

NMR PIPETECTOR Installation Report, in UK Anti-Corrosion Application, Thistle Westminster Hotel, located in London

NMR Corporation

< Installation Purpose and Result >

Thistle Westminster Hotel located in Victoria is one of the deluxe modern hotels in the world, and has 134 rooms. The property of the hotel is managed by Land Securities that is the UK's leading property company.

For the protection of the hot water pipe work, two NMR units (PT-75DS) were installed onto the two separate domestic hot water flow pipes of 3 inch and 3.5 inch that supplies all the hotel's domestic hot water on January 5 in 2007.

24 days after the installation of NMR Pipetector, the average value of Fe content of the domestic hot water considerably decreased from **1.463mg/l** (highest value is 2.16mg/l and lowest is 0.522mg/l) (before the installation of NMR Pipetector) to **0.028mg/l** (highest is 0.019mg/l, lowest is 0.009mg/l), **0.0145mg/l** (highest is 0.021mg/l and lowest is <0.007mg/l) 35 days after installation, and **0.01mg/l** (highest is 0.016mg/l and lowest is 0.007mg/l) 150 days after the installation.

All the values of Fe content in water after the installation are much lower than the British Government Standard for Drinking Water of 0.2mg/l. It means that new forming of corrosion (FeO(OH)) inside of the pipe work was immediately terminated, and the existing corrosion is now being changed into magnetite(Fe₃O₄) which is not dissolved into the water and protects the inside of the pipe from corrosion.

< Installation Summary >

Name of Building :Address	Thistle Westminster Hotel Buckingham Palace Road, London SW1W 0QT	
Building Summary	One of the deluxe modern hotels in the world. The hotel has 134 rooms.	
Installation Place	Two hot water flow pipes that supplies all the hotel's domestic hot water.	
Installation Day	January 5 in 2007	
Installation Place Number of installed NMR PIPETECTOR	3 inch hot water flow pipe (SGP) 3.5 inch hot water flow pipe (SGP)	PT-75DSx1 unit PT-75DSx1 unit

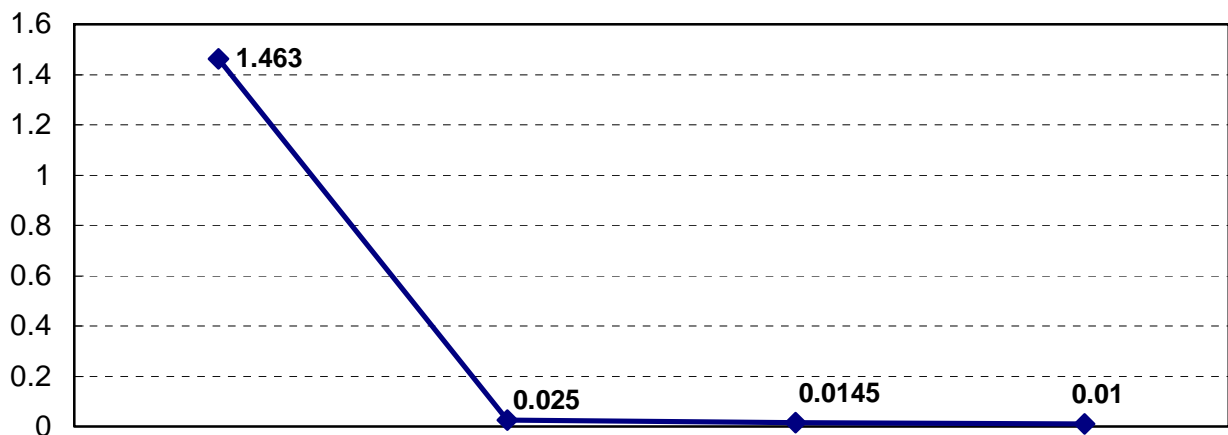
<Fe content in hot water (mg/l)>

	Before Installation Dec. 29, 2006	Installation Day Jan. 5, 2007	24 Days After Installation Jan. 29, 2007	35 Days After Installation Feb. 9, 2007	150 Days After Installation Jun. 4, 2007	The British Government Standard for Drinking Water
Fe Content in Water (mg/l)	1.65 (R101)		0.009 (lowest) (R101)	0.013 (R102)	0.016 (R101)	0.2 mg/l
	1.52 (lowest) (R131)		0.057 (highest) (R130)	<0.007 (lowest) (1 st floor)	0.016 (highest) (R101)	
	0.522 (R201)		0.019 (R210)	0.017 (R201)	0.008 (R210)	
	2.16 (highest) (R231)		0.015 (R245)	0.021 (highest) (R229)	0.009 (R210)	
					0.008 (R245)	
					0.007 (lowest) (R245)	
Average of Fe Content in Water (mg/l)	1.463		0.025	0.0145	0.01	

