



# Cefas



European Community Reference laboratory  
for monitoring bacteriological and viral  
contamination of bivalve molluscs



## Report on the CRL/HPA EQA Shellfish Scheme 2008

**CRL ring trial reference: RT 30 (*Escherichia coli*/*Salmonella* spp. 2008)**

Cefas Weymouth Laboratory,  
Barrack Road, The Nothe,  
Weymouth, Dorset, DT4 8UB, UK  
Telephone: +44 (0) 1305 206600  
Fax: +44 (0) 1305 206601  
E-mail: [fsq@cefas.co.uk](mailto:fsq@cefas.co.uk)  
Web site: [www.crlcefafas.org](http://www.crlcefafas.org)

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## 1. Introduction

The EQA Shellfish scheme is targeted at analysis of the statutory legislative determinants, *Escherichia coli* and *Salmonella* spp. in bivalve molluscan shellfish. Participation by NRLs in proficiency testing for *E. coli* and *Salmonella* is considered mandatory. This report covers the 3 EQA distributions between March 2008 and November 2008 (SF029, SF030 and SF031). Annual reports from 2002 to 2007 detailing ongoing participation and laboratory performance in the EQA scheme are available on the CRL website ([www.crlcefas.org](http://www.crlcefas.org)).

## 2. Samples

### 2.1 Sample preparation and distribution

Samples distributed consisted of lenticule discs containing fully characterised bacterial isolates. The proportions and types of organisms were designed to mirror those found in freshly harvested bivalve molluscs. Samples were packaged according to IATA regulations and distributed with preparation instructions and report forms. Twenty-six Member State NRLs participated in the EQA scheme (Table 1). All participants were requested to examine the samples using Official Control methods.

**Table 1. Participation in the CRL/HPA EQA Shellfish scheme by NRLs**

Member State	Participation in Shellfish EQA for	
	<i>E. coli</i>	<i>Salmonella</i>
Austria	Yes	Yes
Belgium & Luxembourg	Yes	Yes
Bulgaria	No	No
Cyprus <sup>a</sup>	No	No
Czech Republic	Partial	Partial
Denmark	Yes	Yes
Estonia <sup>c</sup>	Partial	Partial
Finland	Yes	Yes
France	Yes	Yes
Germany	Yes	Yes
Greece	Partial	Partial
Hungary	No	No
Ireland	Yes	Yes
Italy 1	Yes	Yes
Italy 2	Yes	Yes
Latvia	No	No
Lithuania	Yes	Yes
Malta <sup>a</sup>	No	No
Netherlands	Yes	Yes
Poland	Yes	Yes
Portugal	Yes	Yes
Romania	Yes	Yes
Slovakia <sup>c</sup>	Partial	Partial
Slovenia	Yes	Yes
Spain	Yes	Yes
Sweden	Yes	Yes
United Kingdom	Yes	Yes
<b>Accession country</b>		
Croatia 1 <sup>b</sup>	Yes	Yes
Croatia 2 <sup>b</sup>	Yes	Yes
Turkey <sup>c</sup>	Partial	Partial
<b>ETFA</b>		
Norway	Partial	Partial
Iceland	No	No

<sup>a</sup>No NRL designated. <sup>b</sup>Croatia has not designated an NRL. <sup>c</sup>Laboratories withdrew from the scheme in 2008

### 2.2 Reference results

For each distribution 10 reference samples were examined. Reference analyses were performed using ISO TS 16649-3 for the enumeration of *Escherichia coli* and ISO 6579 for the detection of *Salmonella*

spp.

### 3. Results analysis and scoring system

#### 3.1 Analysis and scoring system

Results reported by NRLs for *E. coli* and *Salmonella* spp. examinations are shown in Section 4. The results were assessed by comparison with participating NRLs' and laboratories considered part of the network. Scores were allocated for the reported results.

#### 3.2 Analysis of *E.coli* MPN results

The reported *E. coli* MPN values were compared to the median MPN from all NRL participants' results. The results charts were compiled using  $\log_{10}$  transformed MPN values (Figures 1 - 6). The results chart indicates the median MPN value calculated from NRL participants' results. Reference results were omitted from this calculation. Upper and lower limits were calculated as the participants' median  $\pm 3$  standard deviations (SD) and  $\pm 5$  SD. SD calculations were based on the expected inherent variability of the five tube MPN method which is  $0.26 \log_{10}$ . Performance assessment was completed according to the algorithm in Table 2.

**Table 2. *E.coli* MPN scoring**

Result	Points allocated
Return of results	2
All replicate MPN results within the expected range	10
Or	
One replicate MPN result reported is outside the expected range and falls between the median $\pm 3$ SD and median $\pm 5$ SD value	7
Or	
Both replicate MPN results are outside the expected range and fall between the median $\pm 3$ SD and median $\pm 5$ SD value	4
Or	
One replicate MPN result reported is outside the median $\pm 5$ SD value	5
Or	
Both replicate MPN results reported is outside the median $\pm 5$ SD value	0
Or	
Single MPN result reported only	5
Or	
Tube combination inconsistent with MPN reported (one replicate)	7
Or	
Tube combination inconsistent with MPN reported (both replicates)	5
Or	
Sample not examined or results returned late - no explanation received	0
Or	
High censored result (e.g. MPN = >18000 per 100g)	Score not allocated

#### 3.3 Analysis of *Salmonella* spp. results

Performance assessment was completed on reported NRLs' results for presence of *Salmonella* spp. according to the procedures described in Table 3.

**Table 3: *Salmonella* spp. scoring**

Result	Points allocated
Fully correct results	2
Result partially misleading e.g. (incorrect serotype designation)	1
Grossly misleading result, e.g (failure to isolate <i>Salmonella</i> )	0

## 4 Results

### 4.1 Distribution SF029: Sample SF0066

**Contents** – *Citrobacter freundii*, *Enterobacter cloacae*, *Escherichia coli* and *Enterococcus faecalis*.

#### 4.1.1 Reference results

**Salmonella spp.** - *Salmonella* spp. not detected in 25g.

**E. coli MPN** -  $1.7 \times 10^2$  -  $5.6 \times 10^3$  per 100g.

**Table 4. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0066**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
<b>Reference results</b>	$1.2 \times 10^3$	$2.0 \times 10^2$	$6.0 \times 10^1$	$7.2 \times 10^3$	$2.4 \times 10^4$
<b>NRL results</b>	$7.9 \times 10^2$	$1.3 \times 10^2$	$4.0 \times 10^1$	$4.8 \times 10^3$	$1.6 \times 10^4$

