

# NMR PIPETECTOR Scientific Installation Report, in UK

Anti-Corrosion Application for Chilled Water System

## Holiday Inn LONDON HEATHROW M4 Jct.4, Located in West Drayton

NMR CORPORATION

### ◆ Installation Purpose and Result

The Holiday Inn Hotel London Heathrow M4 Jct.4 was built during 1970 and was one of the largest hotels in the UK, comprising of 617 rooms, it is situated just minutes away from Heathrow Airport which is the UK's largest International Airport.

The hotel has been suffering from major internal corrosion problems in the chilled water pipe work, with many small pin holes occurring causing severe problems and damage throughout the hotel.

For the complete protection of all the chilled water pipe work, one NMR Pipetector PT-350DS was installed on the main chilled water flow header in the 12<sup>th</sup> of February 2008, with the first set of water samples being taken for the analysis of the Fe ion content.

Only seven days after the NMR Pipetector was installed, the Fe ion content in the chilled water was considerably reduced from **0.669 mg/L** down to **0.017 mg/L**, and the Fe content has been kept at a very low level from the beginning of the trial date, it means that new forming of corrosion (FeO(OH)) inside of the pipe work was immediately terminated, and the existing corrosion inside of the pipes from corrosion.

The trial of the NMR Pipetector PT-350DS has been confirmed a complete by the Holiday Inn Hotel as there have been no further leaks in the chilled water pipe work throughout the twelve month trial period.

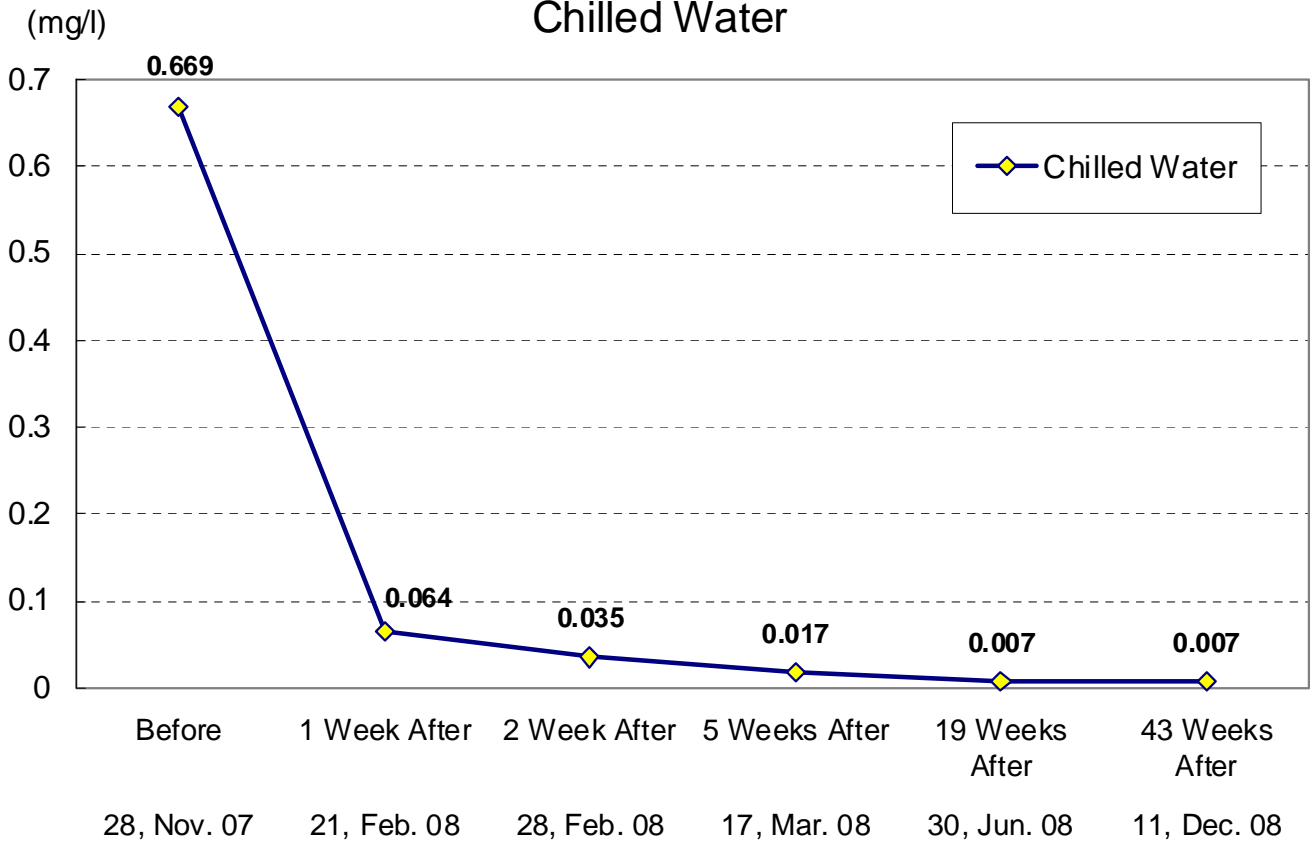
### ◆ Installation Summary

Name of Building :Address	Holyday Inn London Heathrow M4 Jct.4 Sipson Road, West Drayton, UB7 0JW	
Building Summary	617 rooms, built in 1970	
Installation Day	12 <sup>th</sup> February 2008	
Installation Place Number of installed NMR PIPETECTOR	Chilled Water	PT-350DS × 1 unit

◆ Change of Fe content in water (mg/l)

