



13 October 2021
R3053-10-21

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For the attention of Mr Lloyd Hamilton,

CUSTOM HOUSE, KING GEORGE V LOCK WATER SAMPLING, LABORATORY ANALYSIS AND BATHING WATER QUALITY ASSESSMENT

1 Introduction

In accordance with the Bathing Water Quality Sampling and testing programme, we present our site observations/measurements and laboratory analysis results for 08 October 2021.

2 Fieldwork

Although field measurements are no longer required when reporting bathing water, SOCOTEC UK Ltd deem it prudent to continue this monitoring as it will indicate any abnormal characteristics associated with the water. Therefore, monitoring will continue at the next site visit in accordance with the requirements of the EC Directive concerning the quality of bathing water (76/160/EEC) and The Bathing Waters (Classification) Regulations (SI 1991 No.1597 & SI 2003 No.1238).

Samples were collected for laboratory analysis, from six pre-selected locations within the Royal Docks area as shown within Figure 1:

- RV1, RV2, RA3, RA5, KG7 & KG8.

Sampling was performed from a boat provided by RODMA, with samples retrieved from the centre of the water space within the docks and from approximately 0.3 m below surface level.

3 Results

Laboratory analysis results sheets are appended at Appendix A.

4 Discussion

The results of laboratory analysis for *Enterococci* and *E. Coli* have been compared to the mandatory values set out in Directive 2006/7/EC of the European Parliament and of the Council concerning the management of bathing water quality and United Kingdom Statutory instrument 2013 No 1675.



Comments have also been made comparing the field observations, measurements and Total Coliforms to former regulations “The Bathing Waters (Classification) Regulations 2013” (Statutory Instrument SI 1991 No. 1597, and SI 2003 No. 1238) and “European Community Council Directive of 8th December 1975 concerning the quality of bathing water” (76/160/EEC).

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris.

On this occasion, five of the locations sampled met the thresholds for ‘Excellent Quality’ as published within Directive 2006/7/EC and Bathing Water Regulations 2013. Location RA5’s Total Coliforms exceed the Former Guideline value, whilst *E. coli* exceeds the ‘Sufficient’ threshold.

Concentrations of dissolved oxygen were found to be slightly low at RV1 and KG7, however these are in line with seasonal variations.

5 Recommendations

Five of the six locations sampled and tested COMPLIED with the guidance for water contact sports and bathing water quality deeming water SUITABLE for water contact sports or for bathing.

Location RA5 exceeded the ‘Sufficient’ threshold for *E. coli* and consequently is NOT SUITABLE for water contact sports or bathing.

The next routine sampling and monitoring visit is scheduled for the week commencing 01 November 2021.

We trust that we have interpreted your requirements correctly and will be pleased to discuss the matter further as necessary.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Charlotte Harbour'.

Charlotte Harbour
Assistant Environmental Scientist
Charlotte.harbour@socotec.com

A handwritten signature in black ink, appearing to read 'Mark Hurcomb'.

Mark Hurcomb
Principal Environmental Consultant
Mark.hurcomb@socotec.com

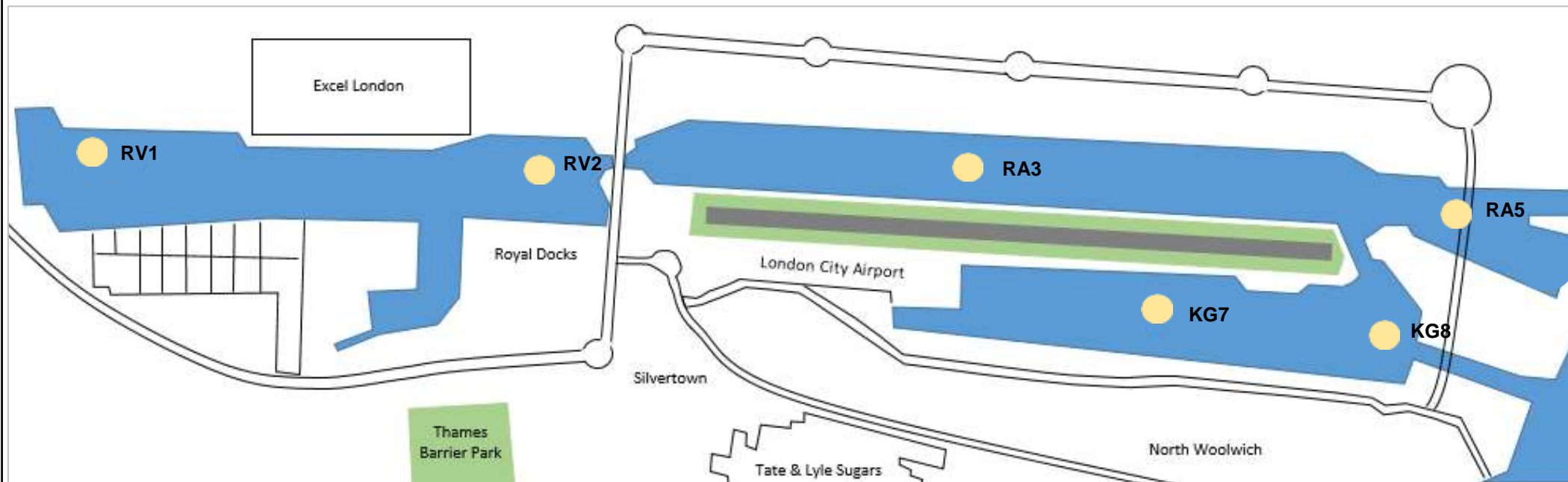
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Legend to symbols:

