting **Help > Help** from the main menu.