	28, Nov. 07	Installation Day 12, Feb. 08	21, Feb. 08	28, Feb. 08	17, Mar. 08	30, Jun. 08	11, Dec. 08
	Before Installation		1 Week	2 Weeks	5 Weeks	19 Weeks	43 Weeks
Chilled Water	0.669 mg/l		0.064 mg/l	0.035 mg/l	0.017 mg/l	<0.007 mg/l	<0.007 mg/l

Holiday Inn London Heathrow M4 Jct.4  
Chilled Water



Installation Day  
12, Feb. 2008

Before Installation

Certificate of Analysis



1314  
0897  
1229  
1610

SEVERN  
TRENT

STL

Report Number: BRD/474657/2007  
Laboratory Number 10297573

Issue 1  
Sample 2 of 2

Sample Source: Cambridge Water Company  
Sample Point Description: Cambridgeshire Water Company  
Sample Description: HOLIDAY INN 21 DROP COLD

Sample Date: 28 November 2007 Sample Received 28 November 2007 Analysis Complete: 03 December 2007

Test Description	Result	Unit	Limit	Acceptance	Method
Iron, Total as Fe	669	ug/l	200	Y	Bri SBC44

Analyst Comments for 10297573:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Ren = STL Reading, Run = STL Runcom.  
For Microbiological determinands 0 or ND = Not Detected, For Legionella ND = Not Detected in volume of sample filtered, US = insufficient sample

Signed: *R Robins*

Name: R. Robins

Date: 03 December 2007

Title: Team Leader

1 week after installation

Certificate of Analysis



1314  
0897  
1229  
1610

SEVERN  
TRENT

STL

Report Number: BRD/494283/2008  
Laboratory Number 10427314

Issue 1  
Sample 2 of 2

Sample Source: Cambridge Water Company  
Sample Point Description: Cambridgeshire Water Company  
Sample Description: HOLIDAY INN DROP Z1 COLD

Sample Date: 21 February 2008 Sample Received 21 February 2008 Analysis Complete: 25 February 2008

Test Description	Result	Unit	Limit	Acceptance	Method
Iron, Total as Fe	64	ug/l	200	Y	Bri SBC44

Analyst Comments for 10427314:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Ren = STL Reading, Run = STL Runcom.  
For Microbiological determinands 0 or ND = Not Detected, For Legionella ND = Not Detected in volume of sample filtered, US = insufficient sample

Signed: *T Down*

Name: T. Down


Date: 25 February 2008

Title: Production Manager

Holiday Inn Cold 3-5 090611

# 2 week after installation

**Certificate of Analysis**



1314  
0897  
1228  
1610

**SEVERN TRENT STL**

Report Number: **BRD/496201/2008** Issue **1**  
 Laboratory Number **10440069** Sample **4** of **4**

Sample Source: **Cambridge Water Company**  
 Sample Point Description: **Cambridgeshire Water Company**  
 Sample Description: **Holiday Inn Cold**

Sample Date: **28 February 2008** Sample Received **28 February 2008** Analysis Complete: **05 March 2008**

TEST DESCRIPTION	RESULT	UNIT	LIMIT	ACCREDITATION	METHOD
Iron, Total as Fe	36	ug/l	200	Y Bri	SBC44


Analyst Comments for 10440069: No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
 Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcom.  
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. I/B=insufficient sample

Signed: *T. Down* Name: **T. Down** Date: **05 March 2008**  
 Title: **Production Manager**

# 5 weeks after installation

**Certificate of Analysis**



1314  
0897  
1228  
1610

**SEVERN TRENT STL**

Report Number: **BRD/500890/2008** Issue **1**  
 Laboratory Number **10471202** Sample **2** of **2**

Sample Source: **Cambridge Water Company**  
 Sample Point Description: **Cambridgeshire Water Company**  
 Sample Description: **Holiday Inn Cold**

Sample Date: **17 March 2008** Sample Received **17 March 2008** Analysis Complete: **27 March 2008**

TEST DESCRIPTION	RESULT	UNIT	LIMIT	ACCREDITATION	METHOD
Iron, Total as Fe	17	ug/l	200	Y Bri	SBC44

Analyst Comments for 10471202: No Analyst Comment


Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
 Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcom.  
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. I/B=insufficient sample

Signed: *R. Robins* Name: **R. Robins** Date: **27 March 2008**  
 Title: **Team Leader**

Holiday Inn Cold 4-5 090611

19 week after installation

**Certificate of Analysis**



SEVERN TREN T **STL**

1314  
0897  
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Report Number: **BRD/527458/2008** Issue **1**  
 Laboratory Number **10648360** Sample **1** of **2**

Sample Source: **Cambridge Water Company**  
 Sample Point Description: **Cambridgeshire Water Company**  
 Sample Description: **Holiday Inn Cold**

Sample Date: **30 June 2008** Sample Received **30 June 2008** Analysis Complete: **08 July 2008**


Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	<7	ug/l	200	Y Bri	SBC44

Analyst Comments for 10648360: No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
 Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Res = STL Reading, Run = STL Runcom.  
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, IS=Insufficient sample.

43 weeks after installation

**Certificate of Analysis**



SEVERN TREN T **STL**

1314  
0897  
1229  
1510

Report Number: **BRD/569103/2008** Issue **1**  
 Laboratory Number **10955488** Sample **2** of **4**

Sample Source: **Cambridge Water Company**  
 Sample Point Description: **Cambridgeshire Water Company**  
 Sample Description: **Holiday Inn Cold**

Sample Date: **11 December 2008** Sample Received **11 December 2008** Analysis Complete: **18 December 2008**

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	<7	ug/l	200	Y Bri	SBC44

Analyst Comments for 10955488: No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.  
 Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Res = STL Reading, Run = STL Runcom.  
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, Relating to Legionella volume analysed 1g is approximately equivalent to 1ml.  
 IS=Insufficient sample.

Holiday Inn Cold 5-5-090611