Thistle Westminster Hotel

Change of Fe Content in Water(mg/l)

Fe Content in Water(mg/l)



Before Installation
Dec. 29, 2006

24 Days After Installation
Jan. 29, 2007




35 Days After Installation
Feb. 9, 2007

150 Days After Installation
Jun. 4, 2007

Installation Day
Jan. 5, 2007

Before Installation

Certificate of Analysis

1314
0887
1228
1510

Sample **3** Laboratory Number: **832172**
of **9** Report Number: **BR/396964/2006** Issue **1**




Sample Source: **Cambridge Water Company**
Sample Point Description: **Cambridgeshire Water Company**
Sample Description: **WESTMINSTER HOTEL R101**

Sample Date: **29 December 2006** Sample Received: **29 December 2006** Analysis Complete: **05 January 2007**

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	1650	ug/l	200	B	SBC44

Accreditation Codes: * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis

1314
0887
1228
1510

Sample **4** Laboratory Number: **832173**
of **9** Report Number: **BR/396964/2006** Issue **1**

Sample Source: **Cambridge Water Company**
Sample Point Description: **Cambridgeshire Water Company**
Sample Description: **WESTMINSTER HOTEL R131**

Sample Date: **29 December 2006** Sample Received: **29 December 2006** Analysis Complete: **05 January 2007**

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	1520	ug/l	200	B	SBC44

Accreditation Codes: * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Thistle Westminster 3-6(080226)

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24 Days After Installation

Certificate of Analysis

1314
0897
1229
1510




Sample 2 Laboratory Number : 870344
of 6 Report Number : BR /402724/2007 Issue 1

Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company
Sample Description : THISTLE HOTEL 1ST FLOOR ROOM 101
Sample Date : 29 January 2007 Sample Received : 29 January 2007 Analysis Complete : 02 February 2007

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	9	ug/l	200	B	SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis

1314
0897
1229
1510

Sample 1 Laboratory Number : 870343
of 6 Report Number : BR /402724/2007 Issue 1

Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company
Sample Description : THISTLE HOTEL 1ST FLOOR ROOM 130
Sample Date : 29 January 2007 Sample Received : 29 January 2007 Analysis Complete : 02 February 2007



Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	57	ug/l	200	B	SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Thistle Westminster 4-6(080226)

35 Days After Installation

Certificate of Analysis

1314
0897
1228
1510

Sample 6 Laboratory Number : 889715
of 6 Report Number : BR/405551/2007 Issue 1



Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company
Sample Description : 102 HOTEL *THISTLE WESTMINSTER HOTEL*

Sample Date : 09 February 2007 Sample Received : 09 February 2007 Analysis Complete : 13 February 2007

Test Description	Result	Units	Limit	Accreditation	Reference
Iron, Total as Fe	13	ug/l	200	B	SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis

1314
0897
1228
1510

Sample 5 Laboratory Number : 889714
of 6 Report Number : BR/405551/2007 Issue 1

Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company
Sample Description : 1ST HOTEL *THISTLE WESTMINSTER HOTEL*

Sample Date : 09 February 2007 Sample Received : 09 February 2007 Analysis Complete : 13 February 2007




Test Description	Result	Units	Limit	Accreditation	Reference
Iron, Total as Fe	<7	ug/l	200	B	SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Signed : *Don* Name : T. Down Date : 13 February 2007
Title : Production Manager

150 Days After Installation

Certificate of Analysis

1314
0897
1229
1510




Sample **5** Laboratory Number : **10007354**
of **13** Report Number : **BR/431327/2007** Issue **1**

Sample Source : **Cambridge Water Company**
Sample Point Description : **Cambridgeshire Water Company**
Sample Description : **thistle hotel 1st rm 101 no1**
Sample Date : **04 June 2007** Sample Received : **04 June 2007** Analysis Complete : **06 June 2007**

Test Description	Result	Units	Acceptance Criteria	Method
Iron, Total as Fe	16	ug/l	200	B SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis

1314
0897
1229
1510

Sample **6** Laboratory Number : **10007355**
of **13** Report Number : **BR/431327/2007** Issue **1**

Sample Source : **Cambridge Water Company**
Sample Point Description : **Cambridgeshire Water Company**
Sample Description : **thistle hotel 1st rm 101 no2**
Sample Date : **04 June 2007** Sample Received : **04 June 2007** Analysis Complete : **06 June 2007**

Test Description	Result	Units	Acceptance Criteria	Method
Iron, Total as Fe	16	ug/l	200	B SBC44

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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