-  Surface water samples collected by SOCOTEC



Title

Sample Location Plan

Project

RoDMA- Royal Docks

Project No

R3053

Figure No

Figure 1



APPENDIX A
ANALYTICAL LABORATORY RESULTS

ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY

LOCATION: RV 1 (Royal Victoria Dock, West)

Date: 08 October 2021

Weather: Cloud

Time: 10:45

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Green / Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Foam/surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.27	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	8100	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9837	~	~	
Water Temperature	°C	15.77	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	m	-	1*	2	
Dissolved Oxygen	mg/l	7.37	~	~	
Dissolved Oxygen Saturation	%	73.52	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	110	10,000	500	
Directive 2006/7/EC and Bathing Water Regulations 2013					
Water Quality Assessment – RV1 – LJ8884			Excellent	Good	Sufficient
<i>E.Coli</i>	cfu per 100 ml ¹	36	<250	250-500	500
Intestinal <i>Enterococci</i>	cfu per 100 ml ¹	7	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion, with the exception of dissolved oxygen, all onsite parameters and total coliforms complied with the Former Guideline Value 76/160/EE (500 cfu per 100 ml) and the SI 1991, No.1597 or Mandatory Value 76/160/EEC. Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.Coli* and Intestinal *Enterococci* were within the threshold for 'Excellent'.

Conclusion

The water in this location complied with guidance and is **SUITABLE** for water contact sports and as bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions.

**ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY**

LOCATION: RV 2 (Royal Victoria Dock, East)

Date: 08 October 2021

Weather: Cloud

Time: 10:40

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Green / Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Form/Surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.28	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	8066	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9790	~	~	
Water Temperature	°C	15.80	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	m	-	1*	2	
Dissolved Oxygen	mg/l	8.72	~	~	
Dissolved Oxygen Saturation	%	89.28	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	100	10,000	500	
Directive 2006/7/EC and Bathing Water Regulations 2013					
Water Quality Assessment – RV2 – LJ8885			Excellent	Good	Sufficient
<i>E.Coli</i>	cfu per 100 ml ¹	29	<250	250-500	500
Intestinal <i>Enterococci</i>	cfu per 100 ml ¹	19	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion all onsite parameters and total coliforms complied with the Former Guideline Value 76/160/EE (500 cfu per 100 ml) and the SI 1991, No.1597 or Mandatory Value 76/160/EEC. Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.Coli* and Intestinal *Enterococci* were within the threshold for 'Excellent'.

Conclusion

The water in this location complied with guidance and is SUITABLE for water contact sports and as bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions.

ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY

LOCATION: RA 3 (Royal Albert Dock, West)

Date: 08 October 2021

Weather: Cloud

Time: 10:30

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Clear / Green / Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Foam/surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.20	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	8055	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9786	~	~	
Water Temperature	°C	15.75	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	m	-	1*	2	
Dissolved Oxygen	mg/l	9.60	~	~	
Dissolved Oxygen Saturation	%	98.40	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	700	10,000	500	
Directive 2006/7/EC and Bathing Water Regulations 2013					
Water Quality Assessment – RA3 – LJ8886			Excellent	Good	Sufficient
<i>E.coli</i>	cfu per 100 ml ¹	110	<250	250-500	500
Intestinal Enterococci	cfu per 100 ml ¹	7	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion, all onsite parameters and total coliforms complied with the SI 1991, No.1597 or Mandatory Value 76/160/EEC, however Total Coliforms exceeded the Former Guideline Value 76/160/EE (500 cfu per 100 ml). Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.Coli* and Intestinal *Enterococci* were within the threshold for 'Excellent'.

Conclusion

The water in this location complied with guidance and is **SUITABLE** for water contact sports and as bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions.

ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY
LOCATION: RA 5 (Royal Albert Dock, East)

Date: 08 October 2021
Weather: Cloud
Time: 10:25

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Form/Surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.29	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	7247	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9288	~	~	
Water Temperature	°C	15.76	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	m	-	1*	2	
Dissolved Oxygen	mg/l	8.23	~	~	
Dissolved Oxygen Saturation	%	83.87	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	5900	10,000	500	
Directive 2006/7/EC and Bathing water Regulations 2013					
Water Quality Assessment – RA5 – LJ8887			Excellent	Good	Sufficient
<i>E.coli</i>	cfu per 100 ml ¹	730	<250	250-500	500
Intestinal <i>Enterococci</i>	cfu per 100 ml ¹	>100	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion, all onsite parameters complied with the SI 1991, No.1597 or Mandatory Value 76/160/EEC and the Former Guideline Value 76/160/EE (500 cfu per 100 ml). Total coliforms exceeded the Former Guideline Value 76/160/EE, however complied with the Mandatory Value 76/160/EEC. Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.coli* greatly exceeds the 'Sufficient' threshold and Intestinal *Enterococci* was within the 'Good' threshold.

Conclusion

The water in this location complied with guidance and is NOT SUITABLE for water contact sports or for bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions.

ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY
LOCATION: KG 7 (King George V Dock, West)

Date: 08 October 2021

Weather: Cloud

Time: 10:05

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Clear / Green / Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Foam/surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.20	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	8110	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9780	~	~	
Water Temperature	°C	16.04	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	m	-	1*	2	
Dissolved Oxygen	mg/l	6.71	~	~	
Dissolved Oxygen Saturation	%	69.08	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	180	10,000	500	
Directive 2006/7/EC and Bathing water Regulations 2013					
Water Quality Assessment – KG7 – LJ8888			Excellent	Good	Sufficient
<i>E.coli</i>	cfu per 100 ml ¹	24	<250	250-500	500
Intestinal <i>Enterococci</i>	cfu per 100 ml ¹	4	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion all onsite parameters, with the exception of dissolved oxygen, and total coliforms complied with the Former Guideline Value 76/160/EE (500 cfu per 100 ml) and the SI 1991, No.1597 or Mandatory Value 76/160/EEC. Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.Coli* and Intestinal *Enterococci* were within the threshold for 'Excellent'.

Conclusion

The water in this location complied with guidance and is SUITABLE for water contact sports and bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions

ROYAL DOCKS MANAGEMENT AUTHORITY LTD
BATHING WATER QUALITY SURVEY
LOCATION: KG 8 (King George V Dock, East)
Date: 08 October 2021
Weather: Cloud
Time: 10:20

On site Observations	Units	Result	SI 1991, No.1597 or Mandatory Value 76/160/EEC	Former Guideline Value 76/160/EEC	
Water Colour	~	Clear / Green / Brown	No abnormal change	~	
Oil Film	mg/l	None	No visible film	0.3	
Lasting Foam/surfactants	mg/l	None	No lasting foam	0.3	
Phenolic Odour/Phenols	mg/l	None	No specific odour	<0.005	
Floatables	~	None	~	absence	
On site Measurements					
pH	~	8.27	6 to 9	~	
Electrical Conductivity (ACT)	µS/cm, 25°C	8099	~	~	
Electrical Conductivity (SP)	µS/cm, 25°C	9764	~	~	
Water Temperature	°C	16.07	~	~	
Ambient Temperature	°C	16	~	~	
Transparency (Secchi Depth)	M	-	1*	2	
Dissolved Oxygen	mg/l	8.53	~	~	
Dissolved Oxygen Saturation	%	87.93	~	80 to 120	
Laboratory Analysis					
Total Coliforms	cfu per 100 ml ¹	260	10,000	500	
Directive 2006/7/EC and Bathing water Regulations 2013					
Water Quality Assessment – KG8 – LJ8889			Excellent	Good	Sufficient
<i>E.coli</i>	cfu per 100 ml ¹	28	<250	250-500	500
Intestinal <i>Enterococci</i>	cfu per 100 ml ¹	7	<100	100-200	185

¹ Colony forming units (cfu) per 100 ml

Summary

On this occasion all onsite parameters and total coliforms complied with the Former Guideline Value 76/160/EE (500 cfu per 100 ml) and the SI 1991, No.1597 or Mandatory Value 76/160/EEC. Under the Directive 2006/7/EC and Bathing water Regulations 2013, *E.Coli* and Intestinal *Enterococci* were within the threshold for 'Excellent'.

Conclusion

The water in this location complied with guidance and is SUITABLE for water contact sports and bathing water.

Notes

We have assumed that maintenance of the dock areas includes the routine removal of litter, leaves and other floating debris. Items marked with an asterisk allow for exceedance of the limits on the basis of exceptional geographical or meteorological conditions.