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## FEE / Blue Flag



### Note: 2010 BATHING WATER CRITERIA SPREADSHEET USER GUIDE

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TO: National Operators

COPY TO:

FROM: International Coordination

DATE: 26 February 2010

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## INTRODUCTION

This document aims at helping national operators in filling in the new excel spreadsheet regarding 2010 Bathing Water Criteria. If after reading this document you still have questions or are unsure about some issues, please feel free to contact the International Blue Flag Coordination ([coordination@blueflag.org](mailto:coordination@blueflag.org)).

### 1. Cells to fill in:

The only cells National Operators are to fill in are the **blue** ones.

On the left hand of the blue cells, in the first column of the document, you can see that the 4 years have been spread out for you.

For the Northern Hemisphere these years refer to:

- Year 1: 2006
- Year 2: 2007
- Year 3: 2008
- Year 4: 2009

For the Southern hemisphere, these years refer to:

- Year 1: 2006-2007
- Year 2: 2007-2008
- Year 3: 2008-2009
- Year 4: 2009-2010

Column B: For each sample, please type the date when it was taken in such format **dd-mm-yyyy**. Start with the oldest sample on the first line, and write them in the order they were taken to finish with the most recent on the last line.

Only register the samples that were taken during the Blue Flag season.

Columns C and D: Please fill in the E. coli UFC/100ml and the Intestinal Enterococci UFC/100ml for each sample.

**IMPORTANT:** If you have less samples than there are lines in total available for the year, please do not write anything in the unused cells (columns B, C and D), or the formula will go wrong.

Enter your data here for year 1, using the specified format for the sampling dates

|           | Sampling date<br>(dd-mm-yyyy) | E. Coli<br>(no. per 100 ml.) | I.E.<br>(no. per 100 ml.) | Frequency<br>between<br>samplings | Frequency<br>OK /<br>NOT OK |
|-----------|-------------------------------|------------------------------|---------------------------|-----------------------------------|-----------------------------|
| 29 YEAR 1 | 01-06-2006                    | 2                            | 2                         |                                   |                             |
| 30        | 02-06-2006                    | 22                           | 5                         | 1                                 | OK                          |
| 31        | 30-06-2006                    | 104                          | 7                         | 28                                | OK                          |
| 32        | 01-07-2006                    | 4                            | 2                         | 1                                 | OK                          |
| 33        | 02-07-2006                    | 2                            | 2                         | 1                                 | OK                          |
| 34        | 28-07-2006                    | 900                          | 22                        | 26                                | OK                          |
| 35        | 20-08-2006                    | 26                           | 30                        | 23                                | OK                          |
| 36        | 27-08-2006                    | 4                            | 2                         | 7                                 | OK                          |
| 37        | 29-08-2006                    | 4                            | 2                         | 2                                 | OK                          |
| 38        |                               |                              |                           | -38958                            | OK                          |
| 39        |                               |                              |                           | 0                                 | OK                          |
| 40        |                               |                              |                           | 0                                 | OK                          |
| 41        |                               |                              |                           | 0                                 | OK                          |
| 42        |                               |                              |                           | 0                                 | OK                          |
| 43        |                               |                              |                           | 0                                 | OK                          |
| 44        |                               |                              |                           | 0                                 | OK                          |
| 45        |                               |                              |                           | 0                                 | OK                          |
| 46        |                               |                              |                           | 0                                 | OK                          |
| 47        |                               |                              |                           | 0                                 | OK                          |
| 48        |                               |                              |                           | 0                                 | OK                          |
| 49 YEAR2  | 01-05-2007                    | 2                            | 2                         |                                   |                             |
| 50        | 05-05-2007                    | 2                            | 2                         | 4                                 | OK                          |

You have no more samples to add for year 1: leave the sampling dates, E. coli and I.E. empty

## 2. Checking the compliance with the 2010 "new" Bathing Water criteria:

The formulas on the spreadsheet will calculate themselves based on the data you fill in the blue cells, so bear in mind it is important that you enter the right data. Once you have done so, you can check the compliance with the 2010 Bathing Water Criteria on the same sheet.

- **1: Checking the sample frequency:**

Column G allows you to see if the frequency between two samples exceeds 28 days. If this is the case, you do not comply with this criterion, and need to ask a dispensation to the international jury

- **2: Checking the compliance with the Escherichia coli and Intestinal Enterococci limit values:**

The limit values for E. coli and I.E. are respectively 250 cfu/100ml and 100 cfu/100ml. The sheet allows you to check the compliance for each sample. Please bear in mind that even if a few samples are "exceeding", it is the overall 95<sup>th</sup> percentile calculation that will determine the compliance (see "check 2").

|    | Sampling date<br>(dd-mm-yyyy) | E. Coli<br>(no. per 100 ml.) | I.E.<br>(no. per 100 ml.) | Frequency<br>between<br>samplings | Frequency<br>OK /<br>NOT OK | E. Coli (max 250 cfu/100 ml) |             | IE (max 100 cfu/100 ml) |             |
|----|-------------------------------|------------------------------|---------------------------|-----------------------------------|-----------------------------|------------------------------|-------------|-------------------------|-------------|
|    |                               |                              |                           |                                   |                             | OK or exceeding?             | log 10      | OK or exceeding?        | log 10      |
| 24 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 25 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 26 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 27 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 28 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 29 | YEAR 1                        | 01.06.2006                   | 2                         | 2                                 | OK                          | OK                           | 0.301029996 | OK                      | 0.301029996 |
| 30 |                               | 02.06.2006                   | 22                        | 5                                 | OK                          | OK                           | 1.342422681 | OK                      | 0.698970004 |
| 31 |                               | 30.06.2006                   | 104                       | 7                                 | OK                          | OK                           | 2.017033339 | OK                      | 0.84509804  |
| 32 |                               | 01.07.2006                   | 4                         | 2                                 | OK                          | OK                           | 0.602059991 | OK                      | 0.301029996 |
| 33 |                               | 02.07.2006                   | 2                         | 2                                 | OK                          | OK                           | 0.301029996 | OK                      | 0.301029996 |
| 34 |                               | 28.07.2006                   | 900                       | 22                                | OK                          | exceeding                    | 2.954242509 | OK                      | 1.342422681 |
| 35 |                               | 20.08.2006                   | 26                        | 30                                | OK                          | OK                           | 1.414973348 | OK                      | 1.477121255 |
| 36 |                               | 27.08.2006                   | 4                         | 2                                 | OK                          | OK                           | 0.602059991 | OK                      | 0.301029996 |
| 37 |                               | 29.08.2006                   | 4                         | 2                                 | OK                          | OK                           | 0.602059991 | OK                      | 0.301029996 |
| 38 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 39 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 40 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 41 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 42 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 43 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 44 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 45 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 46 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 47 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 48 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 49 | YEAR 2                        | 01.05.2007                   | 2                         | 2                                 | OK                          | OK                           | 0.301029996 | OK                      | 0.301029996 |
| 50 |                               | 05.05.2007                   | 2                         | 2                                 | OK                          | OK                           | 0.301029996 | OK                      | 0.301029996 |
| 51 |                               | 25.06.2007                   | 64                        | 6                                 | NOT OK                      | OK                           | 1.806179974 | OK                      | 0.77815125  |
| 52 |                               | 30.06.2007                   | 2                         | 4                                 | OK                          | OK                           | 0.301029996 | OK                      | 0.602059991 |
| 53 |                               | 20.07.2007                   | 30                        | 8                                 | OK                          | OK                           | 1.477121255 | OK                      | 0.903089987 |
| 54 |                               | 15.08.2007                   | 198                       | 62                                | OK                          | OK                           | 2.29666519  | OK                      | 1.792391689 |
| 55 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 56 |                               |                              |                           |                                   |                             |                              |             |                         |             |
| 57 |                               |                              |                           |                                   |                             |                              |             |                         |             |

Check 1: is the frequency between the samples less than 28 days?

Check 2: are the values for E. coli and I.E. under the limit values or exceeding them?

**3: Checking the sample quantity:**

At the bottom of the sheet, the cell "Check: Enough samples taken in Total 4 years?" allows you to see if you have enough samples to comply with the criterion. The minimum of samples is 20, and they should be spread on 4 years. For a new applicant, they can be spread on one season, as long as there are 20 samples in total.

**later Criteria 2010**

|                          |   |
|--------------------------|---|
| No. of samplings year 1: | 8 |
| No. of samplings year 2: | 6 |
| No. of samplings year 3: | 5 |
| No. of samplings year 4: | 6 |

|  |    |
|--|----|
| Necessary no. of samplings per year:         | 5  |
| Check: Enough samples taken in 2006-2007?    | OK |
| Check: Enough samples taken in 2007-2008?    | OK |
| Check: Enough samples taken in 2008-2009?    | OK |
| Check: Enough samples taken in 2009-2010?    | OK |
| Necessary no. of samplings for 4 years       | 20 |
| Check: Enough samples taken in Total 4 years | OK |

Check 3: how many samples are there per year? (you can double check to be sure you did not forget to enter any samples in the table)

Check 3: did you take enough samples in each bathing season and in total? (minimum 5 samples per bathing season required)

- **4: Checking the 95<sup>th</sup> percentile compliance for each E. coli and I.E.:**

At the bottom of the sheet, the box “95th percentile Calculation” allows you to check if the data complies with the 95<sup>th</sup> percentile criterion. If the cell says “Not OK”, then the beach does not comply for I.E and/or E. coli 95<sup>th</sup> percentile method.

| 95th percentile Calculation |             |                         |             |
|-----------------------------|-------------|-------------------------|-------------|
| MEAN                        | 0.277338309 | MEAN                    | 0.189339486 |
| Standard deviation          | 0.585560196 | Standard deviation      | 0.373005832 |
| mean+1.65*std deviation     | 1.243512632 | mean+1.65*std deviation | 0.804799109 |
| Upper 95th percentile       | 17.51913392 | Upper 95th percentile   | 6.379683141 |
| Compliance?                 | OK          | Compliance?             | OK          |

Check 4: Does the beach comply with the 95<sup>th</sup> percentile calculation for E. coli and I.E.?

**NB:** If for a year you have more samples than the number of lines available, please do not insert lines yourself. This would add uncertainty regarding the formula and would therefore create disturbance in the 95<sup>th</sup> percentile calculation method. In this case, please contact the Blue Flag International Coordination, and ask for the number of lines that you need, and a new calculation sheet will be sent to you in accordance to your needs.