#### 4.1.2 NRL results - SF0066 (Table 5 and Figure 1)

**Table 5. Results reported by participants and scores allocated - SF0066**

Lab Number	<i>E. coli</i> (per 100g)			<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2	Score	<i>Salmonella</i> spp.	Score
121	2800	1750	12	Not detected	2
391	1300	1300	12	Not detected	2
403	310	3500	12	Not detected	2
493	NE	NE	-	NE	-
583	1300	1700	12	Not detected	2
593	310	310	12	Not detected	2
594	790	490	12	Not detected	2
596	1300	1300	12	Not detected	2
597	1700	490	12	Not detected	2
601	500	750	12	Not detected	2
604	1300	2200	12	Not detected	2
629	1700	790	12	Not detected	2
649	1700	NE	7	Not detected	2
651	1300	490	12	Not detected	2
653	750	1100	12	Not detected	2
658	500	1300	12	Not detected	2
660	430	310	12	Not detected	2
662	310	200	12	Not detected	2
701	490	NE	7	Not detected	2
703	250	500	12	Not detected	2
704	750	310	12	Not detected	2
715	2400	700	12	Not detected	2
718	1100	1300	12	Not detected	2
719	700	790	12	Not detected	2
720	1300	790	12	Not detected	2
744	1100	750	12	Not detected	2

NE – Not examined.

#### 4.1.3 Discussion

##### SF0066 *E.coli* MPN

The results reported by the NRLs for *E. coli* sample SF0066 are plotted in Figure 1, the reference results are also included. NRL 493 did not examine SF0066. NRL 649 and 701 reported a single MPN result. All other NRLs reported results within the expected range.

##### SF0066 *Salmonella* spp.

NRL 493 did not examine SF0066. All other NRLs who undertook the examination correctly detected *Salmonella* spp. in the sample and received a maximum score of 2.

## 4.2 Distribution SF029: Sample SF0067

Contents - *Enterobacter cloacae*, *Escherichia coli*, and *Pantoea agglomerans*.

### 4.2.1 Reference results

**Salmonella spp.** - *Salmonella* spp. not detected in 25g.

**E. coli MPN** -  $5.6 \times 10^2 - 1.9 \times 10^4$  per 100g.

**Table 6. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0067**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
Reference results	$2.9 \times 10^3$	$4.8 \times 10^2$	$1.5 \times 10^2$	$1.7 \times 10^4$	$5.8 \times 10^4$
NRL results	$3.5 \times 10^3$	$5.8 \times 10^2$	$1.8 \times 10^2$	$2.1 \times 10^4$	$7.0 \times 10^4$

### 4.2.2 NRL results - SF0067 (Table 7 and Figure 2)

**Table 7. Results reported by participants and scores allocated - SF0067**

Lab number	<i>E. coli</i> (per 100g)		Score	<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2		<i>Salmonella</i> spp.	Score
121	5400	9100	12	Not detected	2
391	7000	7000	12	Not detected	2
403	9100	2200	12	Not detected	2
493	NE	NE	-	NE	-
583	9100	3500	12	Not detected	2
593	5400	5400	12	Not detected	2
594	3300	4900	12	Not detected	2
596	5400	9100	12	Not detected	2
597	4900	4600	12	Not detected	2
601	500	1300	9	Not detected	2
604	220	310	6	Not detected	2
629	2400	1300	12	Not detected	2
649	5400	NE	7	Not detected	2
651	5400	3500	12	Not detected	2
653	1400	1100	12	Not detected	2
658	3500	5400	12	Not detected	2
660	1300	2400	12	Not detected	2
662	11000	7500	12	Not detected	2
701	220	NE	4	Not detected	2
703	1400	2400	12	Not detected	2
704	400	3100	9	Not detected	2
715	1300	1300	12	Not detected	2
718	3300	3300	12	Not detected	2
719	5400	3500	12	Not detected	2
720	3500	2400	12	Not detected	2
744	5400	5400	12	Not detected	2

NE – Not examined.

### 4.2.3 Discussion

#### SF0067 *E.coli* MPN

The results reported by the NRLs for *E. coli* sample SF0067 are plotted in Figure 2, the reference results are also included. NRL 493 did not examine SF0067. NRL 601 and 704 reported one duplicate result between 3 and 5SD of the participant's median. NRL 701 reported a single result and NRL 604 reported both results between 3 and 5SD of the participant's median NRL 649 reported a single MPN result. All other NRLs reported results within the expected range.

#### SF0067 *Salmonella* spp.

NRL 493 did not examine SF0067. All other NRLs who undertook the examination reported *Salmonella* spp. not detected in the sample and received a maximum score of 2.

### 4.3 Distribution SF030: Sample SF0068

Contents – *Bacillus pumilis*, *Escherichia coli*, *Pseudomonas fluorescens* and *Vibrio alginolyticus*.

#### 4.3.1 Reference results

**Salmonella spp.** - *Salmonella* spp. not detected in 25g.

**E. coli MPN** -  $5.6 \times 10^1 - 1.9 \times 10^3$  per 100g.

**Table 8. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0068**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
Reference results	$3.3 \times 10^2$	$5.0 \times 10^1$	$1.7 \times 10^1$	$2.0 \times 10^3$	$6.6 \times 10^3$
NRL results	$3.3 \times 10^2$	$5.0 \times 10^1$	$1.7 \times 10^1$	$2.0 \times 10^3$	$6.6 \times 10^3$

#### 4.3.2 NRL results - SF0068 (Table 9 and Figure 3)

**Table 9. Results reported by participants and scores allocated - SF0068**

Lab number	<i>E. coli</i> (per 100g)			<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2	Score	<i>Salmonella</i> spp.	Score
121	220	500	12	Not detected	2
391	490	790	12	Not detected	2
403	750	110	12	Not detected	2
493	NE	NE	-	NE	-
583	1300	110	12	Not detected	2
593	160	310	12	Not detected	2
594	490	330	12	Not detected	2
596	700	1100	10	Not detected	2
597	330	490	12	Not detected	2
601	220	490	12	Not detected	2
604	160	500	12	Present	0
629	NE	NE	-	NE	-
649	460	330	12	Not detected	2
651	330	330	12	Not detected	2
653	430	220	12	Not detected	2
658	310	700	12	Not detected	2
660	NR	NR	0	NR	0
662	310	310	12	Not detected	2
701	230	330	12	Not detected	2
703	160	160	12	Not detected	2
704	NE	NE	-	NE	-
715	NE	NE	-	NE	-
718	430	230	10	Not detected	2
719	330	230	12	Not detected	2
720	490	330	12	Not detected	2
744	330	330	12	Not detected	2

NE – Not examined, NR – Not returned.

