



**United Nations Environment Programme**

# **Operational Guide**

Instructions for Station and Data Forms



**Global Environment Monitoring System  
Water Programme**

## Instructions for Completing the Station and Data Forms

### Station Form

#### General

Items 1-12 and 28-29 are to be completed for every station;

Items 13-17, 18-21 or 22-27 are to be completed according to the respective water type.

It is mandatory that at least one item in the item groups 13-17, 18-21 or 22-27 be entered, and that items 1-6 and 28-29 be completed.

Average or mean values should be calculated using values obtained over the last five-year period or any available period of record.

#### Specific Explanations of the Descriptive Characteristics (1-30)

(1) Station Number - the station number is a six-digit numeric code consisting of the two subfields:

(a) Country code - the first three digits represent the country. The country codes to be used are given by the United Nations, and GEMS/Water will fill in the information.

(b) Sequential Number - the last three digits represent a sequential number starting with 001. This number is assigned by the National Centre and is unique for each station within that country.

(2) Octant - A one-digit numeric code indicating the octant of the globe.

This is in accordance with an established WMO convention. The code is selected from the following table.

Octant Code	Greenwich	Longitude	Hemisphere
0	0° -	90°W	North
1	190° -	180° W	North
2	180° -	90° E	North
3	90° -	0° E	North
5	0° -	90° W	South
6	90° -	180° W	South
7	180° -	90° E	South
8	90° -	0° E	South

(3) Latitude - consists of the following subfields:

(a) Deg. - a two digit field for degrees;

(b) Min. - two digits for minutes;

(c) Sec. - two digits for seconds.

Where precise locations cannot be provided enter latitude to the nearest degree or minute only, ensuring that any such entry does not fall outside the physical boundaries of that country.

(4) Longitude - consists of the following subfields:

(a) Deg. - a three digit field for degrees;

(b) Min. - two digits for minutes;

- (c) Sec. - two digits for seconds.

Where precise locations cannot be provided enter longitude to the nearest degree or minute only, ensuring that any such entry does not fall outside the physical boundaries of that country.

(5) Mean Surface Water Level - enter the mean level of the water surface above mean sea level, in metres, to one decimal place. For well stations reference is to be static water level.

(6) Average Sounding Depth - enter the average depth of the water at the station, in metres, to one decimal place. At river stations, the average river depth should be entered. For well stations enter the depth from the static well level to the bottom of the well.

(7) Date Station Opened - enter the date the station was established as a GEMS/Water monitoring site. The date consists of year (4 digits), month (2 digits), and day (2 digits).

(8) Regional Centre – to be completed by GEMS/Water.

(9) Responsible Collection Agency - enter the code for the responsibility agency if available.

(10) WMO Station Code - enter the international hydrological observing station identification number as issued by WMO if it is available.

(11) Station Type - enter the type of station this represents. The valid types are Baseline, Trend, GRF (for Global River Flux) stations.

(12) Geographical Region - to be completed by GEMS/Water.

### **Lake/Reservoir Stations Only**

(13) Max. Depth - enter the maximum depth of the lake or reservoir, in meters, to one decimal place.

(14) Area - enter the area of the lake or reservoir, in km<sup>2</sup>, to one decimal place.

(15) Volume - enter the volume of the lake or reservoir, in km<sup>3</sup>, to one decimal place.

(16) Retention - enter the retention time of water in the lake or reservoir, in years, to one decimal place.

(17) Area of Watershed - enter the area of the watershed for the lake or reservoir, in km<sup>2</sup>.

The location of the decimal point in items 13-17 above may be adjusted as required, but wherever a decimal is used it must be clearly entered into one box on the form.

### **River Stations Only**

(18) River Width - enter the width of the river at the station during average discharge conditions, in metres, to one decimal.

The location of the decimal point in item 18 above may be adjusted as required, but wherever a decimal is used it must be clearly entered into one box on the form.

(19) Discharge - enter the average river discharge at the station, in m<sup>3</sup>/sec based on 3-5 years

of data.

(20) Upstream Basin Area - enter the upstream river basin area, in km<sup>2</sup>.

(21) Basin Area Upstream of Tidal Limit - enter the area of the basin upstream of the tidal limit, in km<sup>2</sup>. The tidal limit is the limit of saline intrusion under average conditions.

