

## Appendix A. LT2 Data Collection System XML DTD

### *Cryptosporidium DTD*

```
<?xml version="1.0" encoding="UTF-8"?>
```

<!-- In the XMI file a DATE\_FORMAT element needs to define the format of the dates in your xml file the Format syntax will specify a time date pattern as the following table will show

| Symbol | Meaning                | Presentation    | Example               |
|--------|------------------------|-----------------|-----------------------|
| G      | era designator         | (Text)          | AD                    |
| Y      | year                   | (Number)        | 1996                  |
| M      | month in year          | (Text & Number) | July & 07             |
| D      | day in month           | (Number)        | 10                    |
| H      | hour in am/pm (1 ~ 12) | (Number)        | 12                    |
| H      | hour in day (0 ~ 23)   | (Number)        | 0                     |
| M      | minute in hour         | (Number)        | 30                    |
| S      | second in minute       | (Number)        | 55                    |
| S      | millisecond            | (Number)        | 978                   |
| E      | day in week            | (Text)          | Tuesday               |
| D      | day in year            | (Number)        | 189                   |
| F      | day of week in month   | (Number)        | 2 (2nd Wed in July)   |
| W      | week in year           | (Number)        | 27                    |
| W      | week in month          | (Number)        | 2                     |
| A      | am/pm marker           | (Text)          | PM                    |
| K      | hour in day (1~24)     | (Number)        | 24                    |
| K      | hour in am/pm (0~11)   | (Number)        | 0                     |
| Z      | time zone              | (Text)          | Pacific Standard Time |
| '      | escape for text        | (Delimiter)     |                       |
| "      | single quote           | (Literal)       | '                     |

| Format Pattern                 | Result                               |
|--------------------------------|--------------------------------------|
| "yyyy-MM-dd G 'at' hh:mm:ss z" | 2002-07-10 AD at 15:08:56 PDT        |
| "EEE, MMM d, 'yy"              | Wed, July 10, '96                    |
| "h:mm a"                       | 12:08 PM                             |
| "hh 'o'clock' a, zzzz"         | 12 o'clock PM, Pacific Daylight Time |
| "K:mm a, z"                    | 0:00 PM, PST                         |
| "yyyyy.MMMMM.dd GGG hh:mm aaa" | 1996.July.10 AD 12:08 PM             |

```
-->
```

```
<IELEMENT CRYPTO_SAMPLES (PWS+)>
```

```
<IELEMENT PWS (FACILITY+)>
```

```
<IELEMENT FACILITY (SAMPLING_POINT+)>
<IELEMENT SAMPLING_POINT (SAMPLE+)>
<IELEMENT SAMPLE (ANALYTE, LAB_SAMPLE_ID?, SAMPLE_COLLECTION_DATE,DATE_FORMAT,
CRYPTO+, VALID_STATUS_CODE?,LAB_COMMENT?, RESAMPLE, ORIG_SAMPLE_COLLECTION_DATE?,
LAB_RESAMPLE_EXPLANATION?)>
<IELEMENT ANALYTE (#PCDATA)>
<IELEMENT LAB_SAMPLE_ID (#PCDATA)>
<IELEMENT SAMPLE_COLLECTION_DATE (#PCDATA)>
<IELEMENT DATE_FORMAT (#PCDATA)>
<IELEMENT CRYPTO (SAMPLE_VOL_EXAMINED?, ANALYSIS_TYPE?, SAMPLE_VOLUME_FILTERED?,
NO_OF_CRYPTO?, RESUSPENDED_CONC_VOL?, RESUSPENDED_CONC_VOL_IMS?, NUM_FILTERS?,
PELLET_VOLUME?, SAMPLE_VOLUME_SPIKED?, NO_OF_CRYPTO_SPIKE?)>
<IELEMENT SAMPLE_VOL_EXAMINED (#PCDATA)>
<IELEMENT ANALYSIS_TYPE (#PCDATA)>
<IELEMENT SAMPLE_VOLUME_FILTERED (#PCDATA)>
<IELEMENT NO_OF_CRYPTO (#PCDATA)>
<IELEMENT RESUSPENDED_CONC_VOL (#PCDATA)>
<IELEMENT RESUSPENDED_CONC_VOL_IMS (#PCDATA)>
<IELEMENT NUM_FILTERS (#PCDATA)>
<IELEMENT PELLET_VOLUME (#PCDATA)>
<IELEMENT SAMPLE_VOLUME_SPIKED (#PCDATA)>
<IELEMENT NO_OF_CRYPTO_SPIKE (#PCDATA)>
<IELEMENT VALID_STATUS_CODE (#PCDATA)>
<IELEMENT LAB_COMMENT (#PCDATA)>
<IELEMENT RESAMPLE (#PCDATA)>
<IELEMENT ORIG_SAMPLE_COLLECTION_DATE (#PCDATA)>
<IELEMENT LAB_RESAMPLE_EXPLANATION (#PCDATA)>
<!ATTLIST PWS PWS_CODE CDATA #REQUIRED>
<!ATTLIST FACILITY FACILITY_CODE CDATA #REQUIRED>
<!ATTLIST SAMPLING_POINT SAMPLING_POINT_CODE CDATA #REQUIRED >
```