#### 4.3.3 Discussion

##### SF0068 *E.coli* MPN

The results reported by the NRLs for *E. coli* sample SF0068 are plotted in Figure 3, the reference results are also included. NRL 660 did not return SF0068 result form. NRL 493, 629, 704 and 715 did not examine SF0068. NRL 596 and 718 reported an incorrect tube combination with MPN result. All other NRLs reported results within the expected range.

##### SF0068 *Salmonella* spp.

NRL 493, 629, 704 and 715 did not examine SF0068. NRL 660 did not return SF0068 result form. NRL 604 detected *Salmonella* spp. All other NRLs who undertook the examination received a maximum

score of 2.

#### 4.4 Distribution SF030: Sample SF0069

**Contents** - *Citrobacter freundii*, *Escherichia coli* and *Klebsiella oxytoca*.

##### 4.4.1 Reference results

**Salmonella spp.** - *Salmonella* spp. not detected in 25g.

**E. coli MPN** -  $9.1 \times 10^3$  -  $3.1 \times 10^4$  per 100g.

**Table 10. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0069**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
<b>Reference results</b>	$7.0 \times 10^4$	$1.2 \times 10^4$	$3.5 \times 10^3$	$4.2 \times 10^5$	$1.4 \times 10^6$
<b>NRL results</b>	$5.4 \times 10^4$	$9.0 \times 10^3$	$2.7 \times 10^3$	$3.3 \times 10^5$	$1.1 \times 10^6$

##### 4.4.2 NRL results - SF0069 (Table 11 and Figure 4)

**Table 11. Results reported by participants and scores allocated - SF0069**

Lab Number	<i>E. coli</i> (per 100g)		Score	<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2		<i>Salmonella</i> spp.	Score
121	160000	92000	12	Not detected	2
391	92000	54000	12	Not detected	2
403	75000	31000	12	Not detected	2
493	NE	NE	-	NE	-
583	24000	110000	12	Not detected	2
593	50000	50000	12	Not detected	2
594	22000	17000	12	Not detected	2
596	91000	54000	12	Not detected	2
597	46000	70000	12	Not detected	2
601	33000	24000	12	Not detected	2
604	170000	41000	12	Not detected	2
629	NE	NE	-	NE	-
649	54000	35000	12	Not detected	2
651	92000	35000	12	Not detected	2
653	35000	54000	12	Not detected	2
658	35000	91000	12	Not detected	2
660	NR	NR	0	NR	0
662	50000	75000	12	Not detected	2
701	35000	54000	12	Not detected	2
703	35000	54000	12	Not detected	2
704	NE	NE	-	NE	-
715	NE	NE	-	NE	-
718	>18000	>18000	0	Not detected	2
719	79000	130000	12	Not detected	2
720	35000	54000	12	Not detected	2
744	92000	94000	12	Not detected	2

NE – Not examined, NR – Not returned.

##### 4.4.3 Discussion

###### SF0069 *E. coli* MPN

The results reported by the NRLs for *E. coli* sample SF0069 are plotted in Figure 4, the reference results are also included. NRL 493, 629, 704 and 715 did not examine SF0069. NRL 660 did not return SF0068 result form. NRL 718 reported both MPN results as high censored. All other NRLs reported results within the expected range.

###### SF0069 *Salmonella* spp.

NRL 493, 629, 704 and 715 did not examine SF0069. NRL 660 did not return SF0069 result form. All



other NRLs who undertook the examination received a maximum score of 2.

#### 4.5 Distribution SF031: Sample SF0070

**Contents** - *Enterobacter cloacae*, *Escherichia coli*, *Klebsiella oxytoca* and *Salmonella* Enteritidis

##### 4.5.1 Reference results

**Salmonella spp.** - *Salmonella* spp. present in 25g.

**E. coli MPN** -  $5.4 \times 10^3$  –  $1.8 \times 10^5$  per 100g.

**Table 12. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0070**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
<b>Reference results</b>	$4.0 \times 10^4$	$6.7 \times 10^3$	$2.0 \times 10^3$	$2.4 \times 10^5$	$8.0 \times 10^5$
<b>NRL results</b>	$3.5 \times 10^4$	$5.8 \times 10^3$	$1.8 \times 10^3$	$2.1 \times 10^5$	$7.0 \times 10^5$

##### 4.5.2 NRL results - SF0070 (Table 13 and Figure 5)

**Table 13. Results reported by participants and scores allocated – SF0070**

Lab Number	<i>E. coli</i> (per 100g)		Score	<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2		<i>Salmonella</i> spp.	Score
121	35000	54000	12	Present	2
391	24000	24000	12	Present	2
403	54000	35000	12	Present	2
493	92000	24000	12	Present	2
583	91000	91000	12	Present	2
593	>18000	>18000	0	Present	2
594	24000	35000	12	Present	2
596	35000	24000	12	Present	2
597	24000	35000	12	Present	2
601	22000	17000	12	Present	2
604	91000	54000	12	Present	2
629	NE	NE	-	NE	-
649	5400	9200	9	Present	2
651	35000	35000	12	Present	2
653	22000	24000	12	Present	2
658	35000	54000	12	Present	2
660	NE	NE	-	NE	-
662	NE	NE	-	NE	-
701	24000	17000	12	Present	2
703	13000	13000	12	Present	2
704	NE	NE	-	NE	-
715	NE	NE	-	NE	-
718	790	1300	2	Present	2
719	35000	35000	12	Present	2
720	35000	54000	12	Present	2
744	35000	92000	12	Present	2

NE – Not examined, NR – Not returned.

##### 4.5.3 Discussion

###### SF0070 *E.coli* MPN

The results reported by all NRLs for *E. coli* sample SF0070 are plotted in Figure 5, the reference results are also included. NRL 593 reported both MPN results as high censored. NRL 629, 660, 662 704 and 715 did not examine distribution SF031. NRL 649 returned one duplicate result between 3 and 5SD of the participant's median. NRL 718 returned both replicate results outside 5SD of the participant's median. All other laboratories that returned results reported results within the expected range.

**SF0070 *Salmonella* spp.**

NRL 629, 660, 662, 704 and 715 did not examine SF0070. All other NRLs who undertook the examination received a maximum score of 2.

**4.6 DISTRIBUTION SF031: SAMPLE SF0071**

**Contents** – *Citrobacter freundii*, *Escherichia coli* and *Salmonella typhimurium*.

**4.6.1 Reference results**

***Salmonella* spp.** - *Salmonella* spp. present in 25g.

***E. coli* MPN** -  $5.3 \times 10^1$  –  $1.8 \times 10^3$  per 100g.

**Table 14. Participants and reference results median, median  $\pm 3$  and  $\pm 5$  SD - SF0071**

	Median MPN/100g	Median MPN/100g -3SD	Median MPN/100g -5SD	Median MPN/100g +3SD	Median MPN/100g +5SD
<b>Reference results</b>	$3.3 \times 10^2$	$5.5 \times 10^1$	$1.7 \times 10^1$	$2.0 \times 10^3$	$6.6 \times 10^3$
<b>NRL results</b>	$3.3 \times 10^2$	$5.5 \times 10^1$	$1.7 \times 10^1$	$2.0 \times 10^3$	$6.6 \times 10^3$

**4.6.2 NRL results - SF0071 (Table 15 and figure 6)**

**Table 15: Results reported by participants and scores allocated – SF0071**

Lab number	<i>E. coli</i> (per 100g)			<i>Salmonella</i> spp. (per 25g)	
	Replicate 1	Replicate 2	Score	<i>Salmonella</i> spp.	Score
121	490	1300	12	Present	2
391	490	330	12	Present	2
403	110	90	12	Present	2
493	490	790	12	Present	2
583	500	310	12	Present	2
593	750	750	12	Present	2
594	790	490	12	Present	2
596	290	110	12	Present	2
597	490	490	12	Present	2
601	70	20	4	Present	2
604	1400	1100	12	Not detected	0
629	NE	NE	-	NE	-
649	110	170	12	Present	2
651	490	330	12	Present	2
653	500	500	12	Present	2
658	500	NE	7	Present	2
660	NE	NE	-	NE	-
662	NE	NE	-	NE	-
701	230	170	12	Present	2
703	220	110	12	Present	2
704	NE	NE	-	NE	-
715	NE	NE	-	NE	-
718	16000	>18000	2	Present	2
719	50	80	9	Present	2
720	330	270	12	Present	2
744	700	490	12	Present	2

NE – Not examined, NR – Not returned.

**4.6.3 Discussion****SF0071 *E. coli* MPN**

The results reported by the NRLs for *E. coli* sample SF0071 are plotted in Figure 6, the reference results are also included. NRL 629, 660, 662, 704 and 715 did not examine SF0071. NRL 601 reported one duplicate result between 3 and 5SD and one duplicate below 5SD of the participants' median. NRL 658 returned a single replicate result. NRL 718 reported one duplicate result above 5SD of the

participants' median and one censored result. All other NRLs reported results within the expected range.

### SF0071 *Salmonella* spp.

NRL 629, 660, 662, 704 and 715 did not examine SF0071. NRL 604 did not detect *Salmonella* spp. All other NRLs who undertook the examination received a maximum score of 2.

## 5 Performance Assessments

Cumulative performance assessment was undertaken on participant's results over three consecutive distributions SF029, SF030 and SF031 for both *E. coli* MPNs and *Salmonella* spp. Examinations for participating NRLs are summarised in Tables 16 and 17 respectively. Participant's who achieved <40% of the maximum possible score in a single distribution, or <70% over three distributions for *E. coli* enumeration and/or those who achieved scores of <70% for *Salmonella* spp. detection over three distributions should in the first instance refer to the troubleshooting guide included as Appendix I of this report. In addition NRLs will be offered advice by the CRL.

### 5.1 *E. coli* MPN assessment

Twenty NRLs completed all 3 distributions in 2008 and were therefore subject to a full performance assessment. Eleven NRLs achieved a maximum 100% score for the three distributions. Of the remaining 9 NRLs, 8 scored a cumulative total of >70% for the three distributions. One NRL scored <70%.

**Table 16. Summary of performance of NRLs over three Shellfish EQA distributions, SF029, SF030 and SF031 - *E. coli***

Lab no.	Distribution SF029		Distribution SF030		Distribution SF031		All distributions Cumulative Max		
	SF0066	SF0067	SF0068	SF0069	SF0070	SF0071	score	score	%
121	12	12	12	12	12	12	72	72	100
391	12	12	12	12	12	12	72	72	100
403	12	12	12	12	12	12	72	72	100
493 <sup>a</sup>	-	-	-	-	12	12	-	-	-
583	12	12	12	12	12	12	72	72	100
593	12	12	12	12	0	12	60	72	83
594	12	12	12	12	12	12	72	72	100
596	12	12	10	12	12	12	70	72	97
597	12	12	12	12	12	12	72	72	100
601	12	9	12	12	12	4	61	72	85
604	12	6	12	12	12	12	66	72	92
629 <sup>a</sup>	12	12	-	-	-	-	-	-	-
649	7	7	12	12	9	12	59	62	95
651	12	12	12	12	12	12	72	72	100
653	12	12	12	12	12	12	72	72	100
658	12	12	12	12	12	7	67	72	93
660 <sup>a</sup>	12	12	0	0	-	-	-	-	-
662 <sup>a</sup>	12	12	12	12	-	-	-	-	-
701	7	4	12	12	12	12	59	62	95
703	12	12	12	12	12	12	72	72	100
704 <sup>a</sup>	12	9	-	-	-	-	-	-	-
715 <sup>a</sup>	12	12	-	-	-	-	-	-	-
718	12	12	10	0	2	2	38	72	53
719	12	12	12	12	12	9	69	72	96
720	12	12	12	12	12	12	72	72	100
744	12	12	12	12	12	12	72	72	100

<sup>a</sup> full performance assessment was not carried as laboratories completed less than three distributions in 2008.

## 5.2 *Salmonella* spp. Assessment

Twenty NRLs completed all 3 distributions in 2008 and were therefore subject to a full performance assessment. Nineteen NRLs achieved a maximum 100% score for the three distributions. One NRL scored <70% due to incorrectly reported *Salmonella* spp. in samples SF0068 and SF0071.

**Table 17. Summary of performance of NRLs over three Shellfish EQA distributions, SF029, SF030 and SF031 *Salmonella* spp.**

Lab no.	Distribution SF029		Distribution SF030		Distribution SF031		All distributions Cumulative Max		
	SF0066	SF0067	SF0068	SF0069	SF0070	SF0071	score	score	%
121	2	2	2	2	2	2	12	12	100
391	2	2	2	2	2	2	12	12	100
403	2	2	2	2	2	2	12	12	100
493 <sup>a</sup>	-	-	-	-	2	2	-	-	-
583	2	2	2	2	2	2	12	12	100
593	2	2	2	2	2	2	12	12	100
594	2	2	2	2	2	2	12	12	100
596	2	2	2	2	2	2	12	12	100
597	2	2	2	2	2	2	12	12	100
601	2	2	2	2	2	2	12	12	100
604	2	2	0	2	2	0	8	12	67
629 <sup>a</sup>	2	2	-	-	-	-	-	-	-
649	2	2	2	2	2	2	12	12	100
651	2	2	2	2	2	2	12	12	100
653	2	2	2	2	2	2	12	12	100
658	2	2	2	2	2	2	12	12	100
660 <sup>a</sup>	2	2	0	0	-	-	-	-	-
662 <sup>a</sup>	2	2	2	2	-	-	-	-	-
701	2	2	2	2	2	2	12	12	100
703	2	2	2	2	2	2	12	12	100
704 <sup>a</sup>	2	2	-	-	-	-	-	-	-
715 <sup>a</sup>	2	2	-	-	-	-	-	-	-
718	2	2	2	2	2	2	12	12	100
719	2	2	2	2	2	2	12	12	100
720	2	2	2	2	2	2	12	12	100
744	2	2	2	2	2	2	12	12	100

<sup>a</sup> full performance assessment was not carried as laboratories completed less than three distributions in 2008.