### **Well/Spring Stations Only**

(22) Area of Aquifer - enter the area of the aquifer, in km<sup>2</sup>.

(23) Ground Level - enter the level of the ground above mean sea level, in metres, to one decimal place.

(24) Depth of Impermeable Lining in Well - enter the depth of the impermeable lining in the well (length of the well casing) from the surface of the earth, in metres, to one decimal place.

(25) Production Zone - enter the thickness of the layer, in meters, to one decimal through which water can enter the well. This will normally be the zone from the bottom end of the well casing to the bottom of the well.

(26) Mean Abstraction Rate - enter the mean rate of abstraction of water, in m<sup>3</sup>/day, to one decimal place.

(27) Mean Abstraction Level - enter the water level above mean sea level during a period of normal abstraction.

The location of the decimal point in items 23-27 above may be adjusted as required, but wherever a decimal is used it must be clearly entered into one box on the form.

### **All Stations**

(28) Country name - enter the name of the country in which the station is located.

(29) Station Identifier - enter the unique station identification, for example:

- Lake Ontario, Stn 001
- Thames River, at London Bridge
- Well a1-2Z3, Rgn 2

(30) Station Narrative - enter a narrative description of the sampling location or other special conditions. For well/spring stations include the geographical characteristics of the aquifer. For rivers enter a description of the corresponding flow measurement station and its location relative to the sampling site.

## Analytical Data Forms

### General

Decimals should be coded using one box for the decimal point.

The variables must be recorded in the units indicated in the list of water quality variables.

The data form is to be used to enter the complete set of analytical results for a single sample into the database.

The largest part of the form is reserved for the results of analytical tests performed on the sample.

The variables should be selected from those listed. Additional code assignments for methods not in the list may be requested from GEMS/Water.

The data form may be used not only to add new data but also to change or to delete data previously submitted.

The laboratory analyst can record results directly on the Data Form adjacent to the appropriate variable code numbers.

### Specific

The top section of the data form identifies the station, the time, depth of sampling and whether the water sample has been integrated (composite sample).

Also included are spaces to write the station name and type for clerical reference.

Items a-f below must be completed for every sample.

**Addition, Change, Deletion** - enter an A if the data listed on the form are to be added to the database. Enter a C if data currently in the system are to be changed. Enter a D if data currently in the system are to be deleted. When changing data, the new value replaces the old value for that variable. Note that a form can be used for only a single purpose; separate forms must be used to change or delete data already entered into the system.

**Station Number** - enter the assigned station number ensuring that it corresponds to the appropriate station form.

**Date Sample Taken** - enter the date the sample was collected. The date code consists of year (4 digits), month (2 digits), and day (2 digits).

**Time Sample Taken** - enter the time of the day the sample was collected in local standard time. The time consists of hour (2 digits, 00-23) and minute (2 digits, 00-59). For a sample integrated in time, the time entered shall be the beginning time of the integration period.

**Sample Depth** - enter the depth below the water surface at which the sample was taken, in metres, to one decimal place. For a sample integrated vertically the depth entered will be the lowest depth.

**Integrated Sample** - enter a V if the sample is integrated vertically, an H if the sample is integrated horizontally, or a T if the sample is integrated in time. If the sample is not integrated leave the item blank.

The remainder of the Data Form is used to record analytical results. The name of the variable and the units are preprinted on the form for laboratory use. The GEMS/Water variable code, a 5-digit code that represents both the variable and the analytical method, must be entered on the form according to the method in use. Appropriate variable codes are given for water

quality parameters and methods. Only approved variable codes should be used.

FLAG - a flag may optionally be used to qualify any analytical result. The flag is a one-character code to signify one of the following conditions:

L - Value was less than detection limit (value entered is the minimum detection limit).

G - Value was greater than measurement limit (value entered is the maximum measurable value).

The analytical value or result of a test is entered in the boxes corresponding to the description and code of the variable. It is essential that the decimal point, if entered, be inserted into its own unique box (see examples below) and that the units are correct.

Indicative information in columns 1-24 inclusive must be repeated in each line prepared from that data form. Column 1 of each line will always contain an alphabetic character (A, C or D). Duplicate columns 1-24 inclusive from Record No. 1 into each subsequent line prepared from the data form.

The order in which data sets are entered into the file is irrelevant.