**E. coli DTD**

```
<?xml version="1.0" encoding="UTF-8"?>
```

<!-- In the XML file a DATE\_FORMAT element needs to define the format of the dates in your xml file the Format syntax will specify a time date pattern as the following table will show

| Symbol | Meaning                | Presentation    | Example               |
|--------|------------------------|-----------------|-----------------------|
| G      | era designator         | (Text)          | AD                    |
| Y      | year                   | (Number)        | 1996                  |
| M      | month in year          | (Text & Number) | July & 07             |
| D      | day in month           | (Number)        | 10                    |
| H      | hour in am/pm (1 ~ 12) | (Number)        | 12                    |
| H      | hour in day (0 ~ 23)   | (Number)        | 0                     |
| M      | minute in hour         | (Number)        | 30                    |
| S      | second in minute       | (Number)        | 55                    |
| S      | millisecond            | (Number)        | 978                   |
| E      | day in week            | (Text)          | Tuesday               |
| D      | day in year            | (Number)        | 189                   |
| F      | day of week in month   | (Number)        | 2 (2nd Wed in July)   |
| W      | week in year           | (Number)        | 27                    |
| W      | week in month          | (Number)        | 2                     |
| A      | am/pm marker           | (Text)          | PM                    |
| K      | hour in day (1~24)     | (Number)        | 24                    |
| K      | hour in am/pm (0~11)   | (Number)        | 0                     |
| Z      | time zone              | (Text)          | Pacific Standard Time |
| '      | escape for text        | (Delimiter)     |                       |
| "      | single quote           | (Literal)       | '                     |

| Format Pattern                 | Result                               |
|--------------------------------|--------------------------------------|
| "yyyy-MM-dd G 'at' hh:mm:ss z" | 2002-07-10 AD at 15:08:56 PDT        |
| "EEE, MMM d, 'yy"              | Wed, July 10, '96                    |
| "h:mm a"                       | 12:08 PM                             |
| "hh 'o'clock' a, zzzz"         | 12 o'clock PM, Pacific Daylight Time |
| "K:mm a, z"                    | 0:00 PM, PST                         |
| "yyyy.MMMMM.dd GGG hh:mm aaa"  | 1996.July.10 AD 12:08 PM             |

```
-->
```

```
<IELEMENT ECOLI_SAMPLES (PWS+)>
<IELEMENT PWS (FACILITY+)>
<IELEMENT FACILITY (SAMPLING_POINT+)>
<IELEMENT SAMPLING_POINT (SAMPLE+)>
```

```

<IELEMENT SAMPLE (ANALYTE, LAB_SAMPLE_ID?, SAMPLE_COLLECTION_DATE,DATE_FORMAT, ECOLI+,
VALID_STATUS_CODE?, LAB_COMMENT?, RESAMPLE, ORIG_SAMPLE_COLLECTION_DATE?,
LAB_RESAMPLE_EXPLANATION?)>
<IELEMENT ANALYTE (#PCDATA)>
<IELEMENT LAB_SAMPLE_ID (#PCDATA)>
<IELEMENT SAMPLE_COLLECTION_DATE (#PCDATA)>
<IELEMENT DATE_FORMAT (#PCDATA)>
<IELEMENT ECOLI (ANALYTICAL_METHOD_NUMBER?, SOURCE_WATER_TYPE, TURBIDITY_VALUE?,
SAMPLE_CALC?, FILTER1_VOLUME?, FILTER1_CFU?, FILTER2_VOLUME?, FILTER2_CFU?,
FILTER3_VOLUME?, FILTER3_CFU?, FILTER4_VOLUME?, FILTER4_CFU?, VOLUME_ANALYZED?,
COLIFORM_LARGE_WELLS?, COLIFORM_SMALL_WELLS?, COLIFORM_POSITIVE?, POSITIVE_10_TUBES?,
POSITIVE_1_TUBES?, POSITIVE_01_TUBES?, POSITIVE_001_TUBES?,
POSITIVE_0001_TUBES?,METHOD_TYPE)>
<IELEMENT ANALYTICAL_METHOD_NUMBER (#PCDATA)>
<IELEMENT SOURCE_WATER_TYPE (#PCDATA)>
<IELEMENT TURBIDITY_VALUE (#PCDATA)>
<IELEMENT SAMPLE_CALC (#PCDATA)>
<IELEMENT FILTER1_VOLUME (#PCDATA)>
<IELEMENT FILTER1_CFU (#PCDATA)>
<IELEMENT FILTER2_VOLUME (#PCDATA)>
<IELEMENT FILTER2_CFU (#PCDATA)>
<IELEMENT FILTER3_VOLUME (#PCDATA)>
<IELEMENT FILTER3_CFU (#PCDATA)>
<IELEMENT FILTER4_VOLUME (#PCDATA)>
<IELEMENT FILTER4_CFU (#PCDATA)>
<IELEMENT VOLUME_ANALYZED (#PCDATA)>
<IELEMENT COLIFORM_LARGE_WELLS (#PCDATA)>
<IELEMENT COLIFORM_SMALL_WELLS (#PCDATA)>
<IELEMENT COLIFORM_POSITIVE (#PCDATA)>
<IELEMENT POSITIVE_10_TUBES (#PCDATA)>
<IELEMENT POSITIVE_1_TUBES (#PCDATA)>
<IELEMENT POSITIVE_01_TUBES (#PCDATA)>
<IELEMENT POSITIVE_001_TUBES (#PCDATA)>
<IELEMENT POSITIVE_0001_TUBES (#PCDATA)>
<IELEMENT METHOD_TYPE (#PCDATA)>
<IELEMENT VALID_STATUS_CODE (#PCDATA)>
<IELEMENT LAB_COMMENT (#PCDATA)>
<IELEMENT RESAMPLE (#PCDATA)>
<IELEMENT ORIG_SAMPLE_COLLECTION_DATE (#PCDATA)>
<IELEMENT LAB_RESAMPLE_EXPLANATION (#PCDATA)>
<!ATTLIST PWS PWS_CODE CDATA #REQUIRED>
<!ATTLIST FACILITY FACILITY_CODE CDATA #REQUIRED>
<!ATTLIST SAMPLING_POINT SAMPLING_POINT_CODE CDATA #REQUIRED >