## 6 Summary

In 2008 26 NRLs were registered for the CRL/HPA EQA Shellfish scheme. Twenty-two NRLs completed three distributions between March 2008 and November 2008 and therefore were subject to a full performance assessment. Partial participation was due to NRLs not examining all distributions. For *E. coli* examination one NRL (NRL 718) achieved a score of <40% in a single distribution. NRLs failing to achieve either 40% in a single distribution or cumulative scores of <70% over three distributions were referred to the troubleshooting guide and offered advice. For *Salmonella* spp. detection all NRLs with the exception of NRL 604 achieved 100% over the three consecutive distributions. See Appendix I for troubleshooting guide.

The responsibilities of the Community and National Reference Laboratories with regard to proficiency testing are clearly stated in both regulation and through NRL resolution. The CRL/HPA EQA Shellfish scheme is the principal mechanism for *E.coli* and *Salmonella* proficiency testing between NRLs. It is imperative that NRLs maintain their commitment to this scheme and it is recommended that NRLs that are not currently registered do so.

Figure 1. Distribution SF029: Sample SF0066

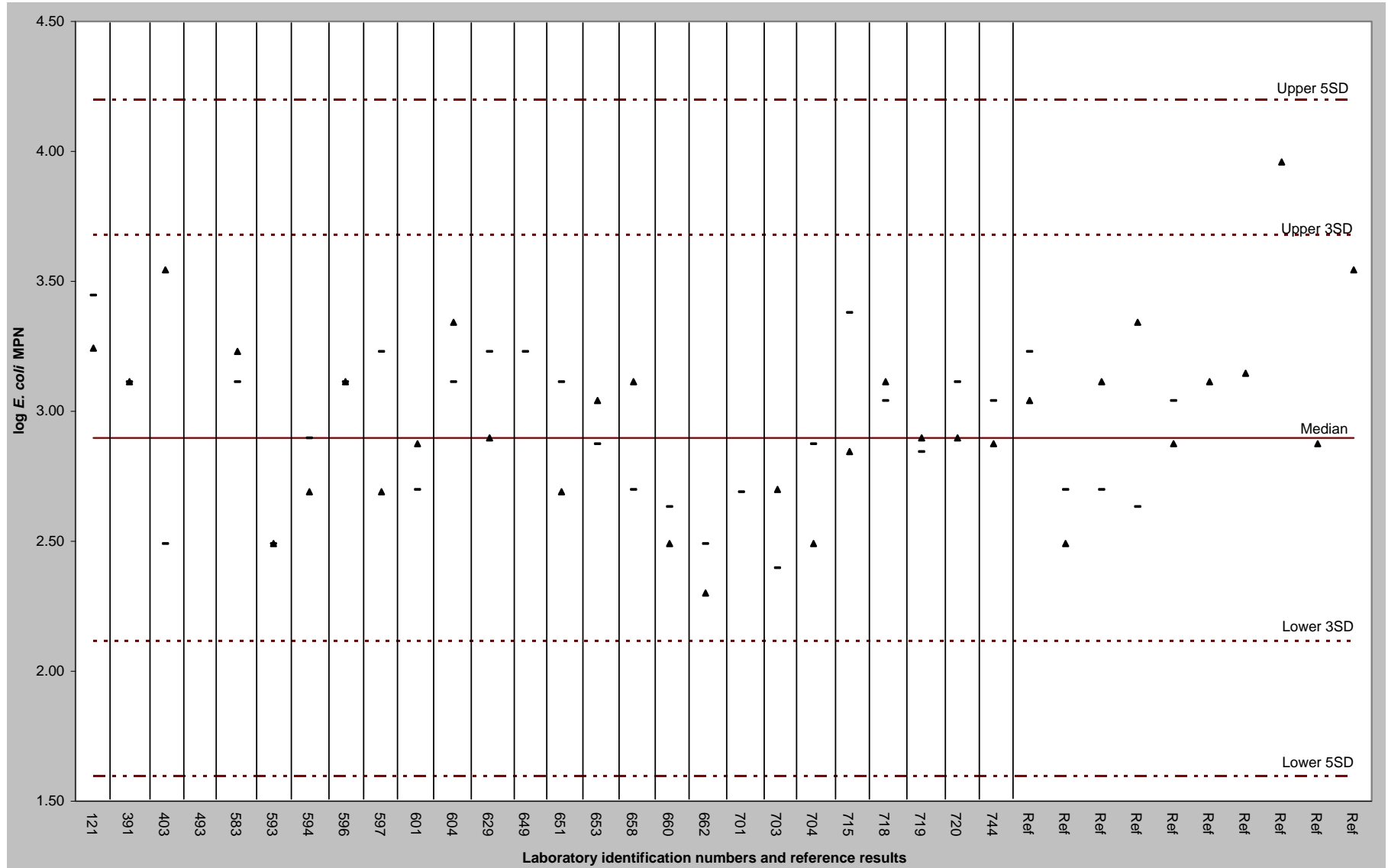


Figure 2. Distribution SF029: Sample SF0067

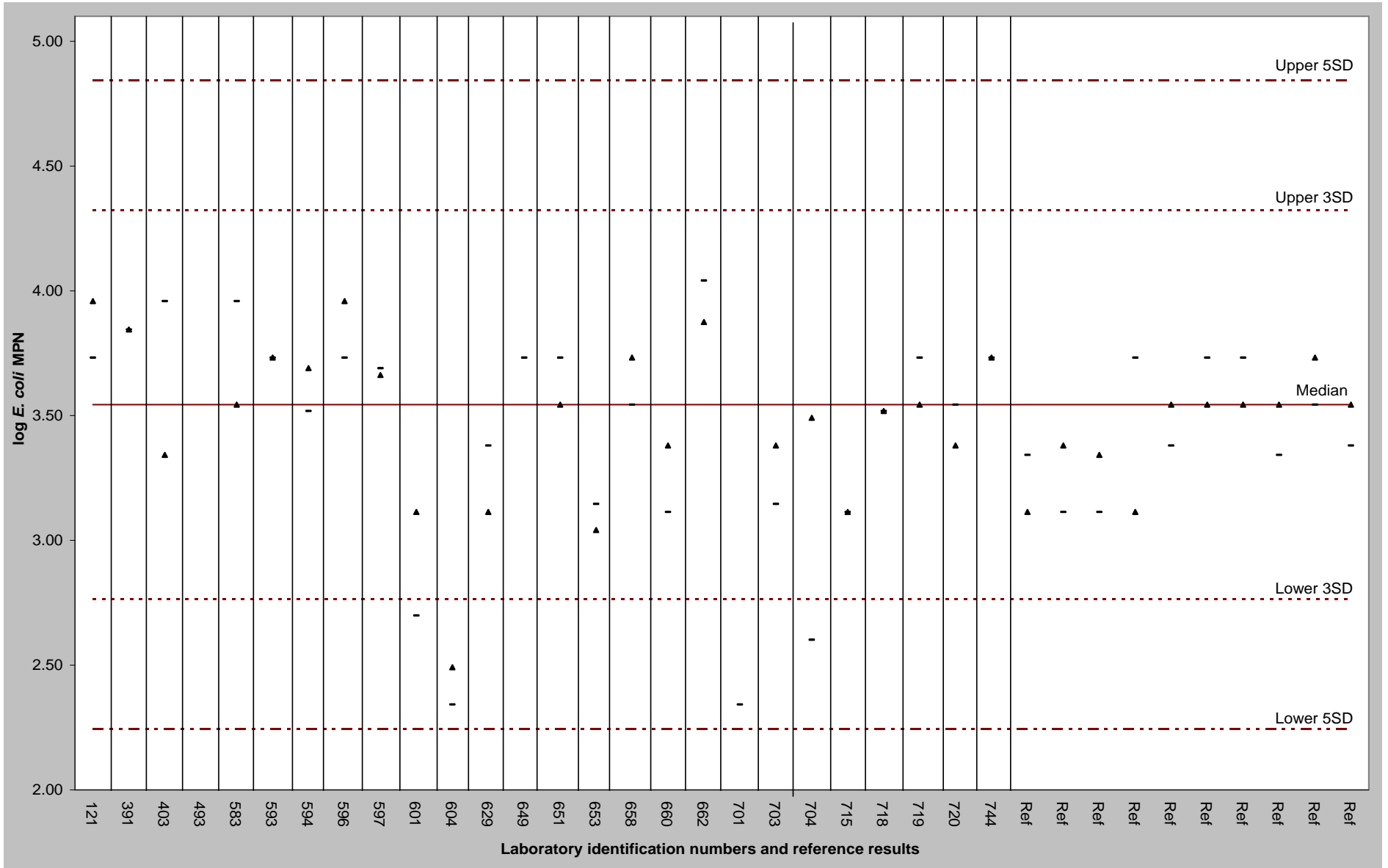


Figure 3. Distribution SF030: Sample SF0068

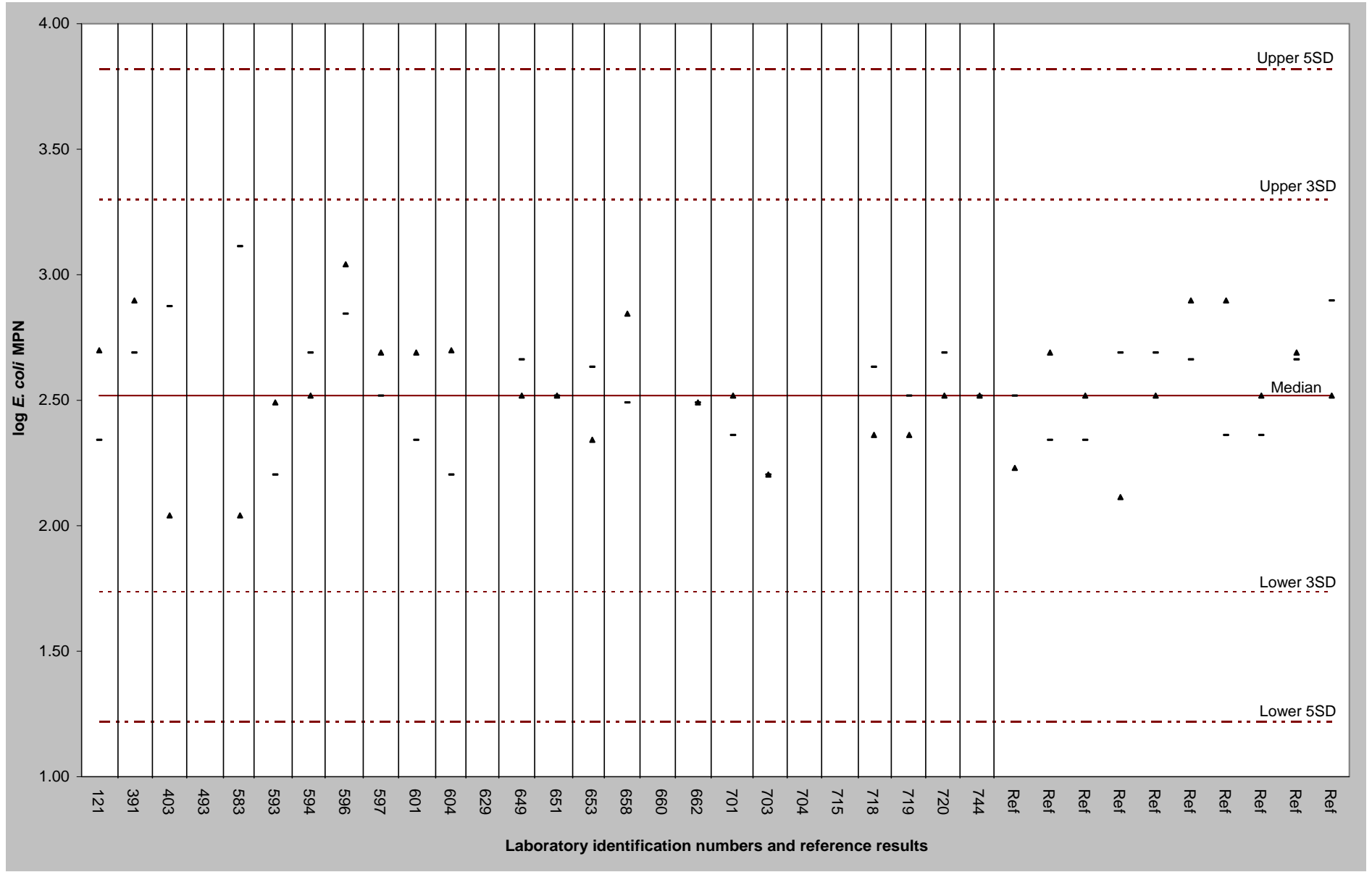


Figure 4. Distribution SF030: Sample SF0069

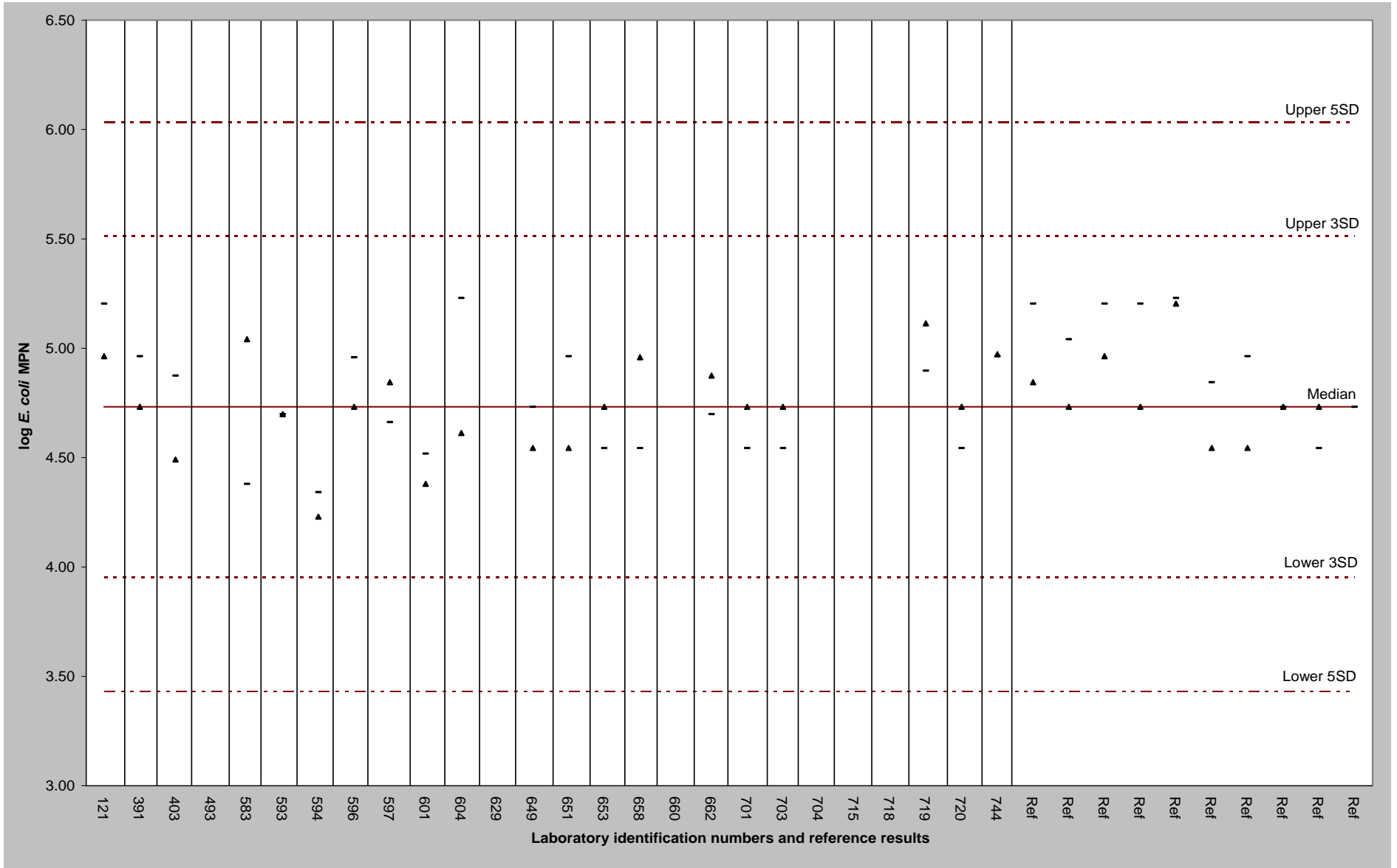




Figure 5. Distribution SF031: Sample SF0070

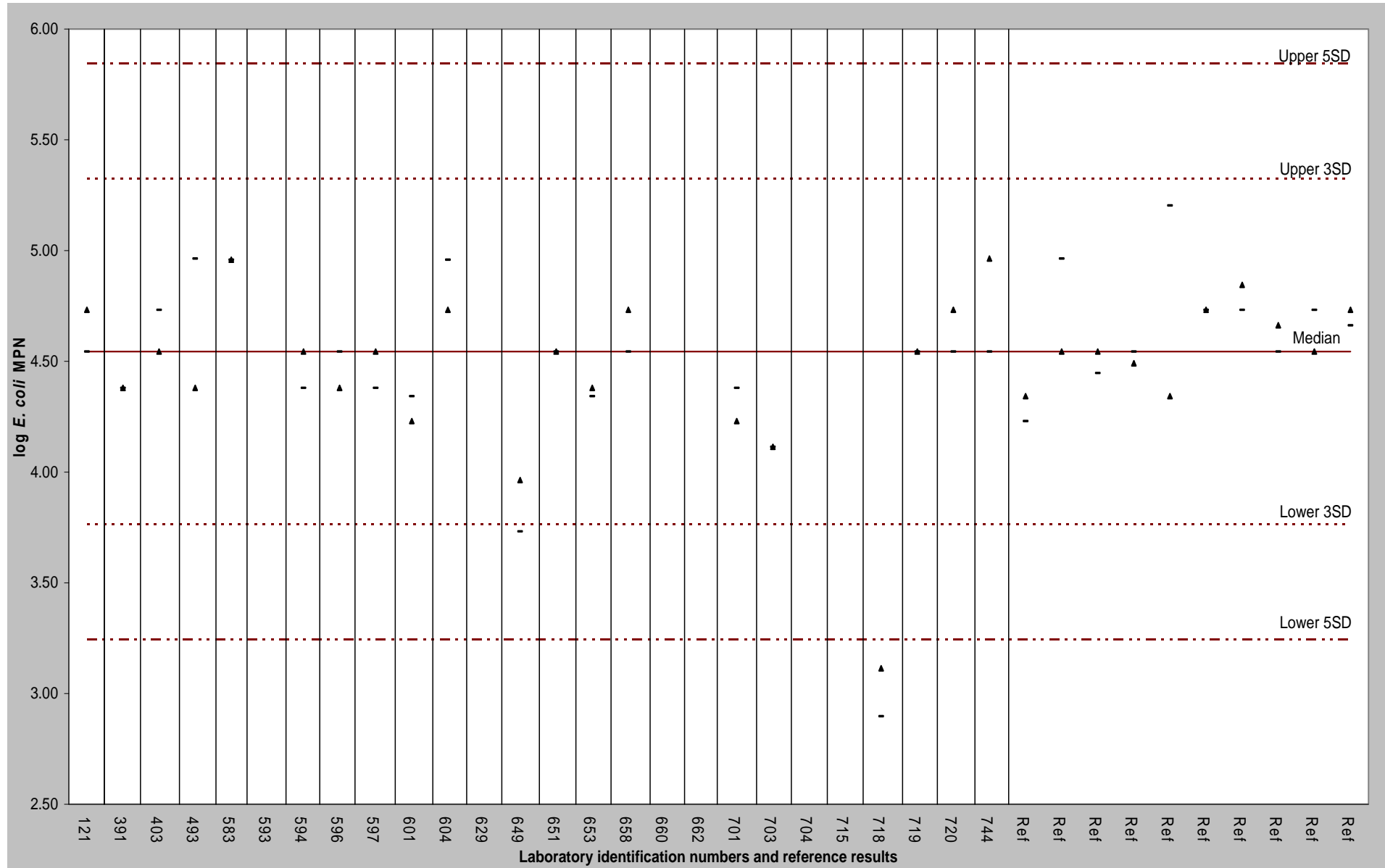
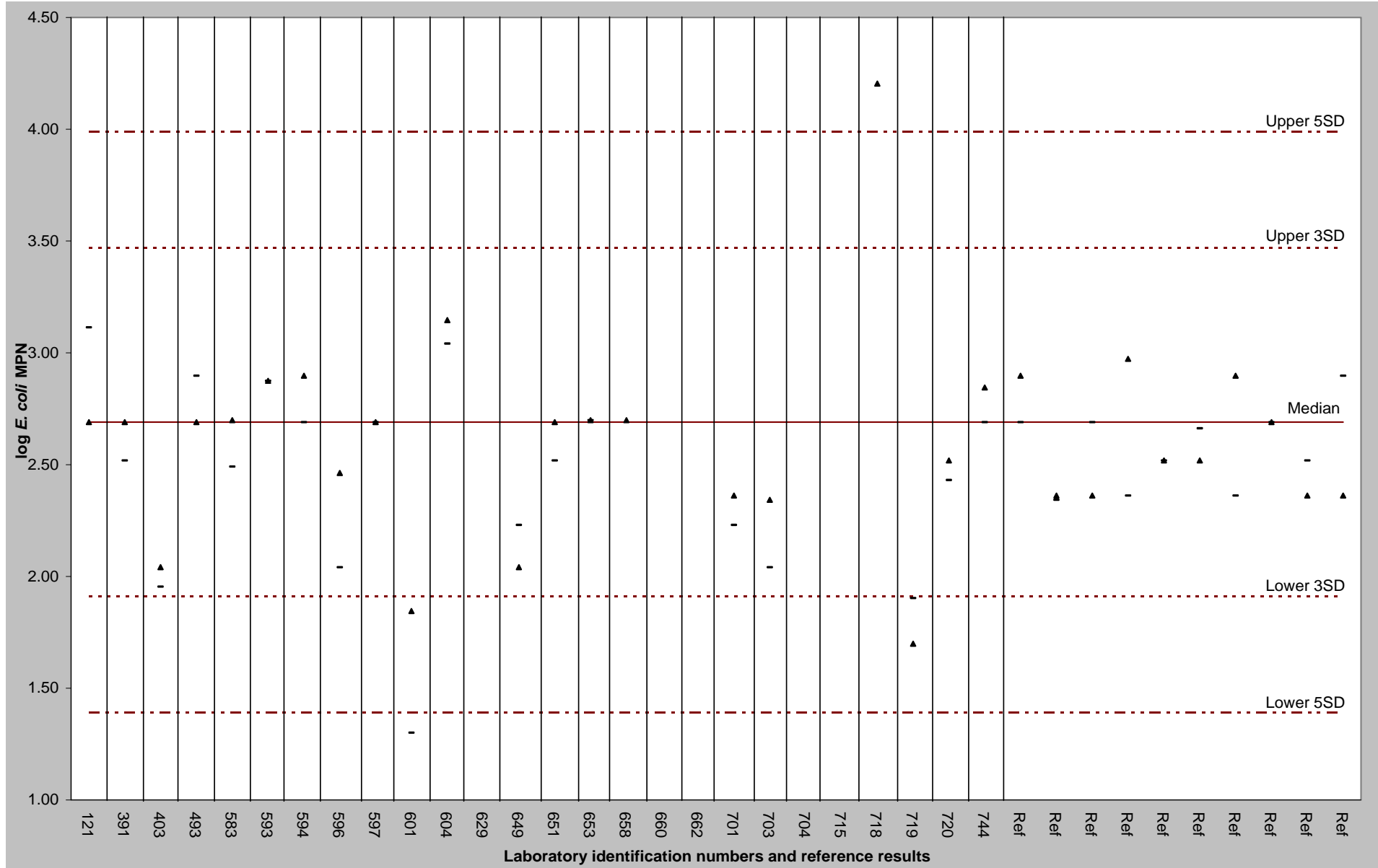


Figure 6. Distribution SF031: Sample SF0071



## Appendix I

### Troubleshooting guide

1. Methods 1. Are you using the stipulated reference method in Regulation EC No. 854/2004 as amended by Regulation (EC) 2074/2005 and Regulation (EC) No. 2073/2005 (i.e. ISO TS 16649-3) or equivalent validated according to ISO 16140.
  - a. Are staff calculating dilutions correctly and reading MPN tables (if used) correctly?
2. Methods 2. Are you using the stipulated reference method in Regulation (EC) No. 2073/2005 (i.e. EN/ISO 6579).
3. Culture Medium - Check the quality control data sheet produced by the media department to ensure media is performing adequately.
4. Equipment - Check that the equipment used for the procedures (incubators, refrigerators, measuring instruments) are calibrated and performing adequately.
5. Staff Training - Check that the staff performing the tests are fully trained and familiar with all the procedural steps.
6. Clerical Procedures - Check that the sample labeling, laboratory numbering and clerical procedures are adequate have you procedures for ensuring that test results are reported accurately and on time?
7. Accreditation- Do staff adhere to documented quality procedures at all times?
8. Internal quality controls (IQC) - Do you have procedures in place ensuring use of adequate controls? And documentation for dealing with IQC failures?