### NMR PIPETECTOR Installation Report, in UK

# Anti-Corrosion Application, Office Victoria, located in London

NMR Corporation

### < Installation Purpose and Result>

Office Victoria is located next to the Thistle Westminster Hotel in London and its property is managed by Land Securities that is the UK's leading property company.

For the protection of the hot water pipe work, one NMR Pipetector (PT-50DS) was installed onto the domestic hot water cylinder that has a galvanized flow pipe of 2 inch 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 1.93mg/l (highest value is 1.97mg/l and lowest is 1.89mg/l) (before the installation of NMR Pipetector) to <0.007mg/l, <0.007mg/l 35 days after installation, and 0.01mg/l (highest is 0.015mg/l and lowest is <0.007mg/l) 150 days after the installation.

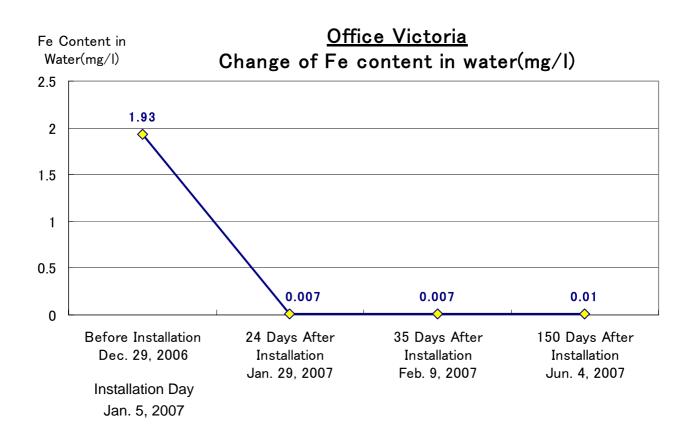
All the values of Fe content in water after the installation are much lower than the British Government Standard for Drinking Water of 0.2mg/l. It means that new forming of corrosion (FeO(OH)) inside of the pipe work was immediately terminated, and the existing corrosion is now being changed into magnetite(Fe<sub>3</sub>O<sub>4</sub>) which is not dissolved into the water and protects the inside of the pipe from corrosion.

#### < Installation Summary>

Name of Building :Address	Office Victoria  Located next to Thistle Westminster Hotel at Buckingham Palace Road,  London SW1W 0QT				
Building Summary	Office building				
Installation Place	Domestic hot water cylinder that is flow pipe to supply the office's domestic hot water.				
Installation Day	January 5 in 2007				
Installation Place Number of installed NMR PIPETECTOR	2 inch hot water flow pipe (SGP) PT-50DS×1 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)	<b>1.97</b> (8 <sup>th</sup> floor)		<b>&lt;0.007</b> (4 <sup>th</sup> floor)	<b>&lt;0.007</b> (5 <sup>th</sup> floor)	<b>&lt;0.007</b> (4 <sup>th</sup> floor)	0.2 mg/l
	<b>1.89</b> (3 <sup>rd</sup> floor)		<0.007 (4 <sup>th</sup> floor)	<0.007 (6 <sup>th</sup> floor)	<0.007 (4 <sup>th</sup> floor)	
					<b>0.012</b> (7 <sup>th</sup> floor)	
					<b>0.015</b> (7 <sup>th</sup> floor)	
Average of Fe Content in Water (mg/l)	1.93		<0.007	<0.007	0.01	



## **Before Installation**

### Sample Date: 29 December 2006 Sample Received: 29 December 2006 Analysis Complete: 05 January 2007 SBC44 SEVERN TRENT 200 1970 Sample Point Description: Cambridgeshire Water Company **OFFICE VICTORIA 8TH FLOOR** BR/396964/2006 Cambridge Water Company Certificate of Analysis Laboratory Number: Report Number: Sample Description : Sample Source: Iron, Total as Fe 9 0 Sample

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Iron, Total as Fe

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

Sample Source : Cambridge Water Company Sample Point Description : Cambridgeshire Water Company

Report Number: BR/396964/2006

Laboratory Number:

Sample

OFFICE VICTORIA 3RD FLOOR

Sample Description: Sample Source:

TRENT SEVERN

Certificate of Analysis

Severn Trent Laboratories Ltd 2 Tachnology Drive, Bridgand Science Park, Bridgand, Mid Glamorgan CF31 3NA Tel 016 5684 7557 Fex 016 5684 6525