```

## Appendix B. Requirements Checklist for *Cryptosporidium* Sample Results Entered into the LT2 Data Collection System

| No.   | Factor                           | Requirement  | ✓ |
|---|----------------------------------|--|---|
| <b>General Requirements</b>                     |                                  |  |   |
| 1   | Sample condition upon receipt    | The sample temperature upon receipt for the sample was between 0°C and 8°C, and the sample was not frozen  |   |
| 2   | Sample volume                    | The volume analyzed for the sample was at least 10 L <i>OR</i> at least 2 mL of packed pellet volume was analyzed <i>OR</i> 2 filters were used and clogged and 100% of the volume filtered was analyzed |   |
| <b>Holding Time Requirements</b>                |                                  |  |   |
| 3   | Sample collection                | The elution step for the sample was initiated within 96 hours of sample collection (if shipped to the laboratory as a bulk sample) or filtration (if filtered in the field)                              |   |
| 4   | Sample processing                | The sample was processed (eluted, concentrated, purified, and applied to the slide) in one working day   |   |
| 5   | Sample drying                    | The slide(s) for the sample were stained within 72 hours of application of the sample to the slide   |   |
| 6   | Sample examination               | The slide(s) for the sample were examined within 7 days of staining  |   |
| <b>Quality Control (QC) Sample Requirements</b> |                                  |  |   |
| 7   | QC batch                         | The ongoing precision and recovery (OPR) and method blank samples associated with the sample are associated with no more than 20 field and matrix spike samples and no more than a week of samples       |   |
| 8   | Method blank results             | The method blank sample for the QC batch was acceptable (no <i>Cryptosporidium</i> oocysts or potentially interfering materials were found in the method blank)  |   |
| 9   | OPR sample results               | The OPR sample for the QC batch was acceptable (recovery was at least 24%)   |   |
| 10  | Spike levels for OPR             | The associated OPR was spiked with no more than 500 oocysts  |   |
| 11  | Spike materials for OPR          | The spiking suspension used for the associated OPR was flow-cytometer sorted   |   |
| <b>Staining Control Requirements</b>            |                                  |  |   |
| 12  | Staining control frequency       | A positive and negative staining control slide is associated with the slide for this sample  |   |
| 13  | Positive staining control result | The positive staining control for this sample is acceptable (it contained oocysts within the expected range and at the appropriate fluorescence for both FITC and DAPI)                                  |   |
| 14  | Negative staining control result | The negative staining control for this sample is acceptable (it did not contain any oocysts)   |   |
| <b>Matrix Spike (MS) Sample Requirements</b>    |                                  |  |   |
| 15  | Sample volume                    | The same sample volume was analyzed for the MS sample and the associated, unspiked field sample  |   |
| 16  | Method version                   | The same method version (filter, IMS, staining kit) was used for the MS sample and the associated, unspiked field sample   |   |
| 17  | Spike amount for MS              | The MS sample was spiked with no more than 500 oocysts   |   |
| 18  | Spike materials for MS           | The spiking suspension used for the MS was flow-cytometer sorted   |   |

