HSE

Health and Safety Executive

Report of the public meetings into the legionella outbreak in Barrow-in-Furness, August 2002

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Foreword

On the initiative of Barrow MP, the Rt Hon John Hutton, HSE organised hearings into the Barrow legionella tragedy. This was done in the aftermath of the trials of Barrow Borough Council and Ms Beckingham and, for obvious reasons, could not have been undertaken earlier.

I accepted HSE's request for me to chair the hearings. In no way could we, as it were, conduct another trial. But of course, the findings of the Courts were a baseline for our work.

We were somewhat restricted in that we had to take care not to prejudice any disciplinary and investigatory inquiries Barrow Council has still to undertake. While we had no statutory powers and therefore no authority to 'summon' witnesses to attend, it was gratifying that everyone we asked to give evidence volunteered to do so. As well as those who gave presentations or made other contributions, the Cumbria Police, the local Health Trust and a senior Councillor representative attended.

Though emotions throughout were high, the self-restraint and courtesy of those present, many of whom had suffered bereavement in the legionella outbreak and had waited many years for the opportunity to have their concerns addressed, was remarkable. This was despite a long-running quest for 'culprits' by sections of the public and strident demands for resignations and sackings that generated much heat but little light.

The purpose of the hearings was to cast as much light as possible on the circumstances up to, during and after the outbreak, and to encourage those local citizens most affected to probe into the story, seeking the answers they had hitherto not secured.

It was also most important that we should produce a report that would be useful in helping not only Barrow, but also other local authorities and other relevant organisations, avoid any repetition through negligence, mismanagement or ignorance, of Barrow's tragedy.

Several awful flaws were apparent from the start. The negligence of the Council in respect of the Forum 28 cooling towers over a long period of time and its lack of systems of control over such risks was dramatically summarised by the trial judge. It was important to us that the lessons learned by the Council, Councillors, officers, staff and unions be made crystal clear.

While other public agencies involved reacted well once the outbreak was spotted, there are still areas, which are addressed in the recommendations, where procedures should be tightened, perhaps to the point of hyper-precaution, not least by strict adherence to readily available guidelines such as *Legionnaires' disease. The control of legionella bacteria in water systems. Approved Code of Practice and guidance* ('L8').[1]

The following report seeks therefore, in the first instance, to address the long-standing and deep concerns of the people of Barrow and their natural anxieties at the lethal outbreak of disease in their midst. We have sought to report as clearly and accurately as possible (despite acute difficulties with the audio-recording of the proceedings).

We have sought also to make clear and practical recommendations so that some good may come out of tragedy.

We are indebted to the administrator of the hearings, Tania van Rixtel, whose tireless work, especially in deciphering the recordings of the proceedings, has been crucial to producing this report.

Colin Pickthall
Chairman of Barrow public hearing

Background

1 In August 2002, seven members of the public died and 180 people suffered ill health as a result of an outbreak of legionella at a council-owned arts and leisure facility in the town centre of Barrow-in-Furness, Cumbria. Like most accidents, this tragedy could have been avoided, if the risks had been properly managed.

2 We would like to remember those who tragically lost their lives as a result of the outbreak. Richard Macauley (89), Wendy Milburn (56), Georgina Sommerville (54), Harriet Low (74), Elizabeth Dixon (80), June Miles (56) and Christina Merewood (55).

3 This report follows two public meetings, organised by the Health and Safety Executive (HSE), to explain to the people of Barrow and others what happened that summer. It describes the outbreak and subsequent investigation, and highlights the lessons and recommendations to others to help prevent a comparable tragedy.

4 The content of this report is based on the information heard at the two meetings. It does not, nor is it intended to, cover all the evidence tendered during the two criminal court cases. Additional information not covered in the meetings is either added as a footnote at the bottom of the page or attached in the appendices.

Introduction

5 In the summer of 2002, an outbreak of Legionnaires' disease occurred in the town of Barrow-in-Furness in South Cumbria. It resulted in the deaths of seven members of the public and infected a further 180 people. The source of the outbreak was traced back to an air conditioning unit at Forum 28, an arts and leisure centre owned by Barrow Borough Council.

6 Barrow Borough Council and their Design Services Manager were both convicted of offences under the Health and Safety at Work etc Act 1974.[2] Following the court case and at the request of Furness MP John Hutton, two public meetings were held in Barrow to allow members of the public, especially the families of those who died, the people who suffered illness and the wider community, to learn more about the circumstances and the causes of the outbreak. It enabled those affected to raise, in an independently chaired public forum, any outstanding concerns and to ask those involved questions. It also helped to identify valuable lessons both for the Barrow community and other employers.

7 At the two meetings, experts and representatives from the authorities involved delivered a series of presentations addressing the circumstances surrounding the outbreak. The first meeting concentrated on the disease, the investigation of the outbreak and the failures identified. The second meeting looked at the legal proceedings, the remedial actions and how others may learn from the mistakes made. There were questions at both meetings.

8 Mr Colin Pickthall, a former Labour MP for West Lancashire between 1992 and 2005, chaired the public meetings, which were held in Barrow on 4 and 11 December 2006. Born and raised locally, Mr Pickthall was a teacher before joining Parliament where he went on to become Parliamentary Private Secretary to Jack Straw during his role as Home Secretary and Foreign Secretary.

9 Acknowledgements are given to those kind enough to present at the meetings and to answer questions. From HSE, Mike Tetley, Dr Paul McDermott, David Ashton and Graham Piggott; Dr Frank Atherton from the Health Protection Agency; Tom Campbell from Barrow Borough Council, and from the Crown Prosecution Service, Chris Foren and Brian Boulter.

10 The purpose of this report is to record the content of the two public meetings and to allow others to learn what caused the outbreak and what changes have been made since. It has also been produced to allow dutyholders with similar responsibilities for controlling legionella to benefit from the findings of the investigation and be able to apply the recommendations identified as a result of the tragedy.

Part 1 Factual report

Background to the disease and organisms

Dr Paul McDermott

11 Legionnaires' disease is a potentially fatal form of pneumonia which can affect anybody, but which principally affects those who are susceptible because of age, illness, immunosuppression, smoking etc. It is caused by the bacterium *Legionella pneumophila* and related bacteria. Legionella bacteria can also cause less serious illnesses which are not fatal or permanently debilitating. The collective term used to cover the group of diseases caused by legionella bacteria is legionellosis.

12 On average there are approximately 300 reported cases of Legionnaires' disease each year in the United Kingdom (UK). It is thought, however, that the total number of cases of the disease may be generally underestimated. About half of cases are associated with travel abroad. Infections which originate in the UK are often sporadic, for which no source of infection is traced. However, clusters of cases also occur and outbreaks have been associated with cooling tower systems and hot and cold water systems in factories, hotels, hospitals and other establishments.

13 Legionnaires' disease was first identified following a large outbreak of pneumonia among people who attended an American Legion Convention in 1976. They had gathered together to celebrate two hundred years of independence and the venue for their celebration was the Belle Vue Stratford Hotel in Philadelphia. In total 221 people were affected by the disease, resulting in 34 deaths. A previously unrecognised bacterium, isolated from lung tissue samples, was traced to the air conditioning system that serviced the convention hall in the hotel. Scientists working at the Centre for Disease Control in the United States who made the discovery subsequently called the bacterium *Legionella pneumophila*.

14 It is normally contracted by inhaling legionella bacteria, either in tiny droplets of water (aerosols), or in droplet nuclei (the particles left after the water has evaporated) contaminated with legionella, deep into the lungs. There is evidence that susceptible individuals may contract the disease by inhaling legionella bacteria after drinking contaminated water. Person-to-person spread of the disease has not been documented. Initial symptoms of Legionnaires' disease include high fever, chills, headache and muscle pain. Patients may develop a dry cough and most suffer difficulty with breathing. About one third of patients infected also develop diarrhoea or vomiting and about half become confused or delirious. Legionnaires' disease can be treated effectively with appropriate antibiotics.

15 The incubation period is between 2–10 days (usually 3–6 days). Not everyone exposed will develop symptoms of the disease and those that do not develop the full-blown disease may only present mild flu-like symptoms.

16 Infection with legionella bacteria can be fatal in approximately 12% of reported cases. This rate can be higher in a more susceptible population; for example, immunosuppressed patients or those with other underlying disease. Certain groups of people are known to be at higher risk of contracting Legionnaires' disease; for example, men appear more susceptible than women, as do those over the age of 45, smokers, alcoholics, diabetics and those with cancer or chronic respiratory or kidney disease.

17 The disease is usually diagnosed by a combination of tests. The organism may be cultured from the patient's sputum, bronchial washings or lung tissue. Alternatively, tests are used to measure the presence of antibodies in the blood and, increasingly, tests are available to measure specific antigens in the patient's urine.

18 *L. pneumophila* is also responsible for a short feverish form of the illness, without pneumonia, known as Pontiac fever. Its incubation period is typically 2–3 days. Another species of legionella, *L. micdadei*, is responsible for a similar form of the illness, without pneumonia, called Lochgoilhead fever named after an outbreak in Lochgoilhead, Scotland. The incubation period can be up to 9 days. A high percentage of those exposed to this

agent tend to be affected. However, there have been no recorded deaths associated with either Pontiac or Lochgoilhead fevers.

19 To date, at least 50 other types of bacteria that belong to the family of Legionella have been identified. *L. pneumophila* causes about 90% of cases and was the bacterium identified in the Barrow case. Sixteen different serogroups of *L. pneumophila* have been described; however, *L. pneumophila* serogroup 1 is most commonly associated with cases of Legionnaires' disease in the UK.

20 Strains of legionella can be cultivated and grown in the laboratory, which is useful because it allows scientists to study them and find out more about legionella bacteria. Additionally, 'genetic fingerprinting' methods can be a valuable tool in the investigation of outbreaks. These typing methods can sometimes provide a means of linking the organisms isolated from patients to the source of an outbreak.

Natural history of the legionella bacterium

21 Legionella bacteria are common and can be found naturally in environmental water sources such as rivers, lakes and reservoirs, usually in low numbers. Legionella bacteria can survive under a wide variety of environmental conditions and have been found in water at temperatures between 6°C and 60°C. Water temperatures in the range 20-45°C seem to promote growth. The organisms do not appear to multiply below 20°C and will not survive above 60°C. They may, however remain dormant in cool water and multiply only when water temperatures reach a suitable level. Temperatures may also influence virulence; legionella bacteria held at 37°C have greater virulence than the same legionella bacteria kept at a temperature below 25°C.

22 Legionella bacteria also require a supply of nutrients to multiply. Sources can include, for example, commonly encountered organisms within the water system itself such as algae, amoebae and other bacteria. The presence of sediment, sludge, scale and other material within the system, together with biofilms, are also thought to play an important role in harbouring bacteria and providing favourable conditions in which legionella may grow. A biofilm is a thin layer of micro-organisms which may form a slime on the surfaces in contact with water. Such biofilms, sludge and scale can protect legionella bacteria from temperatures and concentrations of biocide that would otherwise kill or inhibit these organisms if they were freely suspended in the water.

23 As legionella bacteria are commonly encountered in environmental sources they may eventually colonise manufactured water systems and be found in cooling tower systems, hot and cold water systems and other plant which use or store water. Outbreaks of Legionnaires' disease follow a predictable chain of events. To reduce the possibility of creating conditions in which the risk from exposure to legionella bacteria is increased, it is important to control the risk by introducing measures which:

- do not allow proliferation of the organisms in the water system; and
- reduce, so far as is reasonably practicable, exposure to water droplets and aerosol.

Legal requirements

24 To control and prevent outbreaks of Legionnaires' disease, there are laws* that require people operating systems such as cooling towers and other industrial hot water systems, to ensure that they are operated and managed in such a way as to prevent the risk of exposure to legionella bacteria. A single legal document called *Legionnaires' disease. The control of legionella bacteria in water systems. Approved Code of Practice and guidance*, commonly referred to as L8, describes the legal duties and provides practical guidance on how to comply with the law. It requires dutyholders to:

- look for and assess the risks of Legionnaires' disease associated with the type of work that they are doing;
- appoint a person to have managerial oversight;

* See Appendix 1 for a full list of relevant legal requirements.

- prepare a plan or a scheme to ensure that the risks are controlled; and
- to put that plan into action.

25 For a risk system, like the cooling tower, the scheme would include:

- a regular programme of inspection and maintenance of the cooling tower;
- a programme of regular cleaning and disinfection of the cooling tower;
- a programme to ensure that the cooling tower is dosed with a 'biocide' (a chemical which prevents legionella bacteria from growing); and
- a programme of monitoring to ensure that this biocide dosing is effective.

It is also necessary to keep records of what is being done to demonstrate that the dutyholder is doing everything that they can and should be doing to ensure the cooling tower is being operated safely. As well as providing advice on the legal obligations of the dutyholder, L8 also provides practical advice on how those legal obligations can be met.

Barrow outbreak

Dr Frank Atherton

26 There continue to be outbreaks around the world. They are largely associated with cooling towers, occasionally with whirlpools and other water-containing sources. Large outbreaks of Legionnaires' disease, which have occurred around the world, can result in quite high mortality rates (10-30% is often quoted).

27 On Monday 29 July 2002, a microbiologist at Furness General Hospital noticed that over the weekend there had been an increased number of admissions to the hospital and that a significant increase in the number of patients from the community were being tested for community-acquired pneumonias. The Communicable Disease Surveillance Centre, which is the Public Health Laboratory Service in North Wales, were subsequently contacted to check whether there had been a similar situation elsewhere.

28 On Tuesday 30 July 2002, the first case of Legionnaires' disease was notified to the Health Protection Agency by Furness General Hospital. On Thursday 1 August a second case was identified in East Lancashire. It was discovered that this person had visited Barrow-in-Furness the previous month. This provided the vital link between the two cases and consequently the outbreak incident procedures were initiated.

29 The Health Protection Agency defines an outbreak as two or more diagnosed cases of legionellosis linked by locality and proximity in time (generally within six months) for which there is strong epidemiological evidence of a common source of infection, with or without microbiological evidence. The definition of 'locality' requires a degree of judgement in terms of the geographical proximity of the cases.

30 When an outbreak of communicable disease is discovered, an Outbreak Control Team (OCT) is rapidly convened. The OCT is a multi-agency group consisting of different sectors of the health service. The Barrow OCT included the Acute Trust, Furness General Hospital and the Primary Care Trust, which is responsible for looking after the health of the population and which contracts and manages the general practice services. It also involved the ambulance service, the fire brigade service, the police, HSE and environmental health colleagues from Barrow Borough Council.

31 The role of the OCT is:

- to make sure that the clinical management of the patients identified is properly managed;
- to identify the source of the infection in people; and
- to manage the consequences of the outbreak.

32 Following the identification of the outbreak, the cooling towers at Forum 28 were shut down the same day. Genetic fingerprinting linked the type of legionella bacteria isolated from the patients in Barrow back to the type of legionella bacteria found in Forum 28.

Figure 1 The alleyway next to the Forum 28 building

33 It is not possible to determine the exact number of people affected by the Barrow outbreak, since some people were very mildly affected with Pontiac fever-type symptoms. The OCT estimated the total number of people affected during the course of the outbreak to be approximately 2500 people. There were 494 cases clinically diagnosed as possible cases, 180 of which were identified as confirmed cases after applying various laboratory tests. In some cases, laboratory findings were equivocal, and it was not possible to say with absolute certainty that the person had been affected. Seven people died during the acute phase of the outbreak, which equates to a death rate of 3-5%.

Site, plant and process

Mike Tetley

34 The Forum 28 building is an arts and leisure centre owned and operated by Barrow Borough Council. It is situated in Barrow town centre opposite the Town Hall. One side of the building abuts an alleyway (see Figure 1), which is a main thoroughfare between the shops on Portland Walk and a number of bus stops adjacent to the Town Hall. The Forum 28 building incorporates a theatre, a number of function rooms, eatery and administration office. In the period before the outbreak, to cool the interior during the summer months or periods of high usage, the building had an air conditioning system.

35 The purpose of the system was to produce cold water to chill the incoming air from the outside and to distribute that chilled air through Forum 28 to achieve a pleasant environment inside the building. The air conditioning system comprised the following key parts:

- two refrigerant plants or ‘chillers’, Carrier 120 HRs;
- two cooling towers, Baltimore VXT 85s;
- a chemical dosing system;
- three carrier interchillers. These units are also known as ‘air handling units’ (AHUs).

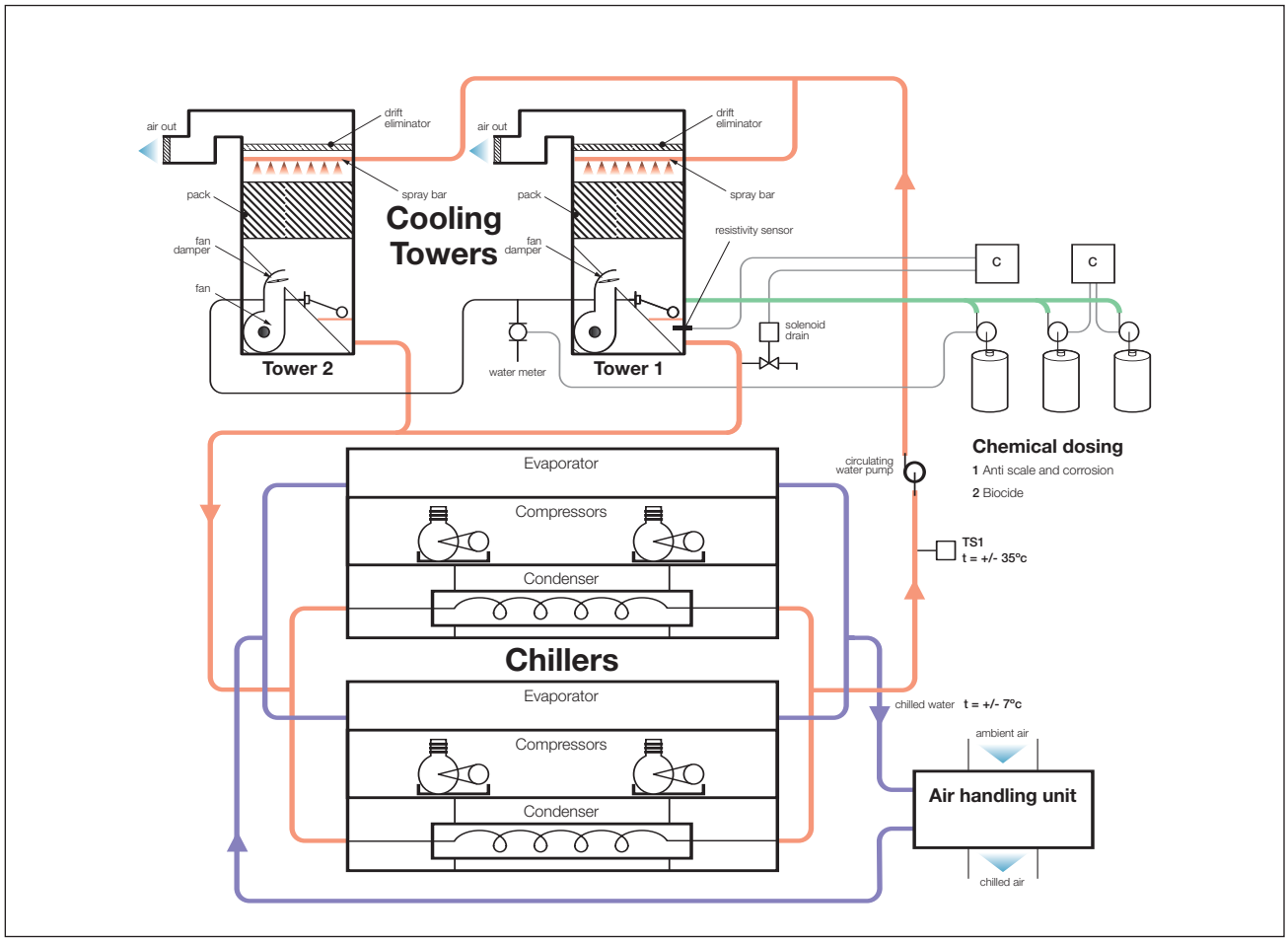

Figure 2 A schematic diagram of the air conditioning system servicing Forum 28 as functioning normally. (This schematic plan would not be sufficient for the purposes of L8)

36 The two chillers were in the main plant room along with the AHUs, boilers, calorifiers (vessels for heating the domestic water system) and the electrical control panels. The chillers, which produced the chilled water, consisted of three main parts, compressors, a condenser and an evaporator.

37 The principle of a refrigeration cycle is to cool one part of the system and reject heat elsewhere using the properties of a refrigerant gas.

System description

Air handling unit

38 Inside the AHU there was a heat exchanger where the circulating chilled water from the chiller units cooled the incoming air. Heat was picked up or absorbed from the air by this chilled water circuit before returning to the chiller unit to be cooled. This is the blue water circuit (chilled water) in Figure 2. Also within the AHU was a fan, which drew the air in over the heat exchanger and pumped the cooled air into the building.

Chiller unit description: Refrigerant cycle

39 Water in the chilled water circuit was chilled in the evaporator, where the evaporation of liquid refrigerant was used to absorb heat. An expansion valve situated before the evaporator metered the correct amount of warm high-pressure liquid refrigerant to pass into the evaporator, which was at a lower pressure. As the refrigerant passed through the evaporator it boiled, vaporised and absorbed heat, so chilling the water.

40 The compressors, often regarded as the heart of the system, had two functions: they removed the vaporised refrigerant by suction from the evaporator and compressed the gas to a higher temperature and pressure.

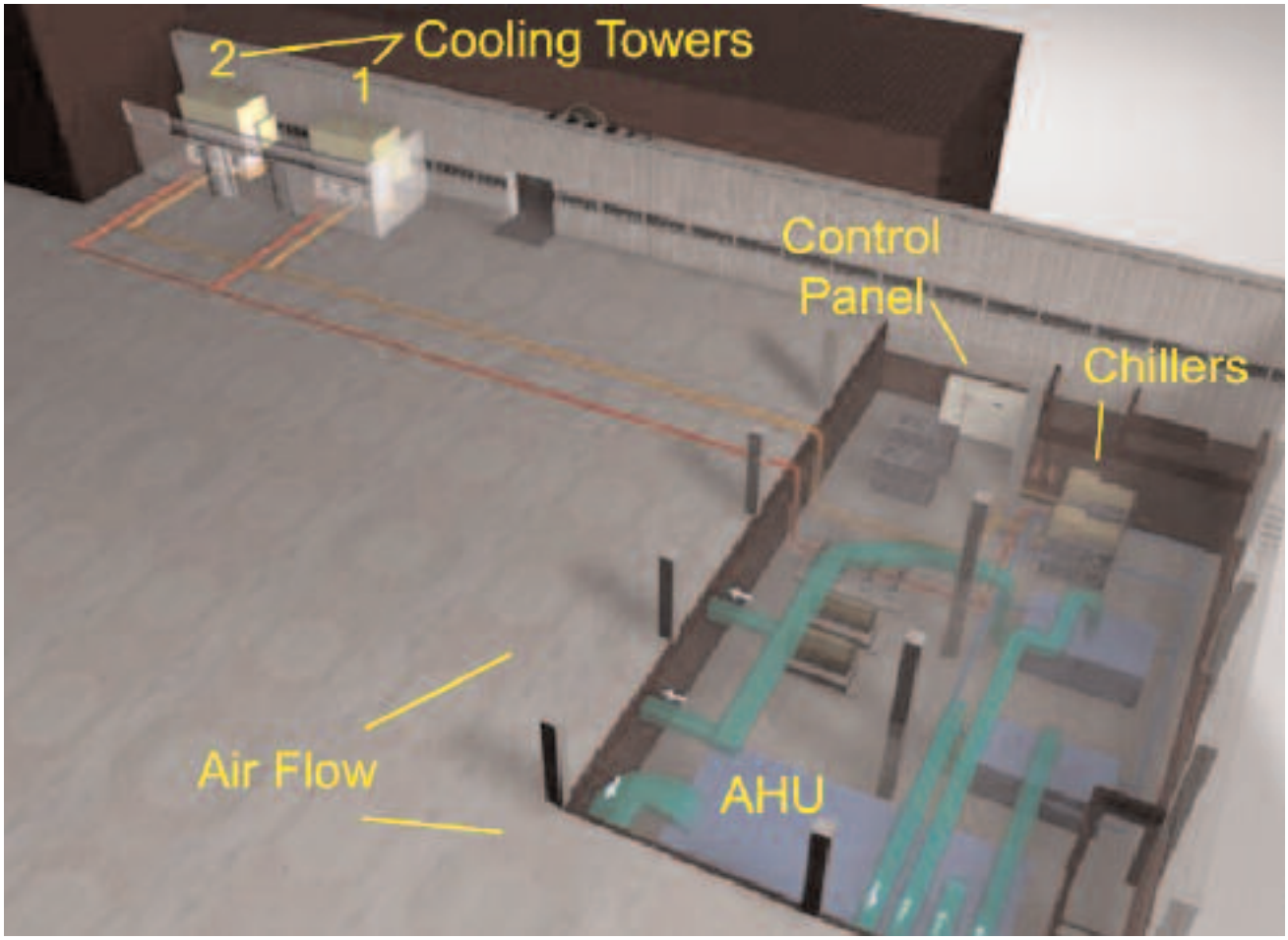

Figure 3 The location of the plant room and cooling towers

41 The hot gas from the compressors was then passed through water-cooled condensers. These were shell and tube heat exchangers, where the tubes containing the hot refrigerant gas were cooled by passing water over them. The tubes were contained within the shell creating a water jacket. The refrigerant gas in the tubes was condensed back to a liquid and returned to the evaporator via an expansion valve where it re-entered the continual refrigerant cycle.

42 The heat from the vaporisation and compression of the refrigerant gas was given up to the cooler condenser water circuit. This heated water circuit is shown in red in Figure 2. It is this condenser/cooling tower water circuit that was of particular interest, as it provided an ideal environment to proliferate bacterial growth; the temperature of the circulating water was in the ideal growth range for legionella, 28-39°C, and the water system also provided nutrients.

43 The reason why water was used is that it is a good conductor of heat and therefore is an effective coolant. It can easily be pumped to a location where the heat can be readily rejected, using cooling towers.

Cooling towers

44 The two Baltimore VXT 85 cooling towers and dosing system were situated in a room on level 'C' of the car park on the top of Forum 28, a level above the plant room and which abuts the alleyway (see Figure 3). The cooling tower condenser water circuit had a common feed and return with the chillers and towers connected in parallel.

45 The cooling towers (see Figure 4) were classed as forced draught counterflow towers and their purpose was to reject heat by evaporation. They were forced draught because a fan unit at the base of the tower forced airflow up the tower, which was counter to the water flow down through the tower. The hot water entered the cooling tower through a spray bar situated at the top where it was sprayed and distributed onto the pack. The pack was a honeycomb

Figure 4 (Left) Cooling tower 1

Figure 5 (Right) The chemical dosing system showing the three chemical drums with the control pumps above

matrix of plastic sheets, which increased the surface area and aided water evaporation and, therefore, cooling. Above the spray bar was the drift eliminator. This comprised sections of curved profiles with a narrow gap or passage between sections. As the up-flowing air passed through the drift eliminators water droplets or aerosol suspended in the air stream impinged on the profile creating larger droplets which fell back through the tower. The term 'drift eliminator' is misleading, these types of eliminators were not 100% efficient and only reduced drift. The airflow was then ducted to the atmosphere via louvres situated over the alleyway.

Dosing system

46 The dosing system consisted of automated chemical dosing and a resistivity bleed controller (see Figure 5). The chemical dosing system consisted of two non-oxidising biocides and one anti-scale and corrosion solution. All the chemical injection points were into the side of tower 1. The addition of the biocide into the system was timed on an alternating cycle. Weekly, approximately 1 litre of one of the biocides was added from a 25 litre capacity chemical drum. The following week, the other drum was used. Two different biocides were used so the bacteria would not become resistant to one biocide and able to proliferate. The pumps were high accuracy and low volume; to pump a litre of chemical into the system took approximately 50 minutes. The anti-scale and corrosion was added as a direct proportion to the system make-up water. For every 12 litres of make-up water, which was measured by a water meter, a pulse of approximately 0.2 ml was added.

47 Anti-scale and corrosion solution was injected to control scale deposition and reduce corrosion of the internal surfaces of the system. Scale is particularly unwanted as it can harbour legionella and therefore reduce the effectiveness of a chemical control programme.

48 To prevent the water chemistry concentrating up from chemical addition, corrosion in the system and cleaning of the air as it passed through the towers, a proportion of the circulating water was periodically dumped to drain. This was achieved by an automatic resistivity controller; when the water chemistry reached a pre-determined value, it opened a solenoid valve and dumped to drain.

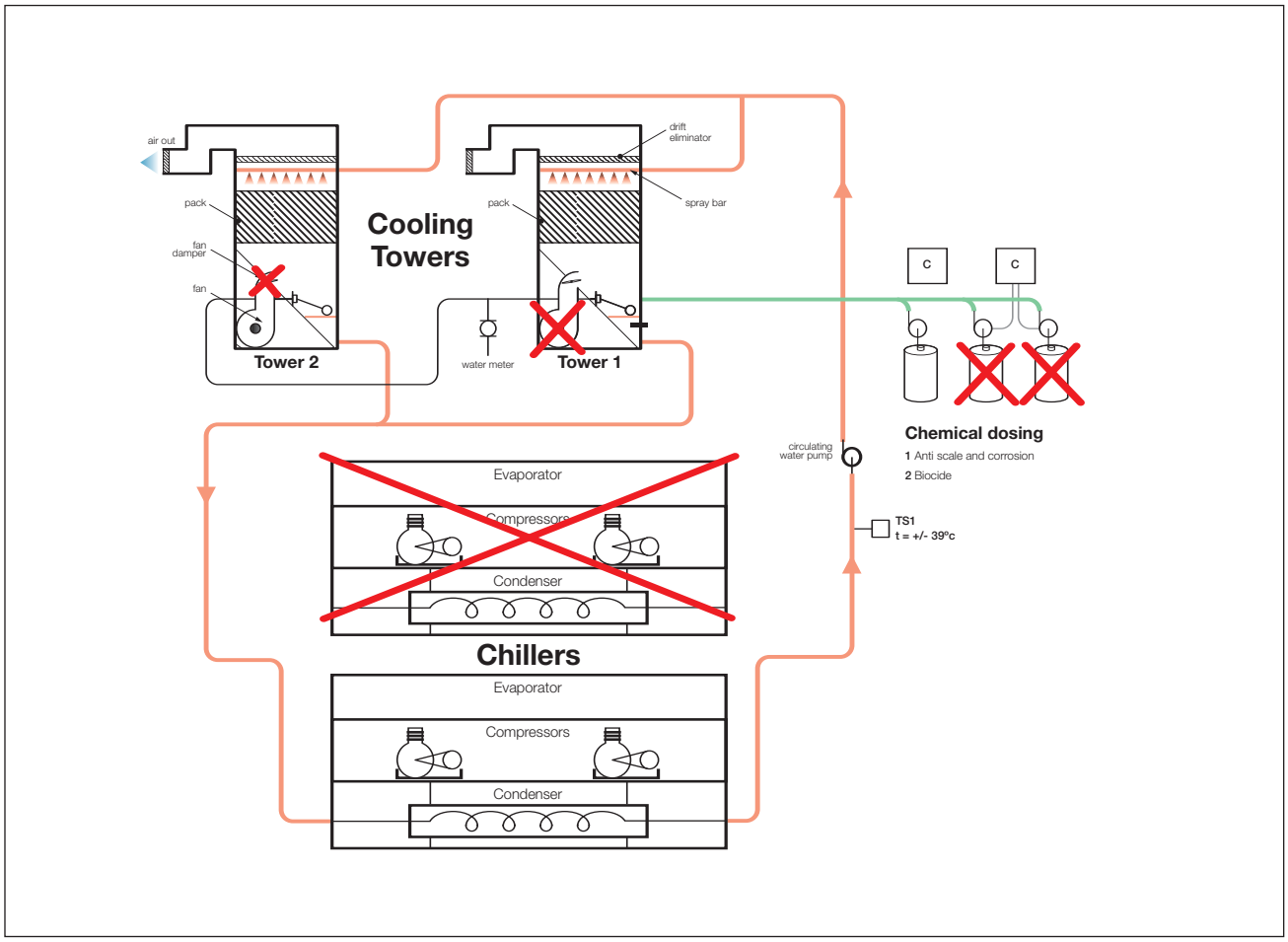

Figure 6 A schematic diagram of the air conditioning system as found following the outbreak

49 Mains water was added to the cooling towers by the means of a ballcock in each tower. This was to make up for the loss of water from evaporation and when water was dumped to drain by the resistivity controller.

Serviceability at the time of the outbreak

50 At the time of the outbreak, one chiller and one cooling tower were found to be out of service (see Figure 6). Since February 2001, the chiller's valves had been shut, so it was isolated from the system. Also, the fan unit in tower 1 had been isolated, due to failure of the fan scroll units. In addition to these failures, the fan damper on tower 2 was found in a closed position. The fan damper was significantly reducing the volume of air that should have been passing up through the tower. These failures meant there was one chiller unit servicing one cooling tower, so the system was still considered to be in balance.

51 The biocides drums (see Figure 7) were also found empty. Records show there was approximately 20 kg of chemical in the barrels at the end of January 2001. Based on calculations and the fact that a known quantity of chemical is pumped into the towers on an alternating weekly basis, the chemical biocide dosing arrangement would have failed to deliver chemical into the system from around December 2001 onwards.

Investigation

52 The investigation, led by the Barrow division of Cumbria Police, involved many different regulators and specialist input. Where a death at work has occurred, or where a death was the result of a work activity, all investigating authorities must follow the Work-Related Death Protocol (WRDP).*

* This document ensures joint investigations are managed properly; it explains the different roles of the investigating team and lays out the different stages involved in investigating a work-related death. A copy of the Work-Related Death Protocol can be found at www.hse.gov.uk.

Figure 7 The two biocide and one anti-scale and corrosion chemical drums

53 Investigations are generally conducted jointly, with the police taking the lead, or primacy, where they believe a serious crime has been committed, for example where a company or a person is suspected of manslaughter. The point at which they think there is no crime of that kind, primacy for the investigation is passed onto another regulator, usually HSE or the local authority.*

54 HSE worked in partnership with the police and investigated possible breaches under health and safety law. HSE's involvement included inspectors from the Field Operations and Hazardous Installations Directorates and other specialist inspectors.

55 Environmental Health Officers from the local authority contacted premises within their enforcement remit that might have contained sources of legionella.

56 The investigation team acknowledges the work done by the police who took all the statements and managed all the evidence before passing the casework to the Crown Prosecution Service who progressed the case to court.

57 The prosecution file ran to 3627 pages, over 200 witness statements were taken and over 200 exhibits in 10 crates created the core of the case.

58 The Barrow outbreak is considered to be the largest legionella outbreak in the UK with 180 confirmed cases. However, an outbreak at a Stafford hospital in 1985, where 68 cases resulted in 22 deaths, had a much higher mortality rate.

* Depending on the enforcement allocation arrangements. See Appendix 1 for a description of the Health and Safety (Enforcing Authority) Regulations 1998.

Summary findings

59 Between 1994 and March 2001 the water treatment on the cooling towers at Forum 28 was under contract and appropriate control. This contract was part of a wider contract for the heating and ventilation of the Forum 28 building. In late 2000 alternative contractors for the provision of heating and ventilation were sourced because callout delays were being experienced for the heating and ventilation part of the contract. The Forum 28 building manager who cancelled the contract resigned the following day, with the associated loss of knowledge and continuity.

60 The Design Services Group (DSG), a department within Barrow Borough Council, was involved in the procurement of the replacement contract, as it had expertise in contract management and had procured the previous providers. DSG also undertook the contract negotiations with the replacement contractor.

61 A significant error was made by Ms Beckingham, the DSG manager, in the recording of the minutes of a meeting in July 2001, when the issue of water treatment was being discussed; it was recorded '*checking/dosing to be omitted*'. The purpose of the discussion was to explore removing the weekly dip slide test, which is part of the overall biological monitoring of the cooling tower water system. It was not the prosecution case that it was the intention to remove the dosing. However, the error was carried forward during the procurement of the replacement contract by DSG.

62 The Technical Manager at Forum 28 was asked to obtain a quote for an updated cost for water treatment and heating and ventilation maintenance from the previous contractor who had provided a comprehensive service up until April 2001. This quote, which included water treatment service, was significantly more expensive than the replacement contract, which quoted just for heating and ventilation maintenance. The cheaper contract was subsequently accepted. DSG did not compare or contrast the contract specifications or question the price difference. Neither did DSG establish the necessary competencies of the contractor to undertake the work.

63 The outcome was that water management was not provided for and therefore there was no:

- chemical treatment;
- microbiological monitoring;
- system checks.

The replacement contract only provided for heating and ventilation maintenance and cleaning and chlorination of the cooling towers.

64 The available contract documentation was largely inadequate and what was available was ambiguous and of little value. There was no adequate contract specification, which meant neither party had sufficient knowledge of the arrangements in place. No risk assessments had been asked for or provided for the contract. Although it is acknowledged that the contractor provided a less than professional service, none of their direct activities placed anyone at significant risk. By their own admission they probably should have undertaken at least one clean and chlorination of the system, but that would not have prevented the outbreak.

65 External auditors engaged by the Council had identified the lack of health and safety risk assessments before the outbreak and had recorded this finding in the audit report to the Council.

66 On two separate occasions, a heating and ventilation engineer brought his concerns about the lack of water treatment to the attention of the Design Services Manager, but no effective remedial action was taken either time. On one occasion he was informed the water treatment was being carried out in-house and on the other he was left to progress a quote for the service but, unfortunately, he left the company shortly after, again with the associated loss of knowledge and continuity.

What went wrong?

67 The following statement was issued and presented by Tom Campbell, Chief Executive at Barrow Borough Council. It offers a brief explanation of the four key areas where the Council identified they were at fault and which directly or indirectly led to the outbreak. The four areas identified are:

- the installation of the automatic dosing system and the registration of the cooling towers;
- the failure to deal properly with correspondence from HSE;
- delays in completing written risk assessments for Forum 28; and
- failure to establish proper contract documentation and contractor supervision following a change of maintenance contractor in 2001.

Tom Campbell

The installation of the automatic dosing system and the registrations of the cooling towers. Following refurbishment of the Civic Hall at the beginning of the 1990s to create Forum 28, the Forum was visited by an inspector from the HSE in 1991. This inspector advised the manager of Forum 28 of the risk of legionella from the cooling towers of the air conditioning system and the manager agreed that an automatic dosing system and maintenance regime would be installed. The manager of Forum 28 duly instructed the installation of the system but the warning given by HSE and the action taken was never notified to the Council's senior management team or to the parent committee of the Council. In 1992 Regulations were applied which required the cooling towers to be registered. Unfortunately the officer who completed the registration form gave the Borough Council's address as Forum 28, 28 Duke St and not the Town Hall. The registration of the cooling towers appears to have been treated as a routine matter and again the Council's management team and parent committee were not advised of the requirement to register the cooling towers or the action taken. These early omissions and errors contributed to the fact that at the time of the outbreak only a very small number of employees of the Council and none of its senior management were aware of the serious hazard posed by the air conditioning system. Also, important correspondence from the HSE alerting the Council to the hazard and the steps which needed to be taken was sent to Forum 28 rather than to the Town Hall.

Failure to deal properly with correspondence from the Health and Safety Executive. In 2001, the HSE issued a new statutory guidance on control of legionella, commonly referred to as L8. This guidance set out in very specific detail the actions which needed to be taken to prevent legionella and in particular in air conditioning systems of the kind installed in Forum 28. A copy of this guidance was received by the Council and this should have corrected errors made in 1991 and 1992 and alerted all relevant officers of the Council to the hazardous nature of the system and the need for diligence in its maintenance. Unfortunately the officer who received this guidance decided it was not necessary to distribute it and it was simply assigned to a reference library. In addition to issuing a copy of L8 to local Councils, the HSE quite properly decided to alert the owners of registered cooling towers to the publication of the new guidance. It wrote to owners reminding them of the key actions they needed to take and required them to complete a questionnaire detailing how they were satisfying these requirements. However, it appears that because of how the cooling towers were registered in 1992 the HSE wrote directly to Forum 28 rather than to the Town Hall. The HSE correspondence was received by Forum 28, but again the officer who took possession of the letter decided that he was unable to complete the questionnaire and it was filed and left unattended until it was discovered after the outbreak. No other officer of the Council was aware of the letter or its contents. There were clearly serious errors of judgement in how both these important documents were dealt with. If either document had been given proper attention the outbreak should have been avoided.

Risk assessments. The Management of Health and Safety at Work Regulations 1999[3] places a duty on all employers to publish a health and safety policy and carry out risk assessments. Although a health and safety policy was published as required, the Council experienced difficulty in completing written risk assessments for all of its buildings and activities and Forum 28, in particular, fell behind and made little progress. Vacancies in management posts and the complexities in the external management of catering and theatre events were accepted as justification for dealing with Forum 28 at the end of the risk

assessment process, once lessons had been learned from other departments. This was clearly an error of judgement by all involved, including myself as Chief Executive, and a rigorous approach to risk assessment of the entire Forum 28 operation should have revealed to the corporate organisation the high risk of legionella from the cooling towers, which had not previously been disclosed.

Failure to establish proper contract documentation and contractor supervision. As I have previously indicated, the automatic dosing system and a maintenance regime were installed in 1991 and for the best part of a decade the system operated satisfactorily. However, it is clear that over that period the Council developed bad habits in how it monitored the work of the contractor and the regular monthly testing and water treatment and twice yearly cleaning and chlorination of the system became a matter of routine that passed almost unnoticed by the Forum staff. The contractor offered a consistent and reliable service in this respect and it is probable that if this arrangement had remained unchanged, the outbreak would not have occurred. However, in an attempt to improve the response service for general breakdowns to various items of plant in Forum 28, the management of the Forum decided to appoint a new contractor. A contractor with excellent credentials was selected as the new contractor, but there was no proper exchange of formal contract documents or agreed specification for the works as there should have been. This represents a basic and fundamental error by the officers involved. Exchange of contract documents is an ongoing and regular occurrence in the Council and the failure to establish this basic arrangement is inexplicable. In most circumstances, the contractor would have detected this error and corrected it, but by an unfortunate coincidence this contractor was at this very time undergoing restructuring and relocation and also failed to detect the lack of proper contract documentation. However, the fault clearly lies with the Council whose officers failed to request proper documentation and who quickly fell back into the routine of authorising payments to the contractor, without properly checking that the work required had been carried out. Subsequent mechanical failure of components of the air conditioning system and detailed quotations for its possible replacement also failed to highlight the growing danger of legionella developing in the system. Over a 12-month period, failure to properly maintain the automatic dosing system and failure to identify that the system was not being maintained led directly to the tragic events in August 2002.

In summary, there were a number of mistakes made by different officers over a period of time, all of which, to a varying degree, contributed to the outbreak.

Legal proceedings

Chris Foren

68 The function of the Crown Prosecution Service (CPS) is to take over and conduct, on behalf of the Director of Public Prosecutions, most criminal proceedings in England and Wales. The work of the CPS does not extend to Scotland, where prosecutions are taken by the Procurator Fiscal. When the police have completed their investigation they pass the evidence to the CPS. The CPS will then review the evidence very carefully to see what criminal offences may have been committed and, if so, by whom.

69 In this case, Barrow police were supported by HSE, who provided expertise in the complexities of health and safety. This joined-up approach helped identify where mistakes were made.

70 In any criminal case, the CPS reviews the evidence and applies two tests.* The first test is called the Evidential Test. This requires the CPS to be satisfied that there is a realistic prospect of getting a conviction against any potential defendant. It does not mean that the CPS has to be sure they will get a guilty verdict, just that there is a realistic prospect of getting a guilty verdict. Neither is it measured in percentage terms, ie they don't have to be 51% certain that there will be a conviction.

71 If the CPS is satisfied the Evidential Test is passed, they must consider the Public Interest Test, which is simply deciding whether it is in the public interest to proceed. In other words,

* Referred to as the Full Code Test in the Code for Crown Prosecutors.

whether it is necessary for any particular person, or company, to be prosecuted. Even when there is clear evidence that someone is guilty, it is not always in the public interest to prosecute that person. In the Barrow case, there was a very clear public interest because of the sheer scale and gravity of the offence.

72 To find someone guilty of manslaughter by gross negligence, which is what Barrow Borough Council and Ms Beckingham (Barrow Borough Council's Design Services Manager), were charged with, the CPS, as prosecutor, had to prove:

- there was a duty of care owed by the defendant to the victim;
- there was a breach of that duty;
- the breach resulted in death; and
- the breach was so bad in all the circumstances as to amount to an offence.

73 The prosecutor must first establish that the defendant owed a duty of care to the victim. This is perhaps most clearly illustrated when prosecuting an incompetent doctor; a doctor, who is looking professionally after a patient, has a duty of care to use reasonable skill and care towards the patient in question.

74 The prosecutor must then prove that the duty of care was not carried out and the breach of that duty resulted in at least one death.

75 Finally, the prosecutor must show that the conduct of the defendant was so bad in all the circumstances in which he or she was placed, that their conduct should be regarded as an offence.

76 This last requirement, as set out by English law, is the most difficult to prove because the courts in this country have repeatedly judged over the years, that the level of conduct has to be so severe as to make such negligence a criminal offence. In other words, the court requires that person to have made very serious mistakes or omissions.

77 HSE advised the CPS on the level of health and safety and management standards they would expect to find in a reasonably well-run organisation, ie the benchmark standard as described in L8. The CPS compared that benchmark to the actual situation and took a view whether it was 'so far below' as to be gross, and therefore criminal.

78 A further difficulty in the Barrow case, termed Operation Legion by the police, was that one of the defendants was the Borough Council. Although the Council is not a person, in the physical sense, as an organisation it is still considered a legal entity and can be charged with manslaughter. The notion of being able to prosecute a non-human body for manslaughter was in itself in doubt up until the P&O Ferries case* which resulted from the deaths of 193 people when the Herald of Free Enterprise capsized in 1987. It was this case that laid down the doctrine that a corporation could, in certain circumstances, be guilty of manslaughter. Barrow Borough Council was the first prosecution undertaken against a corporation that was not a limited company.

79 The common law test to impose criminal responsibility on a company only arises where there is a 'controlling mind' whose actions and intentions can be imputed to the company (known as the Identification Doctrine). In other words, for a company to be guilty of manslaughter it is necessary to identify a person who is of a sufficiently senior position to be considered as 'acting as the company[†] and who is also personally guilty of gross negligence.

80 Barrow Borough Council and Ms Beckingham were both accused of manslaughter. They were also both charged with offences under the Health and Safety at Work etc Act 1974. The Council, being an employer, has a duty to ensure, so far as is reasonably practicable, the health and safety of its employees and others who may be affected by its work. The Council was shown to have failed to discharge its duty by failing to take reasonable care of the health and safety of members of the public. As an employee, Ms Beckingham failed in her duty to take reasonable care for the health and safety of members of the public who may be affected by her work.

* R v P&O European Ferries (Dover) Ltd [1991] 93 CAR 72. The company was charged but found not guilty by the jury.

† Tesco Supermarkets Ltd v Nattrass [1972] AC 153.

81 The first trial started in February 2005. At the outset of that trial, Barrow Borough Council entered a guilty plea to the charge under Section 3 of the Health and Safety at Work Act 1974. Following lengthy legal arguments, the presiding judge at that first trial, Mr Justice Poole, dismissed the manslaughter case against Barrow Borough Council. His view was that Ms Beckingham was not at a sufficiently senior level within the Council to embody the corporation and was not one of the controlling minds of the Council. It was on that legal point that the manslaughter case against Barrow Borough Council was concluded.

82 The jury, having heard the evidence, retired to consider the cases against Ms Beckingham. They found her guilty of an offence under Section 7 of the Health and Safety at Work Act, but were unable to agree whether she was guilty of manslaughter. The CPS were given a relatively short period of time to decide whether to proceed with a second attempt at trial. The advice from Alistair Webster QC was that the CPS should pursue a second trial, which started in June 2006.

83 After her conviction Ms. Beckingham launched an appeal, which was heard in March 2006. The Court of Appeal in London decided to uphold Ms Beckingham's appeal and her conviction under Section 7 was overturned. The job of a judge is not only to ensure the trial is conducted fairly, but also explain to the members of the jury what the law is so they may decide the facts of the case. The Court of Appeal took the view that the trial judge Mr Justice Poole had given certain inadequate and misleading directions to the jury.

84 Ms Beckingham was tried again for both manslaughter and the health and safety charge. A second jury acquitted her of manslaughter but convicted her again under the Health and Safety at Work Act. She was ordered to pay £15 000 in fines, but was not asked to pay any additional costs. The option of a community penalty was not available to the judge at the time of sentencing since the reforms to the sentencing law* were not yet in place.

85 Barrow Borough Council, which had entered a guilty plea to the health and safety charge in February 2005, was fined £125 000 and was ordered to pay £90 000 in legal costs.

Corporate Manslaughter and Corporate Homicide Bill

Brian Boulter

86 It has been recognised for some time, both in the legal profession and the government, that the law on corporate manslaughter needs reform. Commission papers addressing this subject were produced as far back as 1994.

87 A bill called the Corporate Manslaughter and Corporate Homicide Bill is currently (ie December 2006) going through Parliament and is hoped will remove the hurdles associated with the present law. It will apply in England and Wales where it will be known as the Corporate Manslaughter Bill and in Scotland where it will be called the Corporate Homicide Bill. The bill, which started as a private members bill, received its second reading in the House of Commons on 16 November 2006. It is not known yet when the bill will become statute.

88 To date, there has not been a successful prosecution of a large corporation, whether a limited company or council body. Corporate manslaughter prosecutions have only been successful on companies with a small workforce. An example was the Lyme Bay tragedy, in which several youngsters died during a canoeing trip, which led to a case against a small company run by one individual. The prosecution was successful because there could be no doubt that the individual, the sole director, was the controlling mind of the corporation.

89 The case that set out the principle of a 'controlling mind' was a case involving Tesco.† The court ruled that a store manager of Tesco was not a controlling mind because he was not high enough up the chain of command; corporate manslaughter required somebody at a strategic level in management, effectively a director at board level.

* Courts in England and Wales may impose community orders under the Criminal Justice Act 2003.

† Tesco Supermarkets Ltd v Nattrass [1972] AC 153.

90 When establishing the four elements of manslaughter, the difficulty lies in actually attributing the duty being owed, the breach of that duty and the fact that it is so bad, to somebody at director level who is relatively remote from the day-to-day running of the company.

91 Under current law the route to corporate guilt focuses on the identification principle, ie identifying someone said to embody the company. Under the new proposed law the focus is on the management of a company's activities by senior management. The new offence will be measured on the way in which senior managers organised or managed the company's activities, such that the activity caused a death and it amounted to such a gross breach of a relevant duty of care to the deceased.

92 A senior manager is defined in the bill as being a person who plays a significant role in making decisions about the whole or a substantial part of the organisation's activities and how they are managed and organised. A 'significant role' is not, however, defined in the bill and its meaning will have to be determined through case law. This ambiguity over definitions will remain a hurdle for prosecutors.

93 The bill provides some guidance on what amounts to a gross breach; a gross breach is conduct that falls far below what can reasonably be expected of the organisation in the circumstances. It also sets out some factors for a jury to consider when deciding the level of the breach; one such factor is any relevant breach of health and safety law. This definition of gross breach has not changed from the current law.

94 Given the emphasis of the new bill is still on strategic management at board level and not on local management, and that the definition of a gross breach remains the same, this suggests the same difficulties will be encountered by those investigating and prosecuting for potential corporate manslaughter and therefore it is not clear what improvements the new bill will bring over the current corporate manslaughter law.

95 A useful introduction into the new bill is that it will allow a court, which convicts an organisation of corporate manslaughter, to make a remedial order. This type of penalty is currently available under health and safety law* but was not previously possible under a manslaughter conviction. This new power will enable the court to order the organisation to carry out remedial action addressing the failing for which they were originally prosecuted.

HSE's re-engagement with Barrow Borough Council

Graham Piggott

96 HSE inspectors have always visited an employer after a prosecution to check the things that were wrong have been put right. The courts may have imposed a penalty for a health and safety offence, but it is important to ensure that lessons have been learned and to move the health and safety agenda forward.

97 The immediate cause of the legionella outbreak was dealt with by the start of the investigation. The risk was removed and the cooling towers were later dismantled. Therefore the inspection process will examine the underlying factors that affect the control of health and safety risks arising from work activities. This will require a review of the overall arrangements for managing health and safety.

98 The review will include an appraisal of policies and procedures followed by validation activity to see how they are working in practice. To achieve this, the inspection will take place over a period of time. The first step is to decide the nature and scope of the inspection, and to identify the areas where we should concentrate our effort.

99 HSE's approach will be positive and constructive since it is in everyone's interest that the Council performs well. The intention is to be fair and impartial, to find out what has been done since 2002 and to consider areas for further improvement.

* Section 42 of the Health and Safety at Work etc Act 1974.

100 The inspection will be based on similar work that HSE inspectors have done in other local authorities and public service organisations. The detail has still to be finalised but the aims and structure will be consistent with approaches adopted elsewhere as described below.

101 As part of HSE's national programme of work, inspectors have been engaging with local authorities - as employers with duties under health and safety law - to carry out strategic interventions. These interventions have been developed in a form specifically geared to the needs of local authorities, and one of the main objectives is to secure long-term improvements in their health and safety performance. The aim is to gain the commitment of senior officers to achieving a reduction in injuries, ill health and sickness absence caused by work.

102 Such reductions can be achieved by taking sensible precautions as required under health and safety law. However this will only work in practice if there is an effective management system to ensure that the measures to control risks are in place and are maintained.

103 When inspectors explore management arrangements and systems, they focus particularly on those aspects that underpin compliance with the law. These include leadership, commitment, competence, monitoring of standards, and a look at how far health and safety forms part of the overall management of the organisation.

104 Inspection is a process that involves talking to people at all levels in an organisation to find out what goes on, and of course critically, how risks in the workplace are controlled. In a local authority, inspectors would want to meet trade union representatives and councillors alongside the managers and senior paid officers, as well as those working at the front line. They do not take what they see and hear at face value, but probe and test to find out, as far as possible, what really happens in practice.

105 In this way HSE, as a regulator, builds up a rich picture not only of compliance with health and safety law, and what it might call the culture in an organisation – how people think and function in a health and safety context.

106 Although the main purpose in managing health and safety is to protect people at work and those who could be harmed by work activities, there is also a business benefit. That benefit is in having employees in work doing the job they are there to do – providing services to council tax payers - and not incapacitated because of harm caused through work. There is a parallel benefit in safeguarding the employer's resources through having fewer incidents that could lead to civil claims.

107 By the end of an inspection, inspectors need to be assured that an employer has the capacity not just to maintain its performance in managing health and safety but to keep on improving. Where that is not the case, HSE will, as a minimum, monitor their progress in moving towards that goal.

108 Sometimes it is necessary to use formal enforcement measures to ensure that such improvements are made. In particular inspectors have the power to serve notices under the Health and Safety at Work etc Act. Inspectors are guided by HSC's Enforcement Policy Statement which sets out the principles that they should follow when making enforcement decisions.

109 In summary:

- HSE is committed to engaging with Barrow Borough Council after the prosecution, and that is now under way;
- it will be searching but supportive;
- the emphasis is very much on preventing things from going wrong in the future.

Looking forward

Dr Paul McDermott

110 L8 informs dutyholders of their responsibilities for controlling legionella and provides guidance on how those responsibilities and duties can be met. In 2003, HSE produced a guidance video, which puts the information contained in L8 into visual format allowing dutyholders sound, easy and straightforward access to advice on how they can control issues relating to legionella. Accompanying the video is an inspection checklist, which allows companies and dutyholders to check their actions against the standards in L8 to ensure they are doing enough to comply with the law.

111 HSE has also been busy producing industry-specific guidance documents which can be downloaded free of charge from the HSE website (see References for a full list of useful websites). The most recent addition is *Management of spa pools*, a comprehensive information package for those people responsible for managing spa pools. Spa pools are one of the three top sources of Legionnaires' disease in England and Wales.

112 HSE's Biological Agents Unit provides training courses for HSE inspectors to allow them to effectively inspect legionella risk systems from an informed point of view. The training provided is not restricted solely to HSE inspectors but also extends to local authorities and their Environmental Health Officers who have similar inspection responsibilities for these types of systems as HSE inspectors. HSE also provides advice and training days for local government, local business and individuals with responsibilities for operating these types of risk systems.

113 HSE will continue its programme of inspecting legionella risk systems, cooling towers and evaporative condensers. Inspectors will compare what they find on site with the standards laid down in L8. Dutyholders will have to prove to inspectors that a suitable risk assessment has been carried out, that there is a programme or a scheme of maintenance and disinfection, and that there is a regime to ensure that an appropriate biocide dosing system is in place to prevent legionella bacteria from growing in these types of systems. Where standards fall below the requirements set out in the ACOP, inspectors may use enforcement action to ensure compliance.

114 To date there have been two inspection programmes specifically targeting legionella risk systems, cooling towers, and evaporative condensers. The first was held in the West Midlands and the second was recently completed in the North West of England. HSE is planning a nationwide inspection initiative in 2007/08 to assess and ensure that action is taken to reduce the risks from cooling towers and evaporative condensers used in the manufacturing industry. Where appropriate, the full range of HSE's enforcement powers will be used.

115 HSE has established a Legionella Working Group, sometimes called the Legionella Committee, with the aim of improving communication with internal and external stakeholders and to develop a more coherent and consistent approach to the inspection of legionella-related plant and management systems. Chaired by John Newbold from the Biological Agents Unit it meets three times a year to discuss new developments and new challenges in legionella control, for example, the findings from the inspection programmes are discussed and used to identify future priorities in legionella control. Further information on the Legionella Committee can be found on HSE's website including the terms of reference for the group's work.

116 HSE also works closely with the Legionella Control Association (LCA). The LCA is an independent body, which has devised a code of conduct for companies working within the industry, such as companies who carry out legionella risk assessment or companies who supply chemicals for the dosing of cooling towers. The aim of the LCA is to promote high standards and to share information amongst its members. By working closely with the LCA, HSE can reach a large number of people working in the industry and help to ensure that the proper messages are being communicated.

117 By a combination of these preventive measures; provision of guidance, training, advice, our inspection programmes and maintaining effective lines of communication both within and outside the organisation, HSE will continue to strive to ensure that the risks associated with legionella risk systems are being properly controlled.

Remedial action by Barrow Borough Council

Tom Campbell

118 A presentation at the hearing by Tom Campbell addressed the remedial action taken by Barrow Borough Council in the aftermath of the legionella outbreak. The following account is a record of that presentation:

I have been asked to give a presentation on the issues that the Council has addressed since the incident and the action we have taken to strengthen health and safety in the Council and to ensure that a similar incident doesn't occur again.

I will deal firstly with the key issues which the Council and its officers have given attention to. First of all we have carried out over the time since the incident, a fundamental review of all our policies and procedures to make sure that they are fit for purpose and we now have published within the Council around 20 generic procedures which cover general issues of health and safety, whether it is stress management, fire risk or dealing with asbestos. We have also reviewed the organisation of the Council and Council's establishment to make sure that adequate resources are available to ensure effective management of health and safety. We have also carried out a further review of the way that hazards and risks are assessed and managed by the Council. It was a failure not to do that properly in terms of the air conditioning system at Forum 28 and a failure not to pay attention to L8 in particular that contributed to the tragedy. One of the principles of the Health and Safety Executive, I think, is to pay attention to the important things, not to get bogged down by trivia and not have so many risks identified where you are elevating issues that are not significant, but to identify those safety-critical systems where a serious event could occur and where the failure of that system would lead to an unacceptable event.

The other area we have looked at is developing a proactive health and safety culture. We are trying to establish an environment in the Council where all of our employees and everyone involved directly in the Council is thinking all the time, building into the day-to-day work, 'is this a health and safety issue and is it adequately covered?' Making sure that we don't simply fall into a pattern of repetition but that we are constantly asking the question and that duty of care applying through the whole organisation so that everyone involved with the Council is asking that question.

I will deal firstly with the issue of control of legionella. Clearly the Council never wants to have to respond again to an outbreak of legionella and as already mentioned, I think everyone is fully aware that immediately following the incident when the Council took back possession of Forum 28, the cooling towers were dismantled. In effect the air conditioning system was rendered inoperative and we have been able to run the building quite successfully without that system since then. The hierarchy of dealing with risk through health and safety legislation; the first principle is if you can get rid of the risk do so. So that is what has happened at Forum 28, that risk no longer applies and we no longer need to apply L8 guidance to those particular pieces of equipment.

As I think has been mentioned in terms of the L8 document, it doesn't just deal with high risk and obvious equipment like cooling towers and evaporative condensers. There are a number of potential risks from Legionnaires' disease; hot water systems where there are dead legs built in that can't be removed. Some of our buildings are quite old and that's clearly a possibility in design. Showerheads that are used infrequently. Normally a high terminal shower head with a high volume of water is not particularly a significant risk for legionella development, but a shower that may be used only occasionally is a possible source of legionella. So we have introduced a system of regular monitoring of water safe maintenance of all systems which we consider to be high risk and that, in effect, is everything that has a potential to generate legionella colonisation. For all premises that we take over (as some of you know who are local, the Council has been acquiring property in the recent past), we have a system which requires a specialist risk assessment of any building we acquire to check whether there is a risk of legionella development in that building. We check what systems are available and produce a specific risk assessment for legionella, as well as the other areas that we would look at in operation of that building.

The other issue that we have introduced into this control system is a multiple reporting system to ensure compliance. We have taken out, as much as possible, the principle where a single officer is receiving information. So in terms of these risk assessments they not only go to the Building Manager but they also go to another officer, a safety officer, in a central position. So we have

more than one employee of the Council aware of what is happening, so that if there is a breakdown in the process then there is a fallback position to help trigger remedial action to correct that.

Risk assessments. We have clearly reviewed how we carry out risk assessments in their entirety throughout the Council. What we have done in the Council is to establish a risk assessment health and safety work group. This is a working group made up of around 20 employees of the Council of varying grades, from different departments, who meet on a regular basis to consider all aspects of health and safety. That group commissions and reviews work on risk assessments. All risk assessments are fed through that group, so that if there is a collective knowledge that can be applied to that risk assessment to enhance it, or to improve it, then we take that opportunity to do so and they manage the day-to-day operation of the health and safety process. They deal with training, planning training, considering whether additional training is required and they can commission work as a group if they feel it will improve the Council's response to a health and safety issue.

We have now fully trained 38 staff within the Council as risk assessors. They have gone through a prescribed training programme, which means we have backup throughout the organisation to make sure that risk assessments are conducted by people who are aware of the requirements of the risk assessment process. We have a standardised risk assessment procedure that we adopt in preparing risk assessments and everyone follows the same principles. By having 38 staff throughout the organisation, and we are a relatively small organisation, it means that we have cover in every area of our operation.

We have also identified staff in the organisation who we have funded through specialist training; NEBOSH and IOSH training.* These are recognised qualifications in health and safety which probably, in particular in terms of NEBOSH, exceed the requirements of the Council. But our view is that we want to not only raise the awareness but to incentivise officers of the Council to become actively engaged in health and safety. So we have made available to staff, some have been identified as key staff, some who have been willing volunteers, the opportunity to undertake this specialist training.

Each area of operation of the Council has a risk register. Risk assessments set out the operation and risks that have been identified and all of those risk assessments are available to every employee of the Council, whether they work in that particular building or whether they are employed in the particular activity. We make that available through the intranet, an internal Internet. Within the Council itself we have our own communication system and so any employee can access the risk assessment for a particular operation or a particular building. They can have a look and see when it was last reviewed, what are the key risks in that operation and how they are being managed. We also have for each of our premises an on-site set of documents which identify the risks that have been identified and also the control measures that are in place to deal with that risk and they can be inspected by staff or anyone visiting the premises.

Risk assessments are reviewed first of all annually through the health and safety risk assessment working group. If nothing changes during the course of a year we trigger an automatic review of that risk assessment a year later. So we can satisfy ourselves that nothing has changed, that the risk assessment is still appropriate and that no circumstances have developed which would require that risk rating to be raised and additional action taken. We also review risk assessments where a change of circumstances occurs or on request. Any employee, any member of the risk assessment working group or any member of the public can, if there is a concern or a health and safety issue, request and we will review the risk assessment relevant to that activity or if there isn't a risk assessment for the activity they think should be reviewed, then we will carry out a risk assessment. Not all risk assessments end up in action; some risk assessments end up satisfying the Council that the current arrangements are satisfactory.

Finally, using our in-house specialist safety officer, we have been introducing a system of risk assessment audit. This is one of the recommendations that was referred to in the work from the national committee regarding engagement with local government, that a regular system of audit of risk assessments should be carried out to make sure that the procedures that we believe are in place, to control that risk, are actually being operated. So we have random checking by a qualified officer on site to check that the systems are operating properly.

* National Examination Board of Occupational Safety and Health (NEBOSH) and the Institution of Occupational Health and Safety (IOSH).

An actual example of that system in operation, which will be familiar to those of you from the Barrow area, is the rooftop car park which runs over the Market Hall and Forum 28 adjacent to Debenhams. The original car park was built in the 1960s and it is designed as a typical rooftop car park with a parapet wall. It was designed and built in the 1960s, meets the building code and for 30-40 years never presented any problems to the Council. However, some of you may be aware that we changed the front elevation to the Market Hall and developed a façade to bring it more in keeping with its position in front of the 'A' graded listed building. Because of that, we modified the parapet and actually there is a large structure now built onto the outside of that parapet. At the same time we were also experiencing some concerns about young people in the town making use of this car park out of hours and so we introduced a system of locking gates to close it off in the evening. However, concerns were expressed that the modifications, with the increased activity by the youth, that a risk was now developing that we could have a possibility of a serious injury through reckless behaviour. The risk assessment working group looked at that matter and decided that the risk level had increased significantly and in their view the only best solution was for the Council to construct a higher than normal metal fence around the perimeter. Now you will have to remember that this had to be done on a building that was facing a listed building. So the fence that was selected gives minimum intrusion from the other side and very few people actually noticed it. Many people might be surprised it is there unless you use this car park. That was the risk assessment working group responding to a change in environment which had altered the risk category in that building. That is the principle that we are trying to adopt, that we constantly review our operation. If something changes, we then consider whether our assessment of that risk needs to change and so management action or some remedial action is required. I hope that is helpful to give you a practical explanation of how it works.

Staff and resources we have also reviewed. We did review it immediately in some circumstances following the incident. Prior to the incident we were working with a part-time safety advisor within the Council. These are highly skilled people but very difficult to get hold of. We have now changed that situation and since the incident we have been operating with a full-time officer in the Council who is dedicated to health and safety and making sure that the Council is meeting its duties and developing a proactive environment. Specifically with respect to our high risk buildings, our community facilities, we have introduced a Community Services Manager post into the establishment, so that someone now sits at a senior level above all of these operational buildings to make sure that the strategic and operational management of those buildings is being applied consistently. That was a failing in Forum 28; we experienced difficulty with managerial vacancies in the couple of years leading up to the outbreak. We have also introduced a Standards and Facilities Manager. This is a post that we have introduced to monitor and develop compliance with Council policies. This officer will receive a copy of all of the records, contracts, use of materials etc to ensure a consistent approach. These are two new managerial posts that we have introduced into the establishment to strengthen the on-site management of major operational buildings.

We have been able to recruit within the organisation and appoint six members of staff as safety representatives. Prior to the outbreak we had great difficulty persuading anyone to become engaged in the role of safety representative but we now have six members of staff. Each of them is assigned nominally to a department of the Council's operation but they work collectively. They have all been trained via a TUC-accredited course and any replacement of those representatives, or any addition to those representatives, will go through the same formal training programme and become accredited as a safety representative. They play a very important part in the health and safety work group and they have members on that work group.

We have introduced a systematic training system for health and safety. Previously it was responsive rather than proactive. We now have induction training for all new staff. Everyone coming into the Council goes through the same consistent training on health and safety. Every member of staff undergoes refresher training in the key principles of health and safety every two years and we have compulsory health and safety training for senior managers. All senior managers are required to undergo a certificated course in management of health and safety and that will happen every three years, in order to maintain that standard. Finally, because we are a small organisation and we are not self-sufficient in every area that we operate, we use specialist consultants for assessment and training. We have arrangements in place to bring in additional support that we can't provide in-house and resources are available on a demand-led basis for that particular activity. So we don't try to cover the whole gamut, because we are not competent to do so and we don't have the resources in-house to do so. We bring in specialist consultants as and when we need them.

Part 2 Questions and answers

119 Question and answer sessions were conducted at both meetings where members of the audience were invited to ask questions to representatives from the authorities present. The following is an audio transcript of those sessions.

Meeting 1

Mr Cook

Inspection history

My question is to Mike Tetley. What risk audits were carried out on the Barrow Borough Council on health and safety procedures they had in place prior to the outbreak. Were there any at all or did they slip through the net?

Mike Tetley

In relation to HSE's direct activities prior to the outbreak, the previous visit as I recall was around 1999, but that involved a work at height issue. I think that was a topic inspection, where the focus of the visit was more on work at height and not on legionella.

Mr Cook

What I am talking about is specifically the procedures they had in place to meet current legislation.

Mike Tetley

We haven't got any actual duty imposed on us to go out and specifically audit councils. However, we do employ programme and targeting to go out and choose and select activities to inspect and audit.

Mr Cook

You generally target major employers like the shipbuilders, Vickers etc. because they employ most people in the area so you are spreading your net in one area quite wide. Does the Council cover this remit or do you treat them as a small employer and don't take much notice of them until something like the legionella outbreak occurs?

Mike Tetley

No. It is not our intention to deliberately stay away from them. As a regulator themselves in their own right, because they regulate health and safety, there is an expectation that they will be self-regulating, but it is just as and when we would have a need to go and visit them and if they fell or fitted into our planned inspection programme. Equally we can go out, if it is within our remit, to investigate accidents and complaints, but to the best of my knowledge there was nothing specific that was required or any prior activity other than what we are already aware of.

David Ashton

Priorities for HSE

Just to add to what Mike said. I don't have any disagreement with any of that, but you asked would we treat an organisation like Barrow Borough Council like a small employer? The answer to that is certainly not. District Councils are often quite large employers in their given area. We will look at the activities that they carry out and concentrate on some of the high risk activities and see if they are well controlled. So we will ration our time to go where the priorities are and Mike has mentioned one obvious one which is falls from heights in the area of construction, maintenance work and such like. Local authorities have a range of activities, for example refuse collections, which will be comparatively high risk within their general arrangements and they will have other activities with some at much lower risk.

Nick Hill

Public availability of cooling tower registers

I have two questions. One is, is there a target date for the publication of the report? And the second question is, in the past it has been difficult to get Councils to part with the register of cooling systems. Bearing in mind we have got the Freedom of Information Act now, would the HSE expect those registers to be publicly available upon request?

David Ashton

Easter publication for HSE report

On the first one, target date to publish the report. We will reflect on this. There will be quite a lot of raw material, as it were, but that is one of the benefits of taping presentations, all words will be available for analysis and study. The part which captures the circumstances as

set up by Mike should be fairly quick to gather and the other presentations because that material is ready, and most facts are largely known. I would like to publish the report around about Easter. I have got in my mind the end of March as a good time to achieve that but if very tricky questions arose which do require us to go and do some political research, discussion with other Government departments, for instance the access to information about cooling towers, I would slow the report down slightly if necessary to try and get really good answers to questions like that, but give or take then we are aiming for an Easter publication.

Colin Pickthall
We wouldn't like it to drift on any longer than that. We are quite conscious of the fact this issue has been around a long time and it is very hurtful for people for it to carry on going on a long time. Second one about the register of the cooling towers?

David Ashton
I am very willing to take the question away and to consider it and work it in next week's discussion because next week we want to look forward. The concentration today is to look back at what happened. Next week we will concentrate on the lessons learned. We can take delivery of that as one area that we need to look at. So without committing to something I don't know the detail of today, it is definitely an issue which would be very relevant and helpful for us next week.

Mike Tetley

Cooling Towers and Evaporative Condenser System Regulations 1992

I just may be able to add some value. There is in existence, under legal statute, a set of regulations called the Notification of Cooling Towers and Evaporative Condenser System Regulations 1992. The requirement of those regulations is for dutyholders who operate such systems, ie cooling towers and evaporative condensers, to actually notify the local authority of the existence of those systems so that there is a register. That register is held by the local authority, however it is slightly anomalous in that it is actually the Health and Safety Executive who enforce the regulations. So if there was a dutyholder who hadn't notified [the local authority] as appropriate, then it would be our organisation that enforced those parts of the regulation but in reply to your question, it is the local authority who do actually hold the register.

Alan Scott
The presentations pointed out a number of shortcomings and bad management practice by members of the Council. Isn't the Chief Executive responsible for making sure that these people do their job properly in the first place?

Tom Campbell
Part of my job is to make sure that everyone in the Council has a job description and they are trained to carry out the duties that they are employed to do, but in terms of what I think are matters of judgement, it is not possible to have a job description that tells everybody what to do with every piece of paper that crosses their desk. Employees have a responsibility to their employer to act properly and to show a duty of care. My intention was to give an explanation from the Council's perspective of the failings, which I think Mr Tetley's and my own presentation, and we haven't spoken to each other closely, followed the issues that he raised. How could it be that the Council could ignore this document? The answer is because only one officer, possibly two officers, in the Council had ever seen the document. So yes, do I expect and does the Council expect an officer who sees this document to deal with it properly? Yes we do. But for me to take responsibility? I take responsibility and I have dealt with the issue, but for me to take personal responsibility for that failing by a particular officer, is a different matter.

Bill Merewood
Could I just ask if any disciplinary action has been taken on any Barrow Council employees? We have heard of mistakes by many of the employed staff, not necessarily today, but we have learned through the court cases that there have been many faults, negligence by members of staff. Has there been any disciplinary action taken on these people?

Tom Campbell
As evidenced in court there are two officers on the case who have been disciplined so far. One officer received a formal discipline and was stripped of his management responsibilities. The other officer was dismissed but upon appeal was offered re-engagement with loss of

pay and pensionable service. The Council has constituted a chief officers investigating committee to determine whether any senior officers of the Council should be subject to disciplinary investigation and any possible action resulting from that investigation.

Bill Merewood

Why the delay with the Council's internal investigation?

You mentioned there about an investigation. The investigation, the internal investigation shall we call it, which I believe was commenced just after the outbreak occurred, I was actually told by a member of the Council. It was then stopped by legal advice and I am sure it must have been the legal advice of the Borough Council because it appears to me that to stop this internal enquiry, I mean the best people to know about how this outbreak occurred are the people in the Borough Council, yourself and your staff. The internal enquiry was halted while the trial cases were going on. Now I don't believe that that should have been necessary. There could have been, without prejudice, enquiry from you and your staff led by the Councillors or asked for perhaps by the Councillors to find out what went wrong. The excuse was that because of the trial case it didn't go on. It was stopped. I then heard, I enquired in August after the court case had been finished and was completed and then I was told that an internal investigation would be started straight away to find out what went wrong. I am told that they had a meeting on the 30 July of this year to recommence the internal inquiry. I read in the press that it was then held up for them to consider the case of Gillian Beckingham. Why it did have to stop because of that I don't know. As a result of my enquiry to the Town Hall to find out why it stopped, they then tell me that the meeting was now being adjourned until after the inquest. Now why? I mean the inquest is to find out what happened to those who died and why and when. What we should be finding from this public information from this hearing, from the inquest and from all those, is the information coming from Barrow Borough Council. We shouldn't be waiting for these inquiries to go back to ask the questions. You should be telling us, for your internal inquiry what has happened and now it is four and a half years, as we all know, after the inquest it will be five years and then I am told the inquiry, your internal inquiry will start again. Is this fair? Is this justice? Are we honestly all trying to find out the right thing or is it a cover-up? It appears that it is a cover-up now. The Council appear to be inactive. They should be proactive and finding out what went wrong and telling us. They are waiting for someone to ask them questions.

Colin Pickthall

Can I ask you Tom, can you explain to us why your internal inquiry has not taken place or is not taking place?

Tom Campbell

Council's explanation of delay

I think the issue has clearly been complicated by the fact that there have been two separate criminal trials relating to this matter and for a variety of reasons the legal advice to the Council was that we should, we could, proceed with internal disciplinary procedures and we did so while the trials were on going. So we didn't hold back on that, we dealt with that, but that the Council should not run its own inquiry which might contradict or distort the criminal proceeding and that was the legal advice the Council was given. So Council waited and should have been able to do it within a couple of years, but then of course there was a hung jury or second trial called for and so that situation continued and it has continued. I think everyone involved in the town, four and half years, best part of five years, to get to a situation where we can sit and have some discussion on it is clearly a terrible burden for anyone to be here, who wants to understand what happened, but that is the situation. So the Council was not able to take any action as a corporate body until the trials were completed. The Council immediately set about initiating their own internal investigation and established a committee, but they hit a bit of a wall in terms of legal advice and the legal advice that they were given was that until they have completed any internal disciplinary matters or investigations, they should not move on to a general investigation. That is purely to protect the Council as an employer because as an employer, the Council has a contract with all of its employees and has to make sure that it doesn't breach that contract in any form. So what the investigating committee has done is suspend its action as a general investigating committee until the chief officer of the investigation panel completes its work, not until the inquest. The date for the inquest was only recently set. There is no relationship between the Council's internal inquiry and the inquest, but there is a relationship between the Council's responsibilities as an employer and moving on to a more general inquiry. The Council welcomed this particular hearing as an opportunity to air those issues that can be aired in public, without compromising the Council's position as an employer. So that is the reason. It is nothing to do with the Coroner's inquest; the Coroner can set his inquest or the

date. If the Council is able to move forward before that time to complete its internal investigation, it will do so. If it is not able to, it will follow on and it will learn from the inquest. So it is the legal proceedings, the two criminal trials that have delayed the process more than anything.

David Ashton
There were two aspects to what Mr Merewood was questioning us on there. Investigating what happened with a view to punishing those whose fault it was, was one of the pleas that you made and you talked about whether you think that was being done quickly enough or thoroughly enough. You also talked about doing that, so as to learn the lessons and I think it was right that Tom Campbell speaks about the first half in terms of internal inquiries. There have been obviously the major external inquiries in the form of court cases which have led to conclusions about fault. We know the outcome of that, although that will be summarised for clarity next week. The point I wanted to make concerned learning and applying the lessons within Barrow Borough Council, which might be to do with management of contractors, they might be to do with the interest shown by councillors, they might be to do with the training of individuals. I am not suggesting or hinting that they are, but they could cover a range of practical and managerial issues. We are actively, as the regulators of Barrow Borough Council in fact, it is our role, the Health and Safety Executive's role, to see that Barrow Borough Council are complying with their duties as an employer under the Health and Safety at Work Act and we are actively engaged in doing that. That is what the word 're-engagement' means in next week's presentations. That is what that refers to; and Graham Piggott, the Principal Inspector who is leading that audit or series of contacts with Barrow, to see how well managed its health and safety affairs are now. Graham will speak next week and is sitting on the front row here listening to today's proceedings. Then there is a presentation by Paul looking forward on a much more general scale and then Tom Campbell again will take the rostrum to talk about the remedial action; what are Barrow Borough Council doing to manage things to a proper and high standard? In terms of whether it's legionella or any of the other risks which as an employer they might be creating and controlling. So there are two aspects to that. I did want to make sure that you heard something from the front about both aspects.

Denise Pickeralll
Mr Campbell said that in his speech the Health and Safety Executive sent the Council a questionnaire which nobody knew what to do with and it was filed. Can I ask the Health and Safety why that questionnaire was not hastened? Why did you not go to the Council and say we haven't received this questionnaire back?

David Ashton
I don't know the immediate answer, but the point of sending questionnaires out clearly is to establish the level of control and then to gather information from a whole range of organisations of which that would be one. That questionnaire would have been one source had it been returned which might then have been used, along with a whole range of other information that we have, to decide what to do about the range of risks and things that we are responsible for inspecting and giving opinions upon.

Colin Pickthall
Can I ask a question of Mike? Mike, in your presentation you described the disjunction between one contractor disappearing and another one not arriving straight away and you describe that as the core of the outbreak. I think that was your phrase.

Mike Tetley
It was a significant aspect.

Colin Pickthall
But at that point you can identify that something bad was going wrong.

….[inaudible]

You identified this as a significant point.

Mike Tetley
In relation to the minutes of the meeting that I mentioned in July…[inaudible]

Colin Pickthall
That was my second question. Could you tell us some more about that meeting? Presumably this was in the trial but I wasn't at the trial. A meeting in July 2001 in which this matter was raised and not dealt with?

Mike Tetley

Change of contractors

That's right. There were difficulties being experienced by the previous contractor in relation to call-outs. Historically, I think the contractor had contracts for most, if not all, of the Council's buildings. However, subsequent contracts were let out to others, thereby that contractor didn't have a service engineer working within Barrow on anything like a frequent basis of what they did, but the net outcome of that was that if buildings did have difficulties or problems then, historically there had been a contractor readily available to call in and deal with it. Because that wasn't the case, delays were occurring, so it was motioned to source a different contractor who may have been able to provide a better level of service and there was a meeting arranged within the Council to further that cause. Within the content of that meeting, the Technical Manager of Forum 28 mentioned that the guidance in relation to the Approved Code of Practice (L8) was changing. So the biological monitoring, a significant element of the trials in relation to a term called 'dip slides', which is just basically a slide of agar, of culture medium, just dipped in the circulating water, taken out, incubated, so it is kept at a constant temperature for a number of days to grow bacteria and if there is any there, it will grow and it will give a good indicator of the overall bacterial content of the water. If the slide is reasonably clear that's good, it is an indictor that your biocide regime is working. If it isn't then you will expect high results and high colonies. So that was mentioned at that meeting and then within the minutes of that meeting, it was recorded 'checking/dosing to be omitted'.

Colin Pickthall
To be omitted?

Mike Tetley
Omitted yes. That is my recollection.

Colin Pickthall
And that was the decision of this, was it a committee, a formal committee?

Mike Tetley
That was recorded in the minutes of that meeting by the manager in Design Services. It was quite a key and significant document within the case. But as I pointed out, I do genuinely believe that was an error. That wasn't the intention by the fact that it was just purely the dip slides that was to be omitted. It wasn't the dosing, it wasn't the entire biocide regime and control programme, but that was how it was recorded. Unfortunately that ethos appears to have been carried forward in the subsequent contract negotiation.

Colin Pickthall
So that was my question. So that erroneous minute actually became the practice of that department of the Council?

Mike Tetley
That was a significant factor.

Colin Pickthall
Interesting.

Jenny Dent
I am from BBC Radio Cumbria. Just to keep the public questioning rolling is it OK if I ask a question as well?

Ms Beckingham's current status?

I wanted to ask what the current position was with regard to Gill Beckingham. She was the one officer that was convicted in the failing of her duty of care to protect the public and I just wanted to find out what is her current status at the moment as regards the problem with the Council?

Tom Campbell
I did say that I would answer any question that I was able to and I am afraid that I am not able to answer any questions specifically about Ms Beckingham on advice from the Council's solicitors.

Jenny Dent
Would if be fair to conclude from that that the investigation, the officer's disciplinary investigation that you were referring to, that is ongoing, is it that process still?

Tom Campbell
The Council has established a chief officer's disciplinary panel. That panel has the power to investigate the matter to determine whether any actions are required.

Jenny Dent
And that is ongoing?

Tom Campbell
That is a panel that has set up by the Council. I am not prepared to go into a discussion on this matter. I did indicate to the Chairman that there would be areas that I just wasn't able to discuss and I would rather we don't pursue the likes of this.

Colin Pickthall
I think that particular issue is very, very difficult in legal terms for us to deal with at all and I would rather we didn't.

Jenny Dent
It is just one that it is clearly in the public interest.

Colin Pickthall
Of course we understand, but it is subject to a lot of legal constraints.

Mr Cook
Mr Campbell, do you have a contracts department in the Town Hall?
Does one exist?

Tom Campbell

Council's management of contracts

Terminology is such that some people call things one thing. The Council has got very few blue-collar employees. Most of our blue-collar employees were transferred out many years ago when we externalised street cleaning, refuse collection, whatever, so some people refer to the contracts department as the department that carries out contracts. We don't have any direct service operation other than a few staff who were traditionally called blue collar, no longer referred to in those terms, at the leisure centre and we have some stewards in the Town Hall. So we don't have a contracts department. Do we have other departments that manage contracts? Our Design Services Group act as an internal consultant but they don't cover all of the work that the Council does. The Council uses external consultants for large parts of its work. We use external architects, external structural engineers, external landscape architects. So we use a wide range of external contracts. Quite a large amount of our work is currently done by Capita, who is the County Council's contractor, because they have a presence in the town. So we have a small team who provide an in-house design contract support service, but the bulk of our work goes to external contract offers.

Mr Cook
On the same note as the HSE, what David said, you cannot subcontract your liabilities to the public or your employees. So there must be somebody in overall control over contractors and subcontractors making sure that your subcontractors are doing what you intend them to do?

Tom Campbell
Contracts again is a very generic term. We have contracts which are service contracts, we have contracts which are construction contracts, we have contracts which are supply contracts. For each contract there is a client in the Council, the department who is buying the service acts as the contract supervisor. So I have a small team of people who supervise the cleansing contract and the street cleaning contract. I have another group of people who will act as the client on certain construction works. I have a housing team who act as the client for all of the housing management work.

Mr Cook
When drawing up a contract it has to be legal and binding on both sides. So how would you allow individual departments, taking the technical input into [*consideration*] because of the actual legal side of the contract, is that not overseen by a department or person?

Tom Campbell
I have to say that most small councils like ourselves tend to work on model contracts which are prepared by national partnerships. So for example if we were putting out a contract for refuse collection, we wouldn't sit down and write it from scratch. There is actually a national model that we would use. So for most things we use a national model for most contracts. For construction contracts then there are a set of separate regulations called The Construction, Design and Management Regulations[4] which put a requirement on us to have a qualified person, a properly qualified person controlling various aspects. For a lot of those cases we employ an external person who is qualified in those respects to put the contract together. So I think the point you are making is that the Council cannot, and quite properly the law says we cannot, just pass on our responsibilities there. What a council of our size would do, in most cases, is we would engage an expert either in design or engineering or we would go directly to an expert contractor. We would then ask them to do certain works for us and we would then acquire that work from them. So for example a risk assessment, the Council's job is to identify that a risk assessment is required, we can use an external agent to prepare that risk assessment for us, but we have to say 'yes, we accept this as a good risk assessment, this is the risk assessment we are going to adopt'. I don't need to have someone employed by the Council who is qualified to do all of these things.

Mr Cook
I understand that. But what appeared from this discussion today is that you had a small team who took decisions of their own without any knowledge higher up the management chain in the Town Hall. Is that correct or have I misunderstood that?

Tom Campbell
Hierarchy for decision-making
I will have to say again, I'll speak in general terms, the Council, like most councils, has a hierarchy for decision-making, usually based on the cost of the works. So we have certain works that are below a certain value and they are delegated down. So there are a number of officers on the Council who can issue orders for various things that don't need to come to a more senior officer and then the limit that I can approve is limited. In certain cases I need to go to a committee to get approval. So there is a scheme of delegation. I have to say in general terms the works we have been talking about today were relative low value, relatively inexpensive works.

Mr Cook
That again begs another question. If you base all your decisions on a financial basis surely you are at a risk of an instance like this, that any activity, they are all financially based, surely you must base it on the safety of the public, on what could be from lack of action or bad action?

Tom Campbell
Again, if officers follow the procedures that are set out in how they go about procuring, or buying anything, then those situations should not occur.

Mr Cook
No they shouldn't, I quite agree, but there should be somebody overall that is watching the people, who manages it, in various departments that they are doing what they are expected to do, or are employed to do.

Tom Campbell
Again we have a chain of command, a hierarchy that everyone has someone, a supervisor, throughout the organisation. Sometimes there are gaps but communication is the key issue there. The procedures are in place to be properly forward, but if people don't forward them, then there can be a delay in picking up what hasn't happened.

Brenda Sedgewick
I would like to ask you about the simple book you were talking about [*Approved Code of Practice*]. You were saying that if you had followed the book, none of this would have happened. That simple book there.

Approved Code of Practice (L8)

Tom Campbell
The Health and Safety Executive issued this guidance for this specific purpose. It brought together all of the guidance that had been prepared over the years about controlling legionella into one guidance. It is called an Approved Code of Practice and basically if you follow this code of practice, there should not be an occurrence. It is preventable, I think was the term. In simple terms there were only one or two officers of the Council who knew of this book's existence.

Brenda Sedgewick
If it was such an important book then why wasn't….[inaudible]

Tom Campbell
I cannot disagree with you. In my view a document which is titled *Legionnaires' disease. The control of legionella bacteria in water systems* is very easily understood. It is not a complicated technical title that the book is given. So my view on the matter is that anyone, if this book landed on someone's desk, they bear a duty as an individual, regardless of whether it is their job description or not, to make sure that it is being properly considered by the Council.

Brenda Sedgewick
You didn't know anything about this book?

Tom Campbell
Letter and questionnaire sent by HSE

I have to say to you, the first time I saw this book was after the outbreak. I have to say to you also, the first I knew that the air conditioning system in Forum 28 was subject to the requirements of this book, was after the outbreak. Equally the letter and the questionnaire that was referred to, the Health and Safety Executive probably, I would imagine, I haven't confirmed this, sent this book to every council because councils have a duty to maintain their register of registered cooling towers. So they would send one to everyone anyway as a matter of course. But they also wrote separately to the owners of registered systems. In the case of the Council as I explained in my presentation, they wrote to Forum 28 because that was the address that was given for the owner. The letter that they wrote warned the owner that the system was subject to this new guidance, it explained the basic elements of the system and its responsibilities. It included a questionnaire to be returned to the Health and Safety Executive…

Brenda Sedgewick
I am not interested in that. Who was in charge of the health and safety?

Tom Campbell
Excuse me, can I finish the question.

Colin Pickthall
Allow him to explain, you can ask that supplementary if you want.

Tom Campbell
And the letter did indicate that there would be a formal questionnaire to return. That letter was received by the Council at Forum 28. The officer who received it decided that he was not in a position to complete the questionnaire and put it to one side. It was then forgotten about until after the outbreak.

Brenda Sedgewick
Did you have a health and safety policy?

Tom Campbell
Yes.

Mr Bachelor
If the Council had a health and safety policy why wasn't it carried out?

Tom Campbell
Partly because the officer who received the letter, and the officer who received this document, ignored the Council's health and safety policy.

Mr Bachelor
Who was in charge of the health and safety policy?

Tom Campbell
It was my job to produce the policy and make sure it was being adhered to.

Mr Bachelor
Why didn't you make sure the policy was carried out?

Tom Campbell
If the question is why didn't I make sure that the officer who received the book distributed it, I didn't know that he had received the book.

Mr Bachelor
Yes but if you are in charge of the health and safety policy, you should make yourself know something about health and safety policy. You have just admitted that you know nothing about health and safety.

Tom Campbell
I have a very good understanding of health and safety policy but I have to say to you, I wouldn't ask the question, but I am not sure how many approved codes are issued. I not sure how many guidance notes are issued. I would not expect to know the detail of the control of legionella. I would expect the officer who the Council employs to know that and who receives the document to bring it to my attention.

Mr Bachelor
Did you have any health and safety training?

Tom Campbell
Training? Yes I have been trained in health and safety and I am regularly updated on health and safety.

Mr Bachelor
One of Ms Beckingham's things was that she had no health and safety policy training.

Tom Campbell
I am not prepared to discuss the position. I have made the point that I can't.

Colin Pickthall
We can't discuss matters to do with Ms Beckingham because of the legal constraints that surround that issue at the moment.

Mr Bachelor
That is in the public domain. She said that she had no health and safety training. She said that in court. That is public. So if she had no health and safety training, how can the Chief Executive Officer of the Council who is responsible for all health and safety training, responsible for the Council, say that he has a training policy in place?

Colin Pickthall
Well, can we put it in slightly more general terms and ask does the Council, you as Chief Executive Officer, make sure that the relevant people are all properly trained in health and safety or whatever other issues that are their responsibility?

Tom Campbell
The Council has a training plan. We apply appropriate training to the requirements of individual officers. In this case we have accepted that more could have been done to train people generally on health and safety, but the officers who were directly engaged in this all had specific training.

Should there be accredited training in legionella?

Mr Hill
Can I make an analogy first between asbestos and legionella? So far this morning people have either indirectly or directly made comments about competence and training. In the asbestos field in the industry there is recognised training of people... [inaudible]. This called for a proper recognised status. There isn't anything equivalent on the legionella side and in fact recently the one accreditation body that did accredit courses which was a City and Guilds, we were told no longer does it. Does the HSE think it is worthwhile to now look at the way legionella training is provided and whether there is a route for accredited recognition of that training, like there is in the asbestos field?

Paul McDermott
There are companies out there that provide legionella training and there is an organisation known as the Legionella Control Association which is an independent association which can accredit lots of activities run by companies who are involved in the control of legionella. It can accredit and audit their ability to deliver those services and that would include training in legionella control. So I think the advice would be that if you were looking for a competent organisation to deliver legionella control training, then the advice from HSE would be to go via the Legionella Control Association.

Mr Hill
I know what I meant to ask and I didn't ask it. I know about the Legionella Control Association and we do provide training, but I still think there is a weakness here in that, my point was partly that the HSE recognises what P402 and P405 is and they will recognise that throughout the industry. Is it the case that people who have got responsibility in organisations that operate cooling systems or other water systems ought to have some sort of recognised qualification, because we have questioned people's competence?

Paul McDermott
There would be a good argument for that, yes.

Colin Pickthall
And it is an important issue and it is one that I imagine we will address in the report in one way or another.

Colin Douglas
Mr Campbell, I would like to ask you a question. Looking back in hindsight with regards to giving that contract out to other contractors, do you think that you got better service from the original firm, than you got from the firm that you gave the contract to?

Tom Campbell
I have examined the records from the previous firm and generally I think they provided the Council with a very good service. The issue as I understand it, having examined all of the evidence, is that there are very few specialist contractors in the immediate Barrow area, so in all aspects these were contractors that were travelling some distance. The staff were becoming frustrated by the delays in getting someone immediately to fix something that had broken down. I think that the contractor who was selected to replace the previous contractor should have been quite capable of providing.

Colin Douglas
Who was the original contractor?

Tom Campbell
Well I think again all of this has been evidenced in court. The original contractor was a firm called George S Hall.

Colin Douglas
A very experienced firm on air conditioning.

Tom Campbell
Yes. The firm that replaced them is a firm of national reputation. Not a small local firm, it is a firm of national reputation and if the exchange of specification and contract documents had been done properly, I am sure the Council would have received a first class service from that organisation. As I explained, that organisation was going through some changes itself in terms of personnel and location and it wasn't their responsibility to do it, but I would think in most circumstances a contractor would have realised that the contract documents weren't properly in place, but that was our responsibility. It was the Council's job to say look we are making payments to this contractor, where is the contract document? Where is the specification? That was our job. So I believe that both contractors were capable of providing an excellent service. The view was that this new contractor would be able to create a better response service for breakdowns. So the intentions were good, the intentions were to improve the service. I think the intentions in terms of the dip slide testing that Mr Tetley referred to were to actually improve the service but because of, and I use the term inexplicable, I think it is inexplicable how could we move from a situation where we had a perfectly good working contract and going for 10 years to suddenly, it would appear, having nothing. Now that is taking a great deal

of unravelling and much of the evidence required the Council has had to wait for the criminal proceedings to actually get access to the documents that help us to try and understand that.

Richard Herbert
I work as a reporter for the Evening Mail. I have got a question for Mr Campbell. Mr Campbell, what should you have done personally that would have prevented the Legionnaires' outbreak?

Tom Campbell
I am taking my time about that one because there have been so many issues in relation to this that would have prevented the outbreak I think is a difficult one for me to say. Certainly if I personally had taken a much firmer approach to insisting that risk assessments were completed rigorously within a tighter timescale, then that may well have thrown up the issue of the air conditioning system, but all of the staff who were engaged in that process and who had knowledge about it, failed to produce that themselves anyway. Certainly I have looked back very carefully at this and in terms of my awareness and knowledge and the issues which were put to me, the issue where I personally with hindsight looked back and say could I personally have made a difference would be if I had taken a much harder line on forcing a timescale on completion of general risk assessments covering the whole gamut of activity that was going on at Forum 28. That was a judgement call.

Bill Merewood
Was there a health and safety committee which should have been organised?

Tom Campbell
There has been some confusion about a health and safety committee. There is no requirement to have a health and safety committee, unless the health and safety representatives, appointed through the trade union normally, require it to be set up. The health and safety committee is a committee that is created through statute and is triggered by the health and safety representatives in the workforce. So it was not the Council's job to set up a health and safety committee. I think we had great difficulty prior to the outbreak, as did the trade union persuading anyone to take on the role of health and safety representative. Since the outbreak we have been able to get more people to do so and we have asked them if they want to be formally constituted as a formal health and safety committee and they have said not at this time. So there was no requirement. Certainly, again looking back with hindsight, I could perhaps have pushed harder with the trade union representatives to identify safety representatives and giving them the opportunity to talk for a committee. The purpose of that is to try and bring, and we're probably straying into what we are going to talk about next week, is to get as many people as possible involved in looking for risks and then deciding what are the real risks and what are the ones, there may be a risk but they are not a significant risk. So there wasn't a requirement to set up one. I didn't have a duty as an officer to set up a health and safety committee.

Health and safety committee

Chris Wright
I would like to thank Mr Tetley for giving a very excellent schematic animation of showing how this plant works. I had not realised how technical it was. We heard about dip slide testing and dosing of this equipment. In seeing Mr Tetley's presentation, I did not know that 50% of this plant was out of action. We have found that there were two chiller units, only one of which was working. There were two cooling towers, only one of which was working. The fan damper in one tower wasn't working and two of the biocide barrels were empty. When was it known that the chiller units and the cooling towers were defective? How long had they been defective? How contributory were they to the failure of this system and how long ago was it before action was taken to put them right?

Defective plant

Mike Tetley
In relation to how contributory they were. Hopefully I did cover this point but in essence it wasn't a contributory factor to the actual outbreak in relation to the plant being out of commission. As I said in my presentation, the system was still in balance in that we just had one chiller servicing one cooling tower. If we had had two chillers servicing one cooling tower, that would have been significant and the plant would have gone outside of its system parameters and start to shut down. So that would have been problematic for the building. In relation to one of the parts of your question in relation when did they occur. Essentially that was some months previous to the outbreak in the region of six or seven in relation to the actual fan going down in the number 1 cooling tower. But just to reiterate, those parts of

equipment being out of service or out of commission wasn't contributory, I didn't consider them to be contributory to the outbreak. Obviously the empty biocide barrels were because if the biocide isn't going in then it is highly probable that an outbreak of this size would have come out. Hopefully that has answered your point. If I could just add a bit of value to that in that the actual addition of biocide is part of the package and just to communicate this point, it is important that all the other pieces of the control package are in place and invariably they are there to ensure that that biocide regime is viable and that the biocide is able to kill the bugs.

Chris Wright
They were out of action for six or seven months?

Mike Tetley
That is my understanding, yes.

Chris Wright
Whose responsibility would it have been to make sure that they were put back into action?

Mike Tetley
That is a matter for the building managers but that is just coming back to cost and operational viability. The need for two chiller units. What demand for cooling did they have in the building? That is an operational issue as opposed to what I would consider to be directly health and safety related.

Tom Campbell
In case the impression had been given otherwise, Council officers were aware of these defects and engineers had visited the site and given a quotation for repair and replacement of components. They had also given a quotation for a complete replacement of the system but none of these quotations or inspection revealed any increase, in fact they didn't reveal the risk of legionella, never mind any increased risk of legionella and to the best of my recollection, on or around the day of the outbreak, when the towers was discovered as a source of the outbreak, there was actually an engineer en route to Barrow to carry out repair work either to the chiller or the impeller fan, I can't remember, without checking the records. So these were defects that were known in the main and where we had engaged engineering consultants and contractors to look at whether they could be repaired and the system brought back up to full operation.

Colin Pickthall
Thank you. