

ZONE BALANCE

MANUAL

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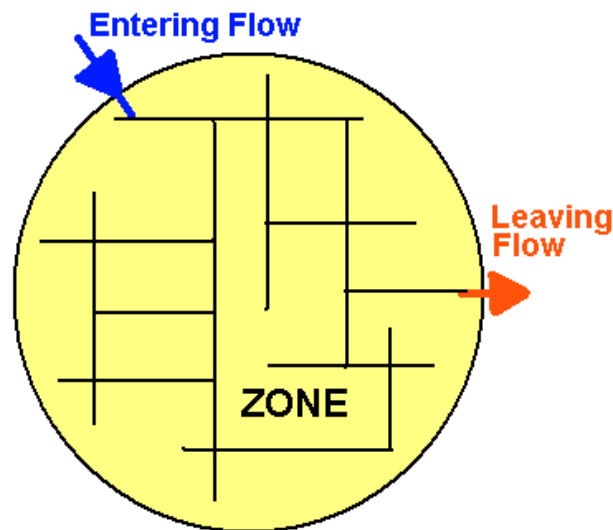
1 Winfluid Zoning

The Zoning is used to make inter-site flow calculation in order to calculate Minimum Night Flow (MNF) into an area called ZONE

The principle is to associate different flow stations (from HydrINS, Simple meter, etc...) monitoring a same ZONE.

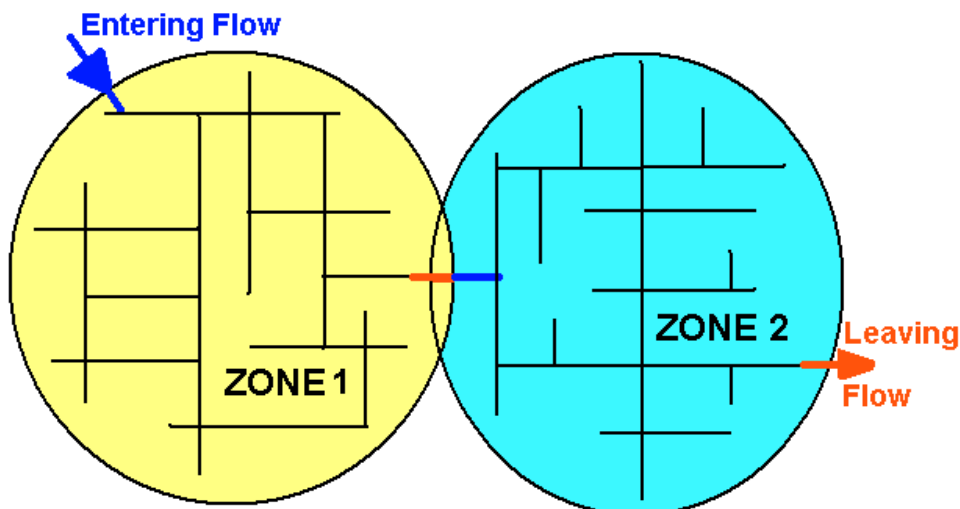
The ZONE can be considered as a DMA (District Metered Area)

The goal is to compare the flow entering the ZONE (INLET) and the flow leaving the ZONE (OUTLET), see diagram below.

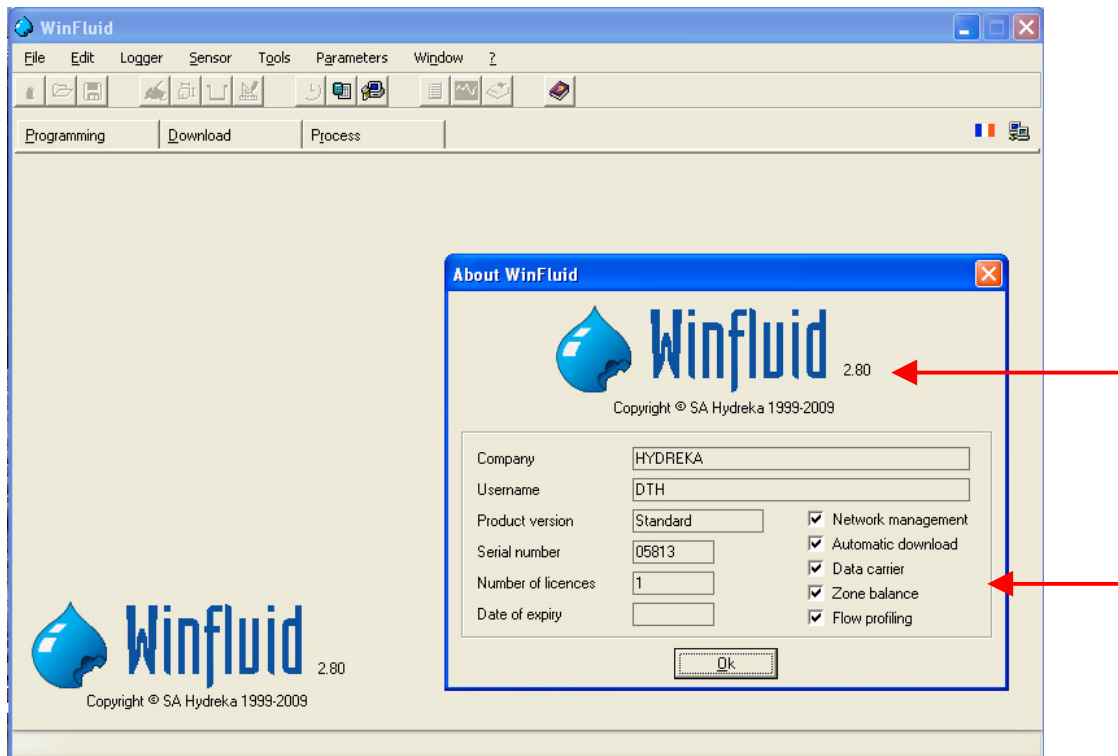


You can have several Inlet and / or several Outlet and each one correspond to a site under the Zoning.

You can also have several Zone linked all together but they will be independant under the Zoning, every MNF is calculated for one Zone at a time.



1.1 Winfluid version



To use the Winfluid Zoning you need to have the appropriate Winfluid software version (at least 2.80) and licence number with « Zone Balance activated ». (See red arrows above)

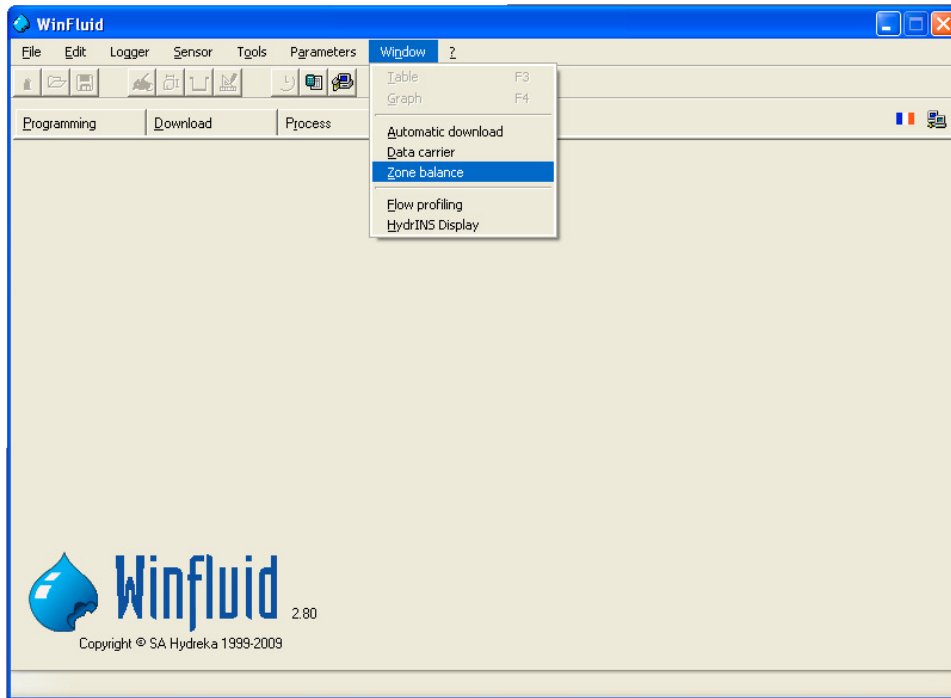
The zoning can be used in two different ways :

- ◆ 1 : You already have data and existing sites and stations.
- ◆ 2 : You build your zoning with sites configuration before having data.

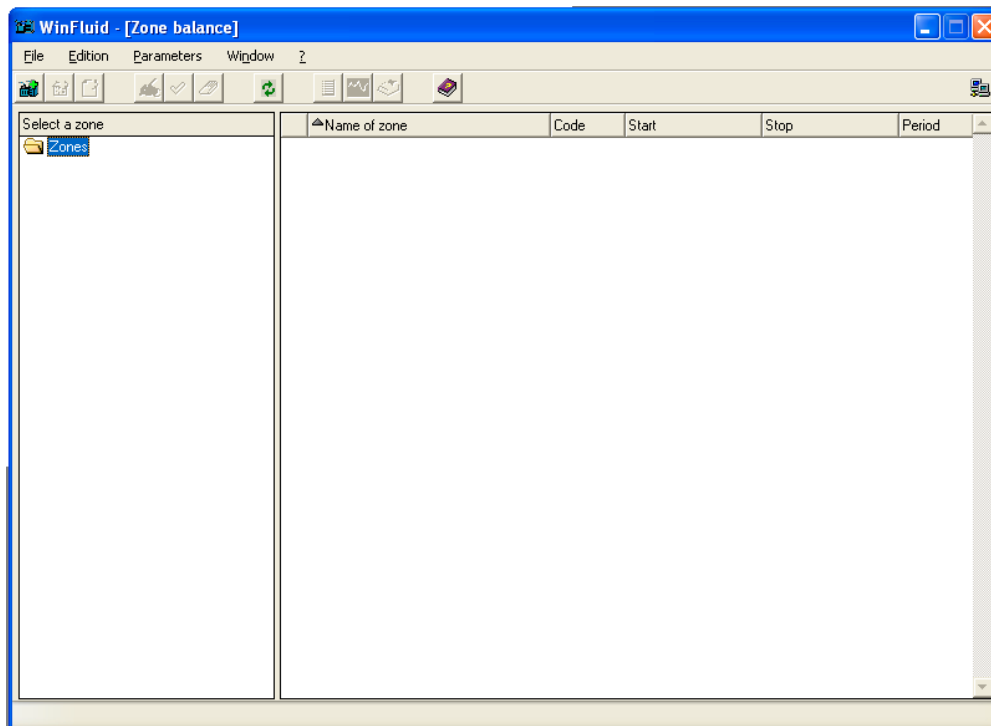
For both case the way to set it up is the same except some details :

- ◆ **When you already have sites with data**, you can pick it up in the proposed list and once completed you can launch calculations for the MNF .
- ◆ **When you don't have sites with data (Only of files)**, you can always set up the configuration of the Zoning but you won't be able to launch calculations for the MNF.

2 Zoning with existing sites

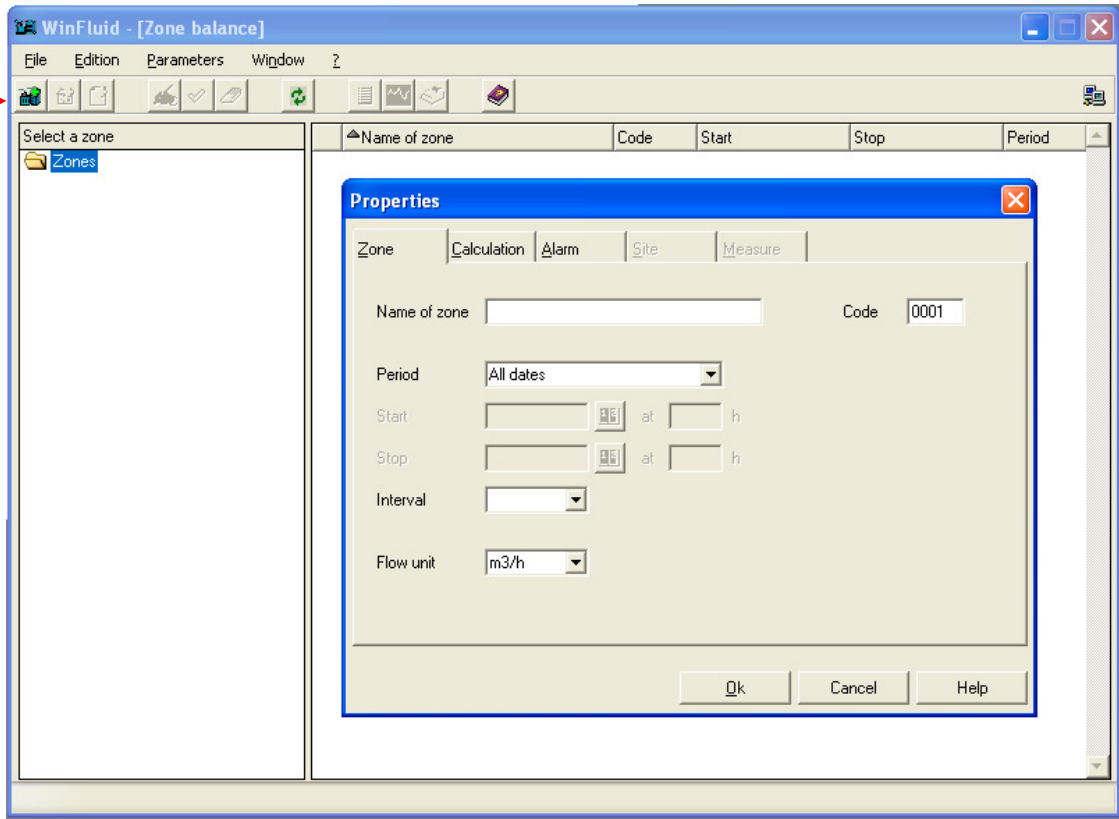


Go to « window / Zone Balance »



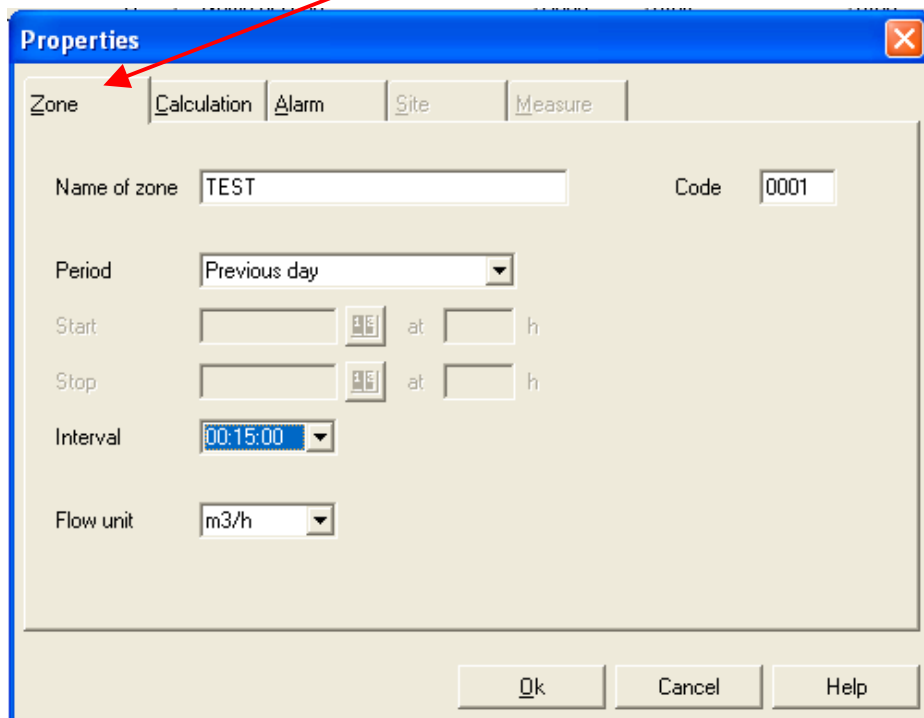
Blank Zoning display, no Zone or site configured.

2.1 Create a Zone

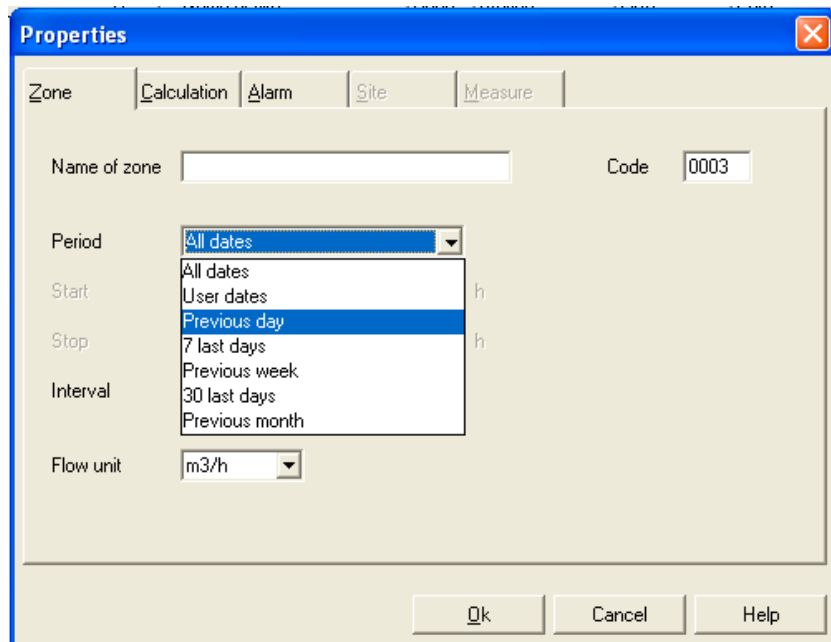


Click « Add a new Zone » and fill the different informations.

ZONE MENU



Name of Zone : Zone name (Not limited to 8 Characters)
Code : Automatically generated
Period : See below. You choose on which period of time you want to compare your data. Previous day is advised, then the software will make the comparison every day (Used with the automatic download with new data every day)

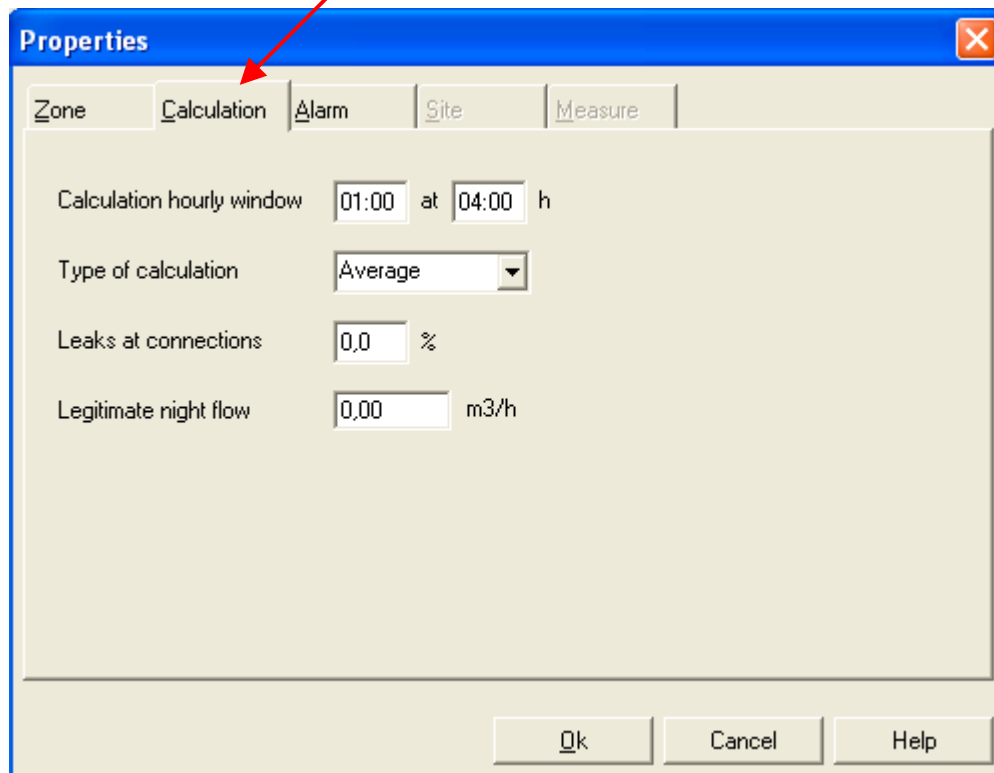


If you choose « 7 last days », you will have to wait 7 days of data before having any results and from there update results every day if your Zoning is linked to the automatic download.

Interval : From 1 sc to 24 Hours. If you choose a higher interval than your sampling period, winfluid will automatically calculate it.
 Unlike this do not set interval smaller than you sampling period.

Flow Unit : Choose the unit you are familiar with indifferently of what unit is used by the site.
 We always speak about flow unit.

CALCULATION MENU



- Calculation Hourly Window :** Set by default from 00 :00 to 05 :00
24 hours basis
This defines when Winfluid will calculate the expected Minimum Night Flow (MNF) which is typically between midnight and 05 :00 in the morning.
You can set these parameters to suit your needs :
between 01 :00 Am and 04 :00Am for example.
- Type of calculation :** You have choice between Average and Minimum.
Average: Winfluid make an average of all the minimum during your MNF period (see above).
Minimum : Winfluid keeps only the minimum of the minimum during you MNF period (see above).
- Leaks at connection :** Estimate percentage of leakage that you will consider as background leakage. This percentage will be deducted from the MNF.
- Legitimate night flow :** Known consumption or leakage in the area in m3/h. (Ex : blow off, Drain, Hospital, Factory, etc..)

ALARM MENU

Properties

Zone | Calculation | **Alarm** | Site | Measure

Enables MNF alarm (automatic download)

Night flow threshold: m3/h

Alarm message:

In case of alarm

Send a SMS to:

Send an e-mail to:

Enable MNF alarm : Select or not the possibility to receive an alarm message under the automatic download when the Night Flow Threshold gets higher than the one you set.

Night flow Threshold : MNF permitted.

Alarm Message : Choose in the list what Alarm message you want to display.

Alarm messages

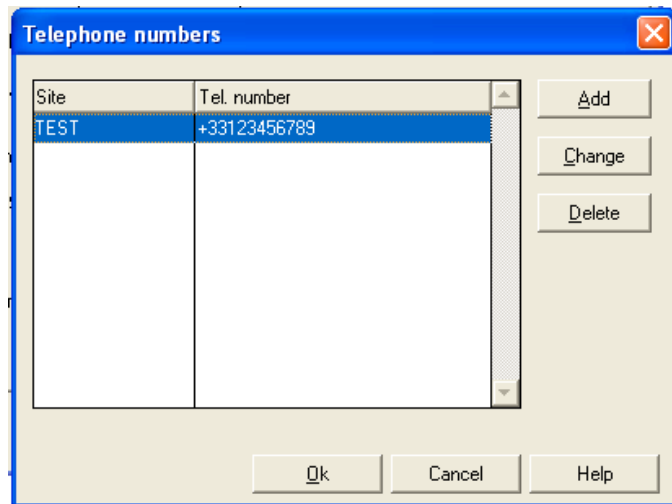
Message

- ALERTE302500
- ALERTE BASSIN AMONT
- ALARM BASSIN COLLECTEUR
- ALERTE BASSIN CM
- sous pression
- Alarm - ADC Input
- Alarm - Low Battery
- BATTERIE FAIBLE PASSE A POISSON
- PLUIE A MONTI 4mm!!!!!!
- MNF Rise**

Send a SMS to :

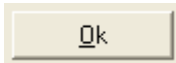
Select or not the possibility to send a Sms with the above alarm message to a Mobile phone. To do so the computer used needs be permanently on and to have a modem connected.

Pick up a number in the list or add a new one with the international format.

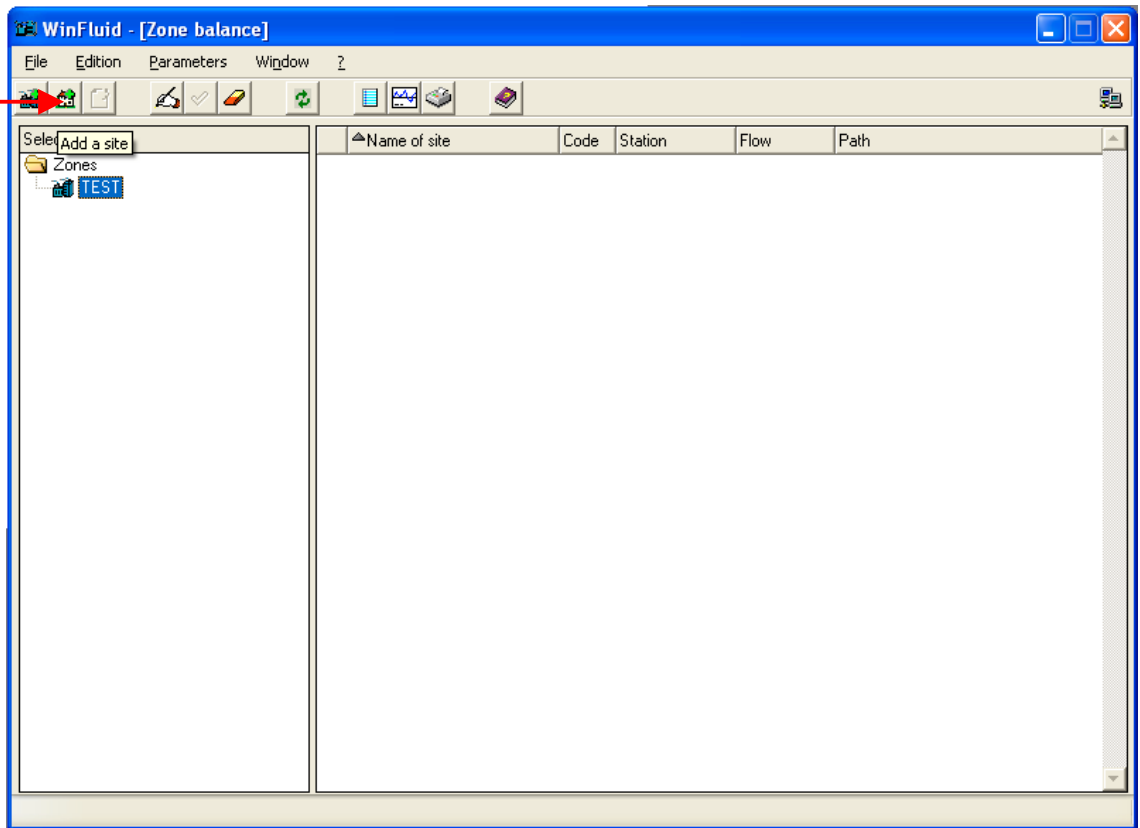


Send an e-mail to :

Select or not the possibility to send an e-mail with the alarm message above. To do so the computer used needs to be permanently on and connected to the internet and configured.

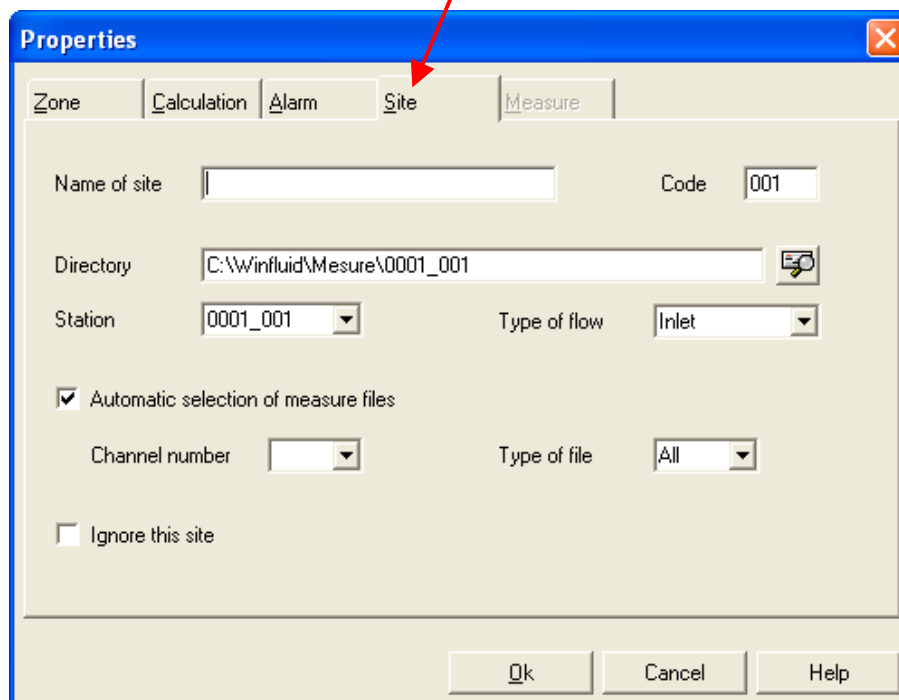
Click  to finish.

2.2 Create a new site



Click « add a new site » and fill the different informations

SITE MENU



Name of site : Site Name (Not limited to 8 characters)
Code : Automatically generated.
Directory : Gives you access to you data via the « browse icon »
Station : Select in the list what site you want to work with
Type of flow : Defines if the flow is entering the Zone (inlet) or leaving the zone (outlet)

Automatic selection of measure files :
Select it to display the sensor channel number and type of file you want to work with.

Ignore this site : Used to ignore data from this site into the calculations

« See example below »

The screenshot shows the 'Properties' dialog box with the 'Measure' tab active. The 'Name of site' field contains 'SITE A' and the 'Code' field contains '001'. The 'Directory' field shows 'C:\Winfluid\Demo' and a red arrow points to the browse icon on the right. The 'Station' dropdown menu is set to 'HYDRINS' and a green arrow points to its dropdown arrow. The 'Type of flow' dropdown menu is open, showing 'Inlet' and 'Outlet' options. The 'Automatic selection of measure files' checkbox is checked. The 'Channel number' dropdown is set to '01' and the 'Type of file' dropdown is set to 'All'. The 'Ignore this site' checkbox is unchecked. At the bottom, there are 'Ok', 'Cancel', and 'Help' buttons.

By using the icon « browse » (red arrow) go choose where is stored the folder you want to use and pick up the right station (green arrow) and so on with type of flow, channel number, etc...

The Alarm Menu and Calculation Menu are the same than configured when set up the zone details. You don't need to change anything here.

Properties

Zone Calculation **Alarm** Site Measure

Enables MNF alarm (automatic download)

Night flow threshold m3/h

Alarm message

In case of alarm

Send a SMS to

Send an e-mail to

Properties

Zone Calculation **Alarm** Site Measure

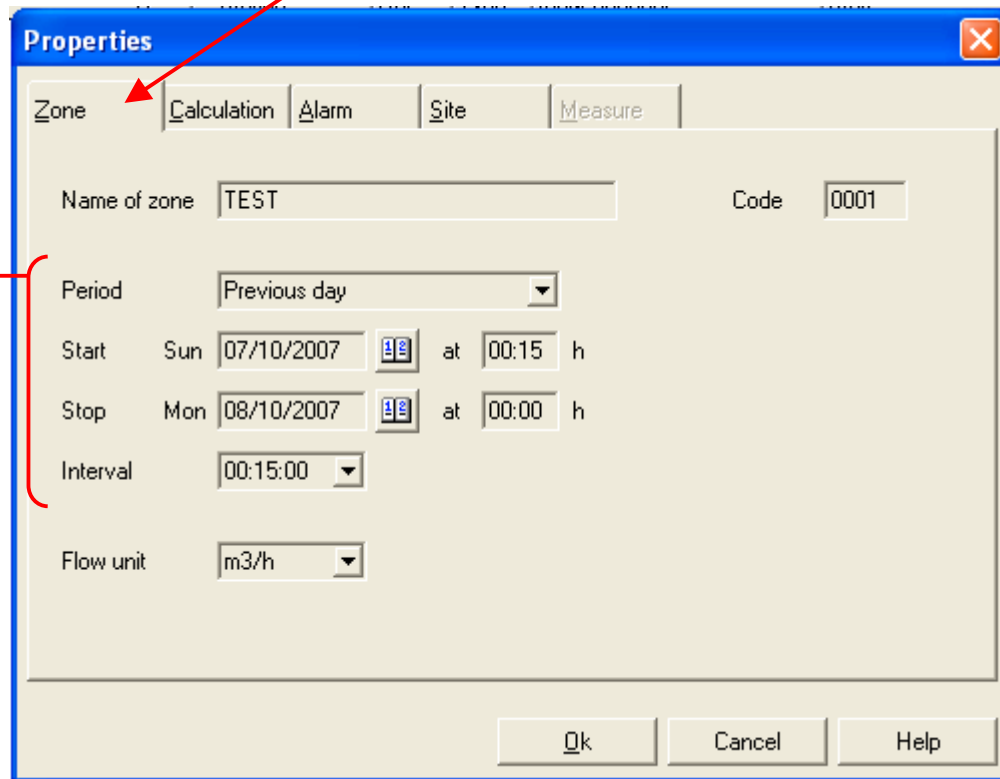
Calculation hourly window at h

Type of calculation

Leaks at connections %

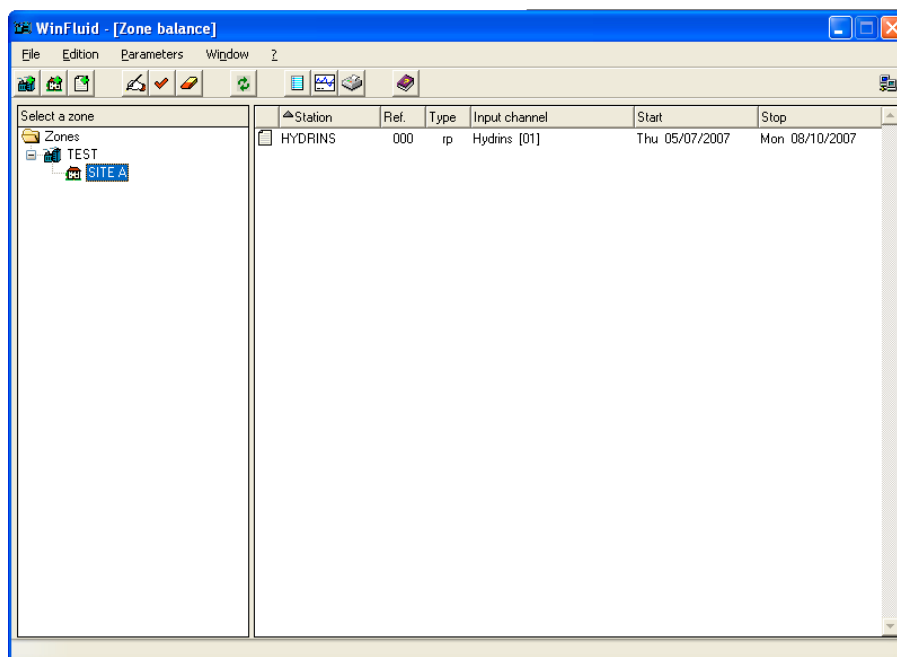
Legitimate night flow m3/h

ZONE MENU



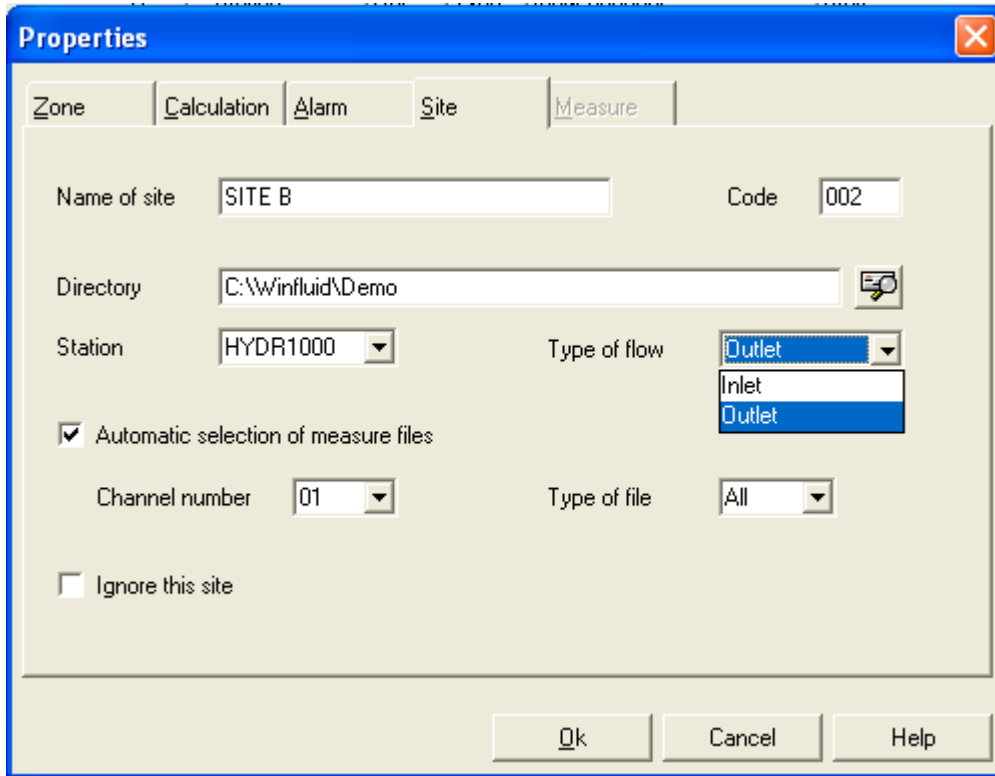
As configured previously in the Zone Properties, the Zoning based its calculation on the previous day (see page 6, Period)
If you had selected Previous Week, it would display the previous week of data.

See below when the **SITE A** is created under the Zone named **TEST** with a station called **HYDRINS**.

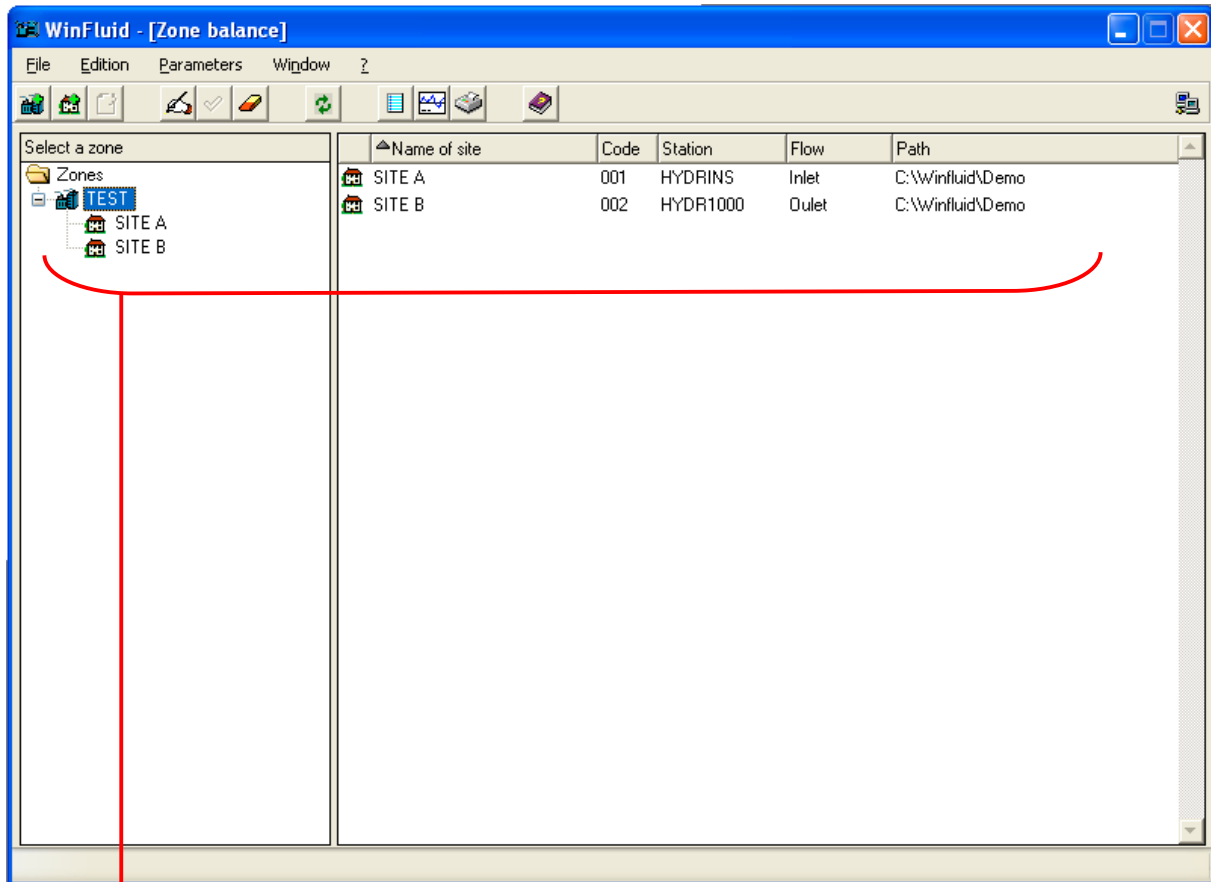


You need at least 2 different sites to make calculation, 1 inlet and 1 outlet.

You have now to configure a second site, same as you did for the first one.



This time you will select **Outlet** as the sensor is measuring a flow leaving the zone **TEST**.



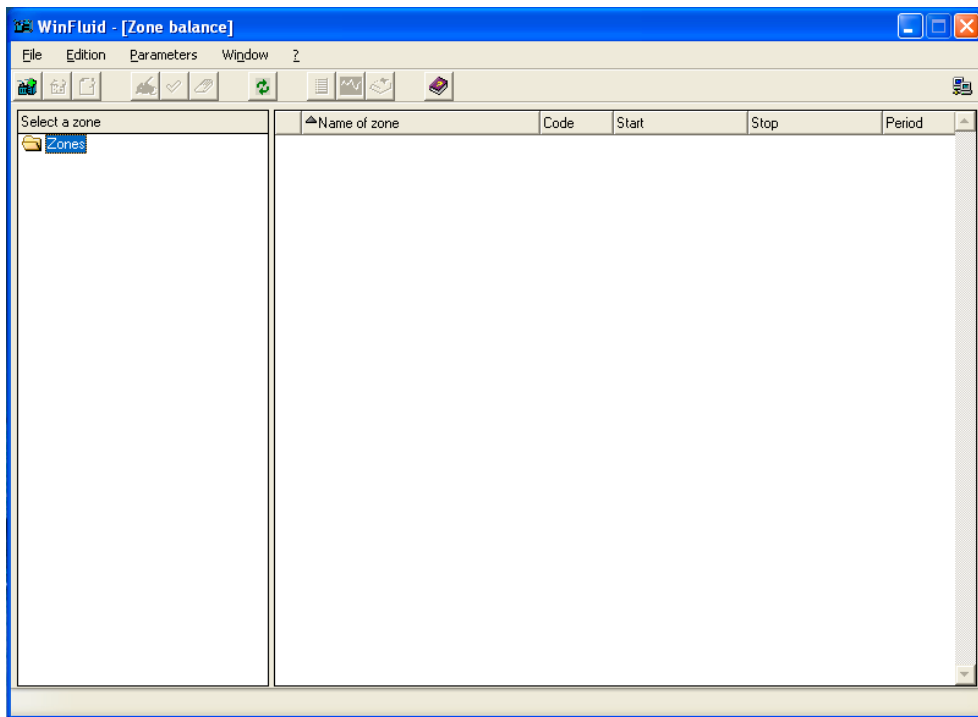
You have here, 1 zone named **TEST** with 2 sites :

- 1 : Inlet named **SITE A**, station is **HYDRINS**
- 2 : Outlet named **SITE B**, station is **HYDR1000**

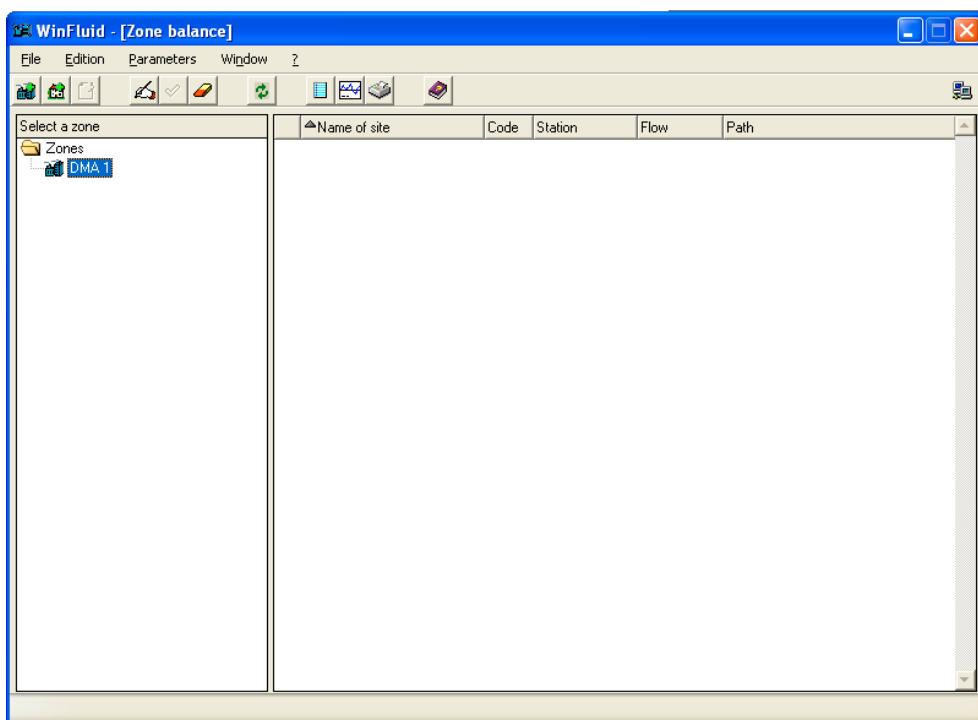
You are not limited by the number of different zones or by the number of sites within each Zone.

3 Zoning with no existing files

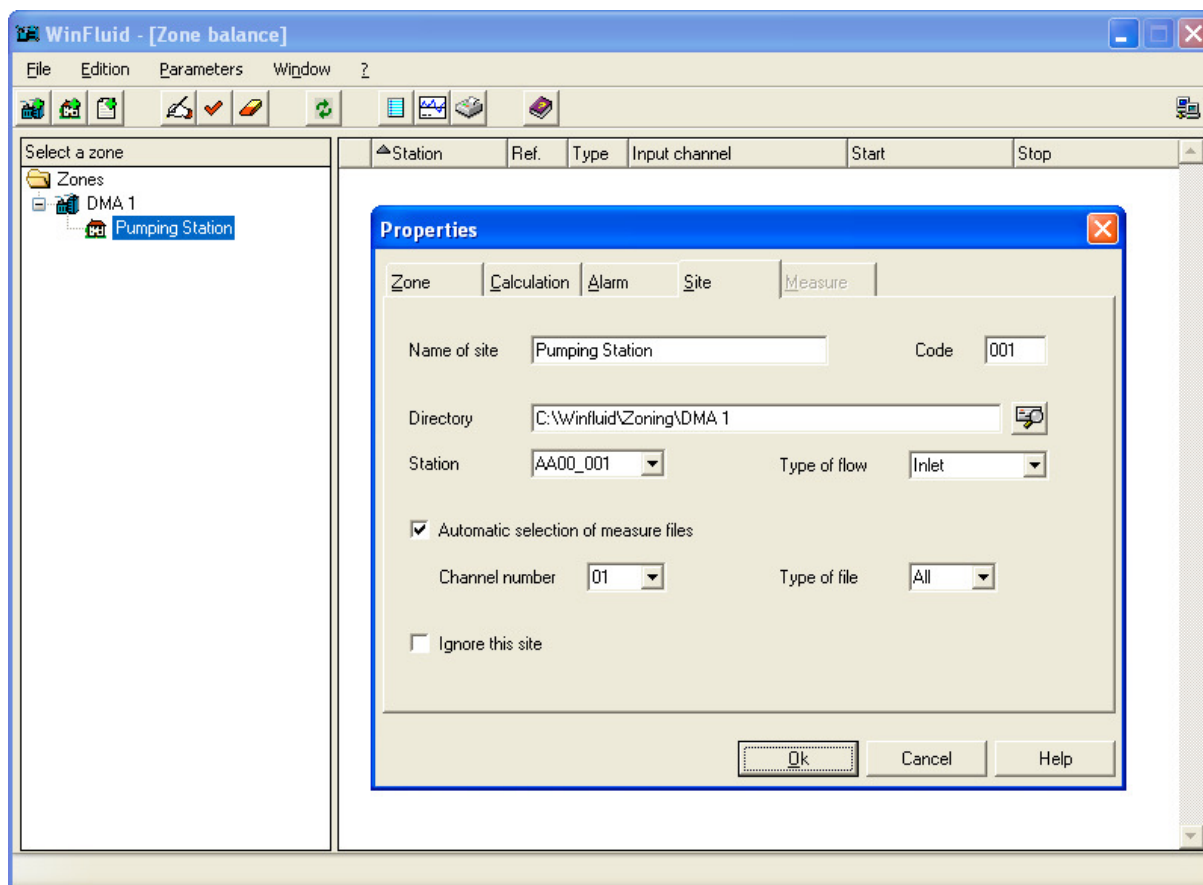
Go to « Window / Zone Balance » to open the zoning and set up the system.



Create first your different Zones, Sites and stations as described paragraph 2 page 5 and below



First Zone is called DMA 1.



In this example :

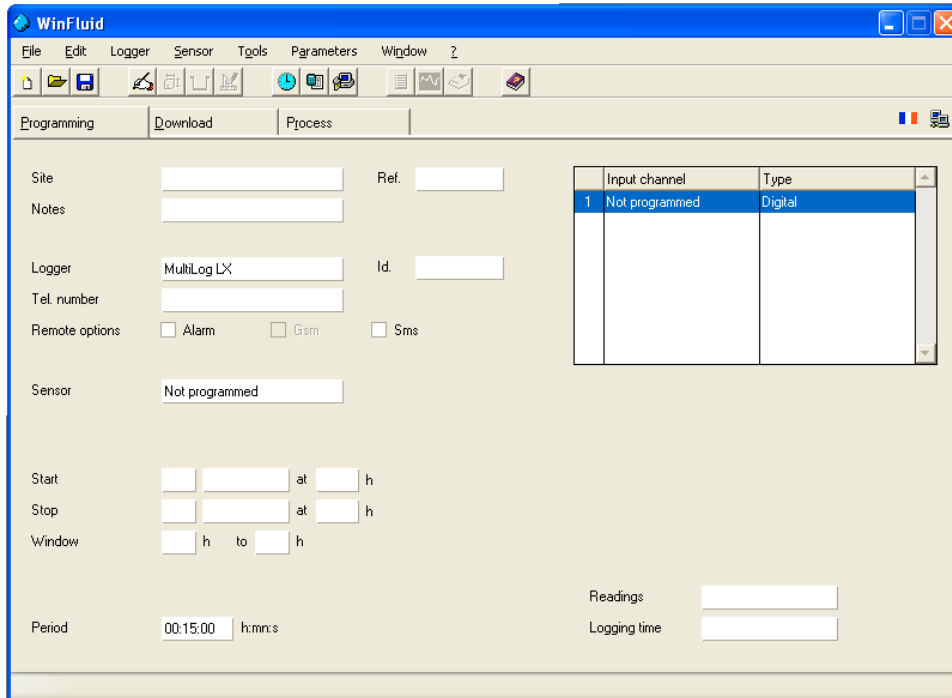
We have the first Zone which is called **DMA 1** and we created a folder under winfluid Zoning with the same name. We advise to always create one folder per Zone and so on per site and station, depending on how many you have.

The site name is **Pumping station** and the station is **AA00_001** (You can define this two names)

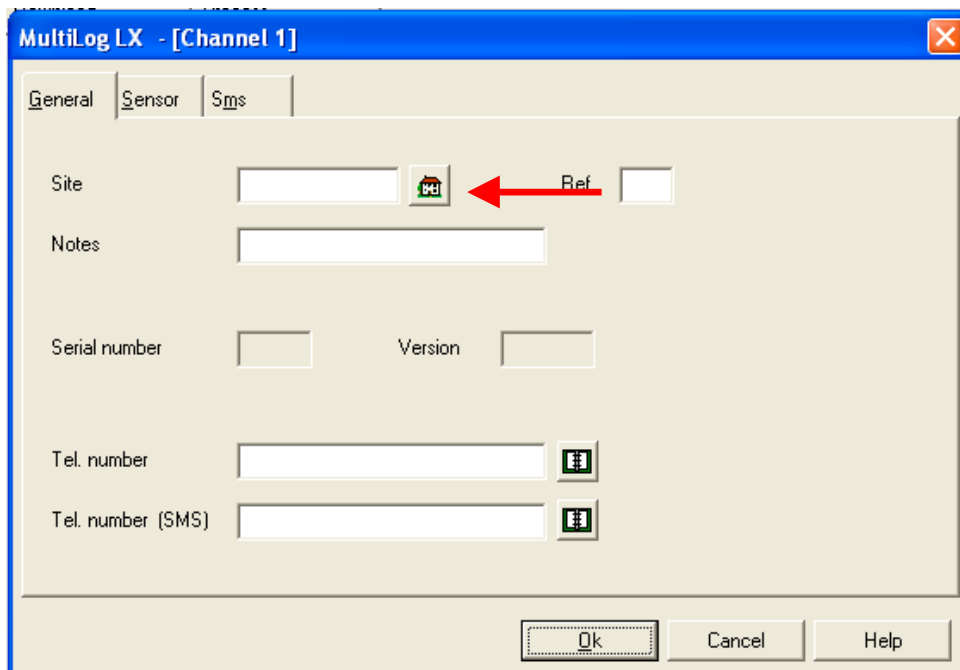
Configuration of calculation and alarm is the same as it is at paragraph 2 page 5.


Press  once completed.

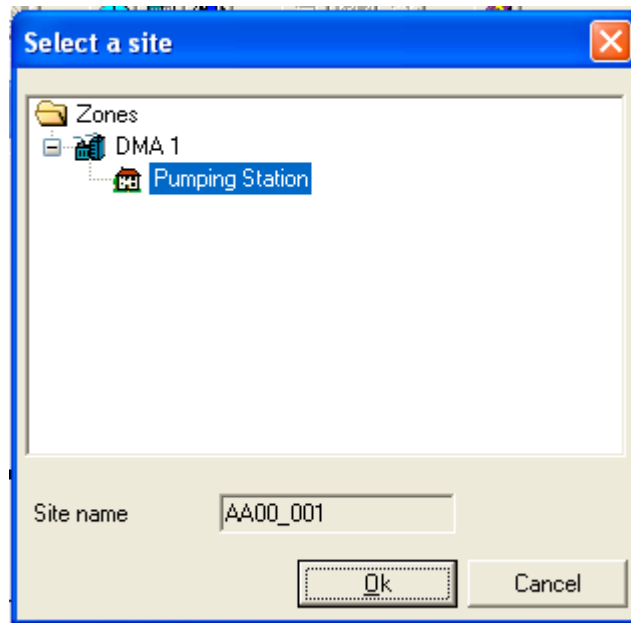
Now you go to Winfluid to do a programmation using these parameters.



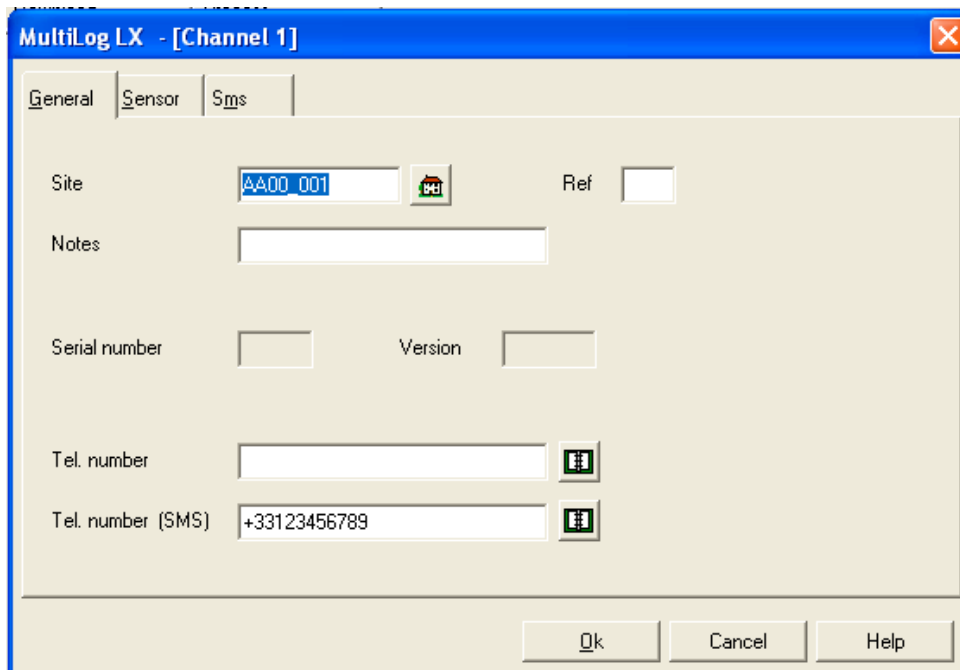
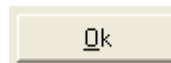
In this example we will program a Multilog Lx with a HydrINS 2.
To do so, double click on Channel 1 « Not programmed » or go to « input Channel » as you would do for a traditional programming.



Instead of entering the site name here, you will use the Zoning Icon  as shown with the red arrow and pick up the site configuration as set up into the zone balance.

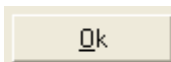


Click on the zone **Pumping Station** and press



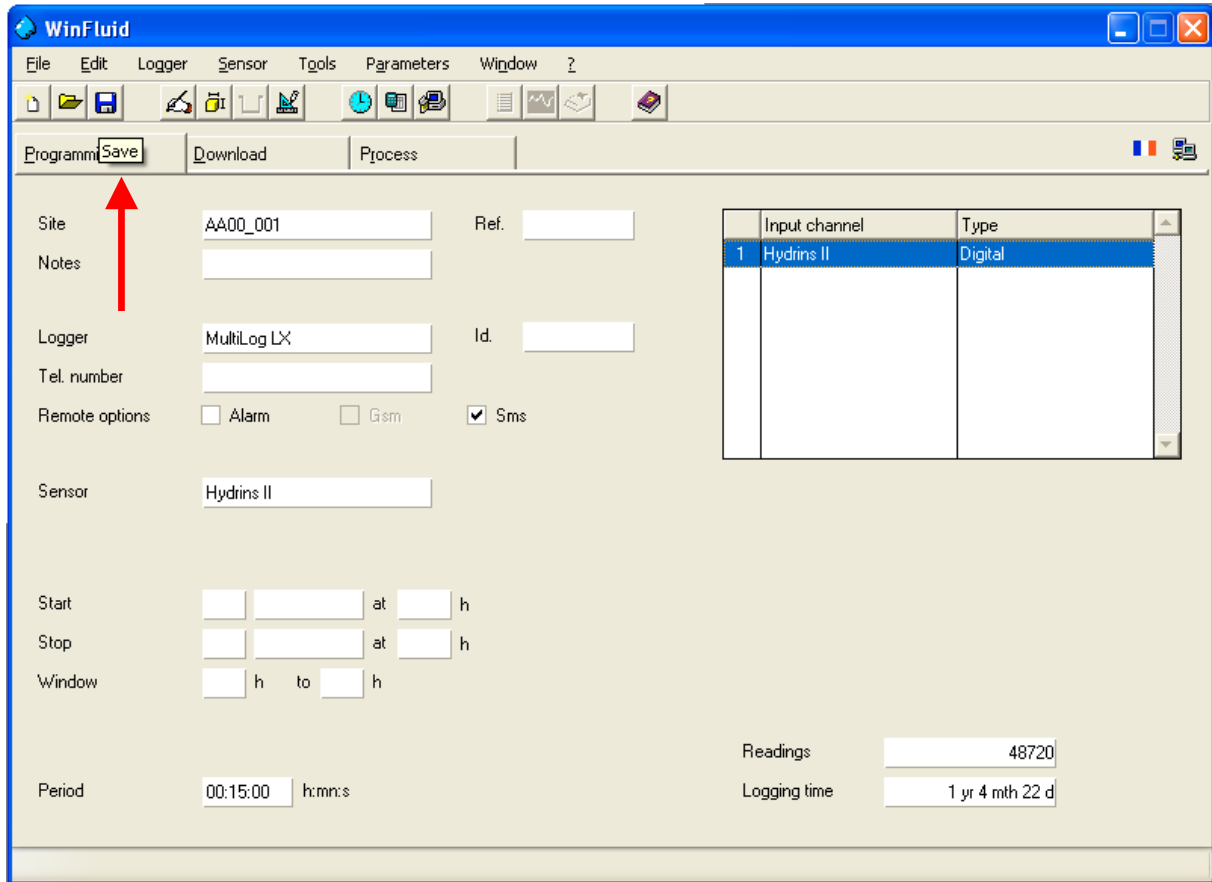
Now you have done this, you finish the programmation normally, « Sensor, SMS, etc... »

Press

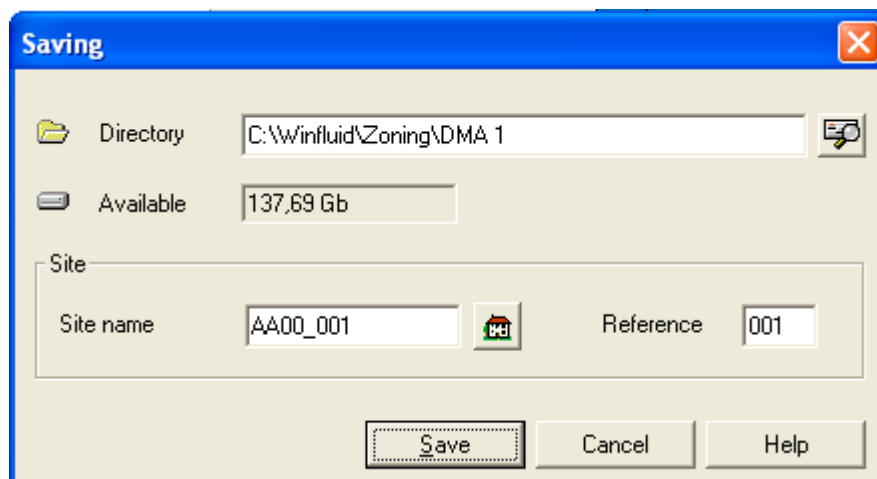


once completed.

Save the programmation :

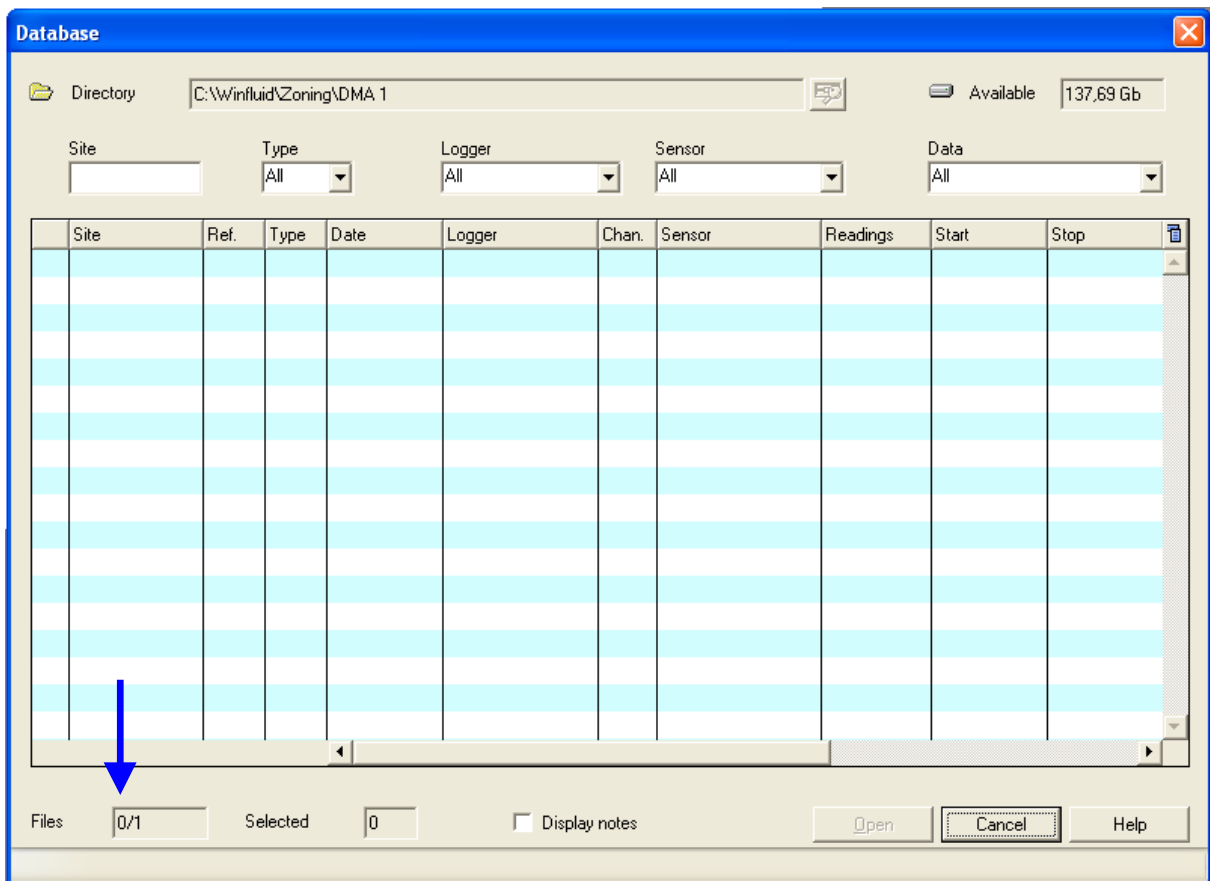
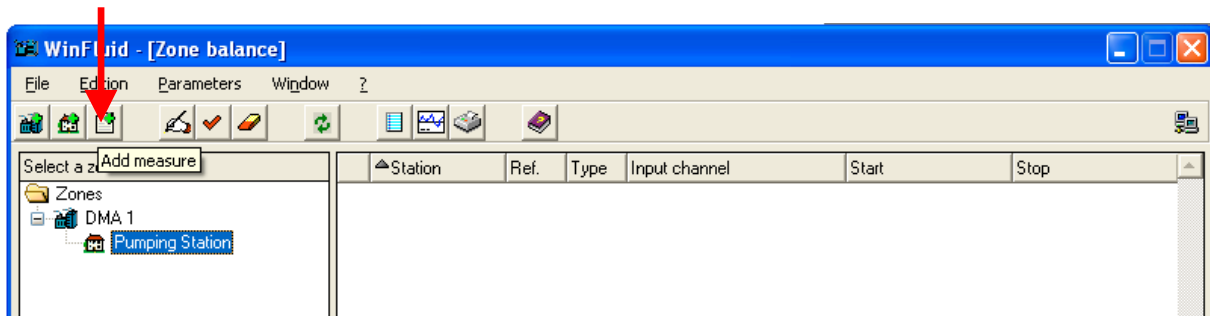


Now go to Save this programmation to link the folder between Winfluid and the Zoning (red arrow).



Click  .

You can now go back to the « Zone Balance » and « Add measure » as shown with red arrow.



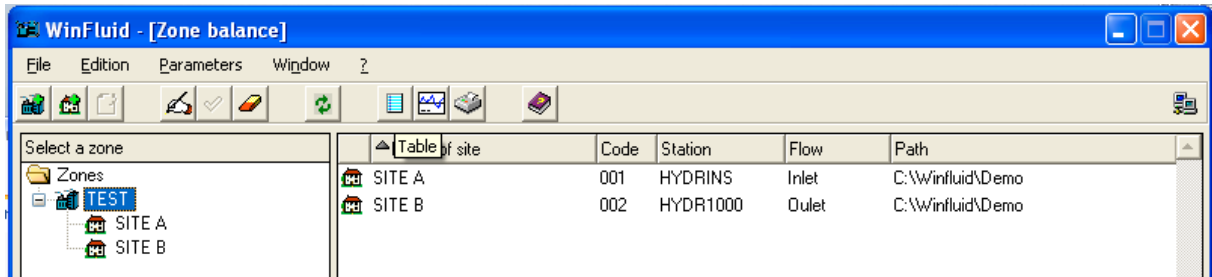
You access now to the winfluid database where is stored you configuration « blue arrow » but not your data as you don't have any yet.

If you have configured a Multilog Lx with an automatic download, data will automatically be stored here and next time you will open the Zoning it will check this folder and update if need be to do the calculations depending on your configuration.

You now just have to do the same for the outlet site.

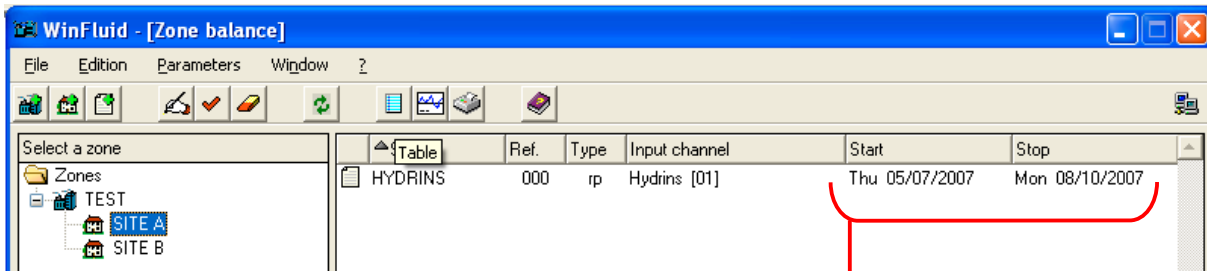
4 Calculation and how to use it

The Zoning will automatically calculate MNF every time you will open it or click on the refresh Icon :



Once there, you have choice to compare directly the difference of flow between the Inlet and the Outlet by selecting the zone you want and click « Table » or « Graph » (See above)

Even if you select specifically one site under your Zone and click Table or Graph, Zoning will automatically consider all sites and datas stored in the zone.



Information about your site, Start and Stop time of the logging.

You can also use the Zoning to calculate the MNF for only one site, to do so you need to only have one site under your zone and click « Table » or « Graph »

4.1 MNF Table and Graph

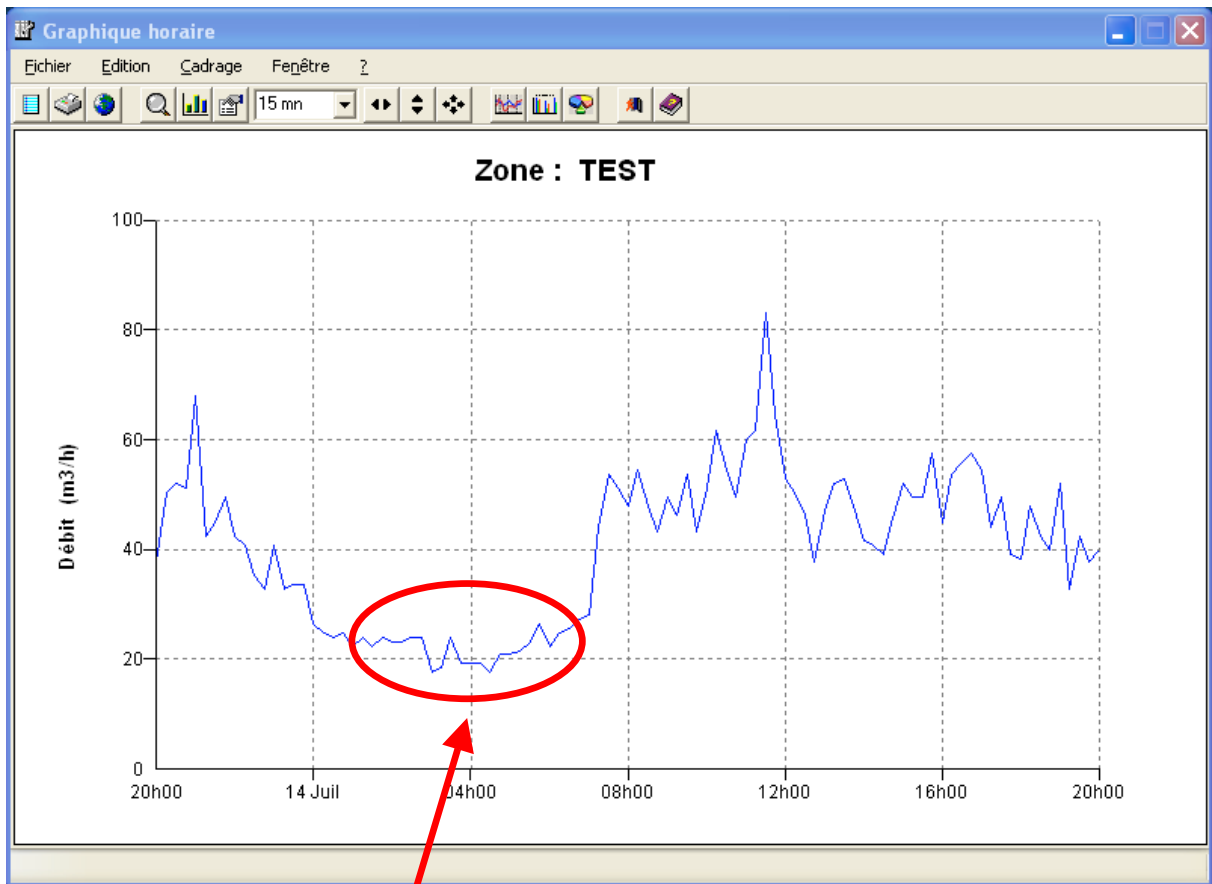
The graph or table obtained shows you result of the calculation between the inlet flow and the Outlet flow.

The calculation is : **Inlet Flow** minus **Outlet Flow**



Taking into account your previous settings :

- % of leaks at connections
- Legitimate night flow in m³/h



This graph is showing you the MNF in the zone **TEST**, calculated between **SITE A** and **SITE B**.

Same results than on the graph, the table shows you the MNF.

Tableau horaire

Fichier Edition Cadrage Fenêtre ?

Zone: TEST Départ: 13/07/2007 à 20:00:00 h Donnée: Débit (m3/h)

Page: 13/07/2007 à 20:00 h Arrêt: 14/07/2007 à 20:00:00 h Lectures: 36 / 97

Date	Heure	Débit	Date	Heure	Débit	Date	Heure	Débit
13/07/2007	20:00:00	37.60		23:00:00	40.80		02:00:00	23.20
	20:15:00	50.40		23:15:00	32.80		02:15:00	23.20
	20:30:00	52.00		23:30:00	33.60		02:30:00	24.00
	20:45:00	51.20		23:45:00	33.60		02:45:00	24.00
	21:00:00	68.00	14/07/2007	00:00:00	26.40		03:00:00	17.60
	21:15:00	42.40		00:15:00	24.80		03:15:00	18.40
	21:30:00	44.80		00:30:00	24.00		03:30:00	24.00
	21:45:00	49.60		00:45:00	24.80		03:45:00	19.20
	22:00:00	42.40		01:00:00	22.40		04:00:00	19.20
	22:15:00	40.80		01:15:00	24.00		04:15:00	19.20
	22:30:00	35.20		01:30:00	22.40		04:30:00	17.60
	22:45:00	32.80		01:45:00	24.00		04:45:00	20.80

Statistiques

Minimum: 17.60 m3/h Sam 14/07/2007 à 03:00:00 h Moyenne: 40.30 m3/h

Maximum: 83.20 m3/h Sam 14/07/2007 à 11:30:00 h Total: 977.20 m3

Débit nuit: 19.60 m3/h

Minimum Night Flo calculated according to your settings, type of calculation page 8.
-Average of all the minimum
 or
- Minimum of all the Minimum.

Maximum MNF.

Minimum of the Minimum Night Flow.

Total volume of losses during the period of time

Average losses per hour

