

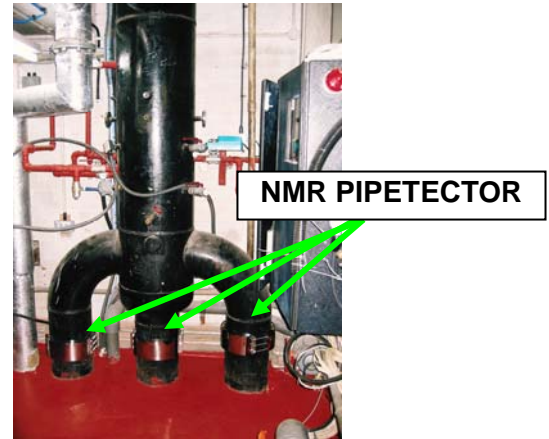
NMR PIPETECTOR Installation Report, in UK Anti-Corrosion Application, British Broadcasting Corporation (BBC), located in London

NMR Corporation

*Appearance of Building and Installation Place



Appearance of the building



Chilled water supply pipe

< Installation Purpose and Result >

British Broadcasting Corporation in London is the national broadcasting company in United Kingdom, and built in 1953, and one of the BBC buildings where the television programs are made in the White City area of London has major problem with corrosion in the iron pipe work of the chilled water system involving the cooling towers. NMR Pipetector has been fitted onto the iron pipe work of chilled water at the BBC television studios.

For the protection of the chilled water system from corrosion in the Main Block Building and in the Stage 5 Building, four NMR units of 10 inch (PT-250DS) were installed onto the separate chilled water pipe works.

32 days after the installation of NMR Pipetector, the Fe content in water considerably decreased from **5.53mg/l** (before the installation of NMR Pipetector) to **0.048mg/l** in the Main Block Building, and **3.8mg/l** (before the installation of NMR Pipetector) to **0.063mg/l** in the Stage 5 Building. 57 days after the installation, the Fe content stayed at low of **0.06mg/l** in the Main Block Building, and **0.008 mg/l** in the Stage 5 Building, which are much lower than the British Government Standard for Drinking Water of 0.2mg/l.

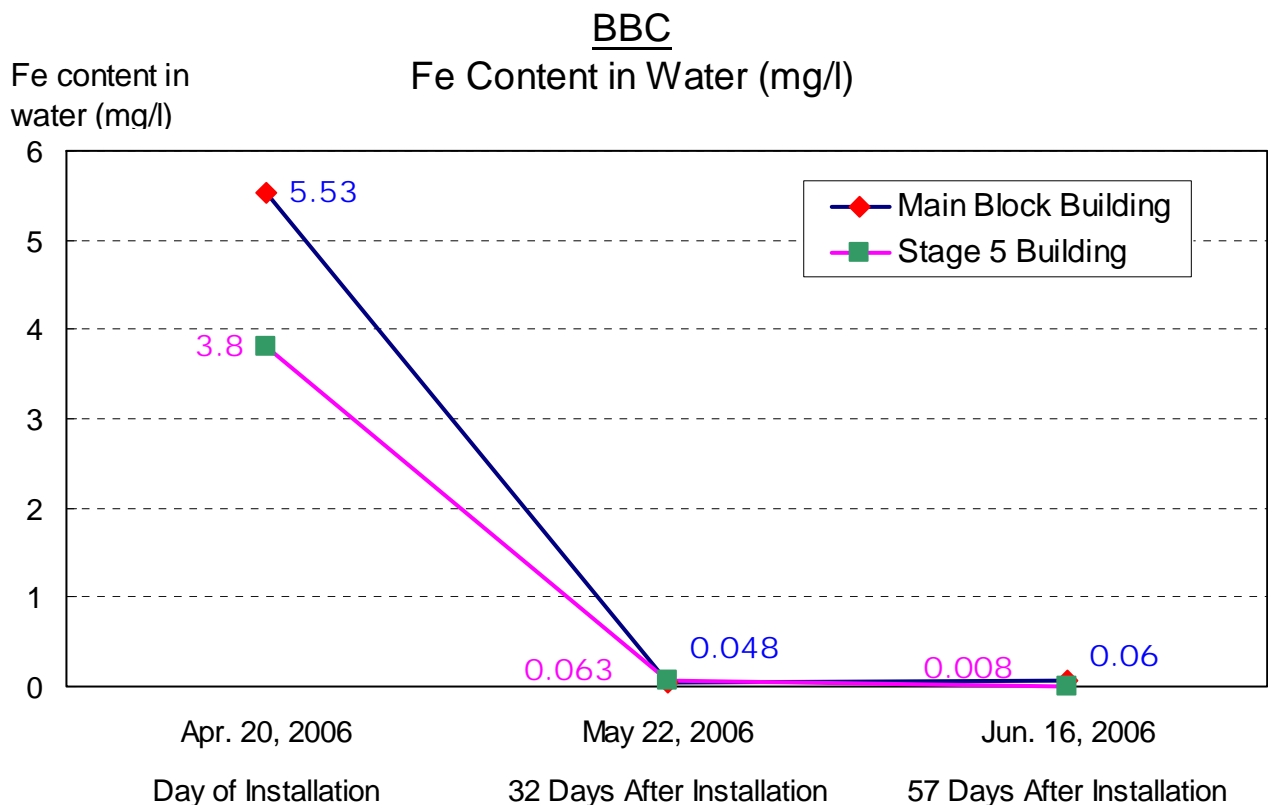
It means that new forming of corrosion (FeO(OH)) inside of the pipe work was immediately terminated, and the existing corrosion was reduced to magnetite (Fe₃O₄) which is not dissolved into the water and protects the inside of the pipe from corrosion.