## Appendix C. Requirements Checklist for Most Probable Number *E. coli* Sample Results Entered into the LT2 Data Collection System

| No.   | Factor                               | Check sample results to verify that:   | ✓ |
|---|--------------------------------------|--|---|
| <b>Sample Condition</b>                       |                                      |  |   |
| 1   | Sample condition upon receipt        | The sample temperature upon receipt for the sample was between 0°C and 10°C, and the sample was not frozen or leaking  |   |
| <b>Holding Time and Temperature</b>           |                                      |  |   |
| 2   | Holding time and temperature         | The sample was analyzed within 24 hours of sample collection and maintained at <10°C, but not freezing, between collection and analysis  |   |
| <b>General Quality Control</b>                |                                      |  |   |
| 3   | Dilution/rinse water sterility check | The dilution/rinse water sterility check was acceptable (target organism or potentially interfering materials were not found in the sterility check)   |   |
| 4   | Media sterility check                | The media sterility check was acceptable (target organism or potentially interfering materials were not found in the sterility check)  |   |
| 5   | Positive/negative controls           | The positive/negative controls were acceptable   |   |
| 6   | Media storage specifications         | The media storage specifications were not exceeded   |   |
| <b>Most Probable Number QC Specifications</b> |                                      |  |   |
| 7   | Incubation time and temperature      | The following incubation time and temperature requirements were not exceeded:<br>Colilert      24 - 28 hours at 35°C±0.5°C<br>Colilert-18    18 -22 hours at 35°C±0.5°C<br>LTB            24±2 or 48±3 hours at 35°C±0.5°C<br>EC-MUG        24±2 hours at 44.5°C±0.2°C |   |
| 8   | Preparation blank                    | The preparation blank was not contaminated with the target organism  |   |
| 9   | Verification of positive results     | The verifications, performed in accordance with method-specific requirements, were acceptable  |   |

## Appendix D. Requirements Checklist for Membrane Filtration *E. coli* Sample Results Entered into the LT2 Data Collection System

| No.  | Factor                               | Check sample results to verify that:  | ✓ |
|--|--------------------------------------|---|---|
| <b>Sample Condition</b>                      |                                      |   |   |
| 1  | Sample condition upon receipt        | The sample temperature upon receipt for the sample was between 0°C and 10°C, and the sample was not frozen or leaking   |   |
| <b>Holding Time and Temperature</b>          |                                      |   |   |
| 2  | Holding time and temperature         | The sample was analyzed within 24 hours of sample collection and maintained at <10°C, but not freezing, between collection and analysis   |   |
| <b>General Quality Control</b>               |                                      |   |   |
| 3  | Dilution/rinse water sterility check | The dilution/rinse water sterility check was acceptable (target organism or potentially interfering materials were not found in the sterility check)  |   |
| 4  | Media sterility check                | The media sterility check was acceptable (target organism or potentially interfering materials were not found in the sterility check)   |   |
| 5  | Positive/negative controls           | The positive/negative controls were acceptable  |   |
| 6  | Media storage specifications         | The media storage specifications were not exceeded  |   |
| <b>Membrane Filtration QC Specifications</b> |                                      |   |   |
| 7  | Incubation time and temperature      | The following incubation time and temperature requirements were not exceeded:<br>mEndo/NA-MUG      24±2 hours at 35°C±0.5°C- 4 hours at 35°C±0.5°C<br>LES-Endo/NA-MUG    24±2 hours at 35°C±0.5°C- 4 hours at 35°C±0.5°C<br>mFC/NA-MUG        24±2 hours at 44.5°C±0.2°C- 4 hours at 35°C±0.5°C<br>mTEC                 2 hours at 35°C±0.5°C -22-24 hours at 44.5°C±0.2°C<br>Modified mTEC       2 hours at 35°C±0.5°C -22-24 hours at 44.5°C±0.2°C<br>MI Medium            24 hours at 35°C±0.5°C<br>m-ColiBlue24        24 hours at 35°C±0.5°C |   |
| 8  | Filtration unit sterility check      | The Filtration unit sterility check was acceptable (target organism or potentially interfering materials were not found in the sterility check)   |   |
| 9  | Preparation blank                    | The preparation blank was not contaminated with the target organism   |   |
| 10   | Colony verification                  | The verifications, performed in accordance with method-specific requirements, were acceptable   |   |