Severn Trent Laboratories Ltd 2 Technology Drive, Bridgand Science Park, Bridgend, Mid Glamorgan CF31 3NA Tal 016 5684 7557 Fax 016 5664 6525

#### Certificate of Analysis



# 24 Days After Installation



Sample 5 Laboratory Number : 6 Report Number : BR /402724/2007

Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company

Sample Description : LAKE VIEW COURT 4 FLOOR OFFICES

Sample Date: 29 January 2007 Sample Received: 29 January 2007 Analysis Complete: 02 February 2007

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rdes : " = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Rumoom, L = Analysed at STL Midlands, S = Sub For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected VS - Inauticient eample

Sample 6 Laboratory Number : BR /402724/2007 6 Report Number :

Cambridge Water Company Sample Point Description : Cambridgeshire Water Company

Sample Description : LAKE VIEW COURT 7TH FLOOR OFFICES HOT WATER Sample Date: 29 January 2007 Sample Received: 29 January 2007 Analysis Complete: 02 February 2007

 
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Accorditation Codes: \* = Not UKAS scoredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcom, L = Analysed at STL Middende, S = Sub-contracted For Microbiological determinands 0 or ND • Not Detected, DET = Detected, For Legionella ND•Not detected in volume of sample filtered.

Signed:

Date: 02 February 2007 Name: T. Down

Title: Production Manager

Severn Trent Laboratories Ltd
2 Technology Drive, Bridgend Science Park, Bridgend, Mid Glamorgan CP31 3NA Tel 016 5664 7557 Fax 016 5684 6525

Certificate of Analysis

35 Days After Installation

Sample 3 Laboratory Number : B Report Number : BR /405551/2007

889711

Sample Point Description: Cambridge Water Company
Sample Point Description: Cambridgeshire Water Company
LOKE VIEW OFFICE 5TH FLOOR

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

Tost Description Result Units a Limit Accreditation Method 200 B SBC44

tion Codes: " = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Covenity, R = Analysed at STL Rundorn, L = Analysed at STL Indiands, S = Sub-contracted ands 0 or ND = Not Detected, DET = Detected, For Legionatis, ND=Not detected in volume of sample filtered.

Sample 2 Laboratory Number :

6 Report Number : BR /405551/2007

Sample Source: Cambridge Water Company
Sample Point Description: Cambridgeshire Water Company
Lake View office Builting Sample Date: 09 February 2007 Sample Received: 09 February 2007 Analysis Complete: 13 February 2007

Test Description Result Unity Limit Accreditation Method : <7 ug/l 200 B SBC44

Accrediation Codes: " = Not UKAS accredited, 8 = Analysed at \$TL Bridgend, C = Analysed at \$TL Coventry, R = Analysed at \$TL Romonn, L = Analysed at \$TL Midlands, S = Sub-

## 150 Days After Installation

Iron, Total as Fe

#### Certificate of Analysis SEVERN STL Sample 1 Laboratory Number : 13 Report Number : BR /431327/2007 Issue 1 Sample Source : Cambridge Water Company Sample Point Description : Cambridgeshire Water Company Sample Description : lakeview office 4th floor no1 Sample Date: 04 June 2007 Sample Received: 04 June 2007 Analysis Complete : 06 June 2007

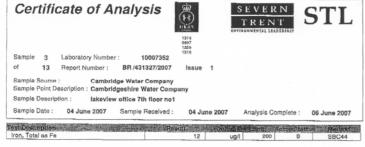
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Logionalia ND=Not detected in volume of sample titland.

Iron, Total as Fe

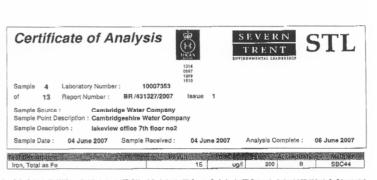
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#### SEVERN STL Certificate of Analysis Sample 2 Laboratory Number : 10007351 13 Report Number : BR /431327/2007 Issue 1 Sample Source : Cambridge Water Company Sample Point Description : Cambridgeshire Water Company lakeview office 4th floor no2 Sample Date: 04 June 2007 Sample Received; 04 June 2007 Analysis Complete: 06 June 2007

For Microbiological determinands 0 or NO = Not Detected, DET = Detected, For Legisnella NO=Not detected in volume of earnpie filtered.



ands 0 or ND = Not Detected, DET = Detected, For Legionalia ND=Not detected in volume of sample filtered.



For Microbiological determinands 0 or ND = Not Detected, DET - Detected, For Legionella ND-Not detected in volume of sample filtered.

Office Victoria5-5(080226)