< Installation Summary >

Name of Building :Address	British Broadcasting Corporation BBC Television Studios, White City, London, UK
Building Summary	One of the BBC television studios buildings The building was built in 1953.
Installation Place	Chilled water supply pipes coming from the cooling towers in the Main Block Building and Stage 5 Building
Installation Day	April 20 th in 2006
Installation Place Number of installed NMR PIPEECTOR	10 inch outer diameter iron pipe of the chilled water PT-250DSx4units




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

	Installation Building	Day of Installation Apr. 20, 2006	32 Days After Installation May 22, 2006	57 Days After Installation, Jun. 16, 2006
Fe Content in Water	Main Block Building	5.53 mg/l	0.048 mg/l	0.06 mg/l
	Stage 5 Building	3.8 mg/l	0.063 mg/l	0.008 mg/l



Installation Day of NMR Pipetector (Main Block Building)

Certificate of Analysis

1314
0897
1229
1510

Sample **2** Laboratory Number: **368746**
of **3** Report Number: **BR/341627/2006** Issue **1**




Sample Source: **Cambridge Water Company**
Sample Point Description: **Cambridgeshire Water Company**
Sample Description: **PETER GOSLING - BBC MAIN BLOCK**
Sample Date: **26 April 2006** Sample Received: **26 April 2006** Analysis Complete: **02 May 2006**

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	5530	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

Before Installation of NMR Pipetector (Stage 5 Building)

Certificate of Analysis

1314
0897
1229
1510

Sample **3** Laboratory Number: **368747**
of **3** Report Number: **BR/341627/2006** Issue **1**

Sample Source: **Cambridge Water Company**
Sample Point Description: **Cambridgeshire Water Company**
Sample Description: **PETER GOSLING - BBC STAGE 5 CHILLED WATER CONDENSER**
Sample Date: **26 April 2006** Sample Received: **26 April 2006** Analysis Complete: **02 May 2006**

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	3800	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:






Name: **T. Down**

Date: **02 May 2006**

Title: **Production Manager**

32 Days After Installation of NMR Pipetector (Main Block Building)

Certificate of Analysis

1314
0807
1229
1510

Sample 1 Laboratory Number : 407519
of 3 Report Number : BR/347123/2006 Issue 1

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




Sample Date : 22 May 2006 Sample Received : 22 May 2006 Analysis Complete : 24 May 2006

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	48	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

32 Days After Installation of NMR Pipetector (Stage 5 Building)

Certificate of Analysis

1314
0807
1229
1510

Sample 2 Laboratory Number : 407520
of 3 Report Number : BR/347123/2006 Issue 1

Sample Source : Cambridge Water Company
Sample Point Description : Cambridgeshire Water Company
Sample Description : STAGE 5



Sample Date : 22 May 2006 Sample Received : 22 May 2006 Analysis Complete : 24 May 2006

Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	63	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



BBC 4-5(080226)

57 Days After Installation of NMR Pipetector (Main Block Building)

Certificate of Analysis				STL	
Sample 2	Laboratory Number: 448869	1314			
of 3	Report Number: BR/352952/2006 Issue 1	0897			
Sample Source:	Cambridge Water Company	1229			
Sample Point Description:	Cambridgeshire Water Company	1510			
Sample Description:	Main Block				
Sample Date:	16 June 2006	Sample Received:	16 June 2006	Analysis Complete:	21 June 2006
Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	60	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. IS = insufficient sample

57 Days After Installation of NMR Pipetector (Stage 5 Building)

Certificate of Analysis				STL	
Sample 1	Laboratory Number: 448868	1314			
of 3	Report Number: BR/352952/2006 Issue 1	0897			
Sample Source:	Cambridge Water Company	1229			
Sample Point Description:	Cambridgeshire Water Company	1510			
Sample Description:	Stage 5				
Sample Date:	16 June 2006	Sample Received:	16 June 2006	Analysis Complete:	21 June 2006
Test Description	Result	Units	Limit	Accreditation	Method
Iron, Total as Fe	8	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. IS = insufficient sample

BBC 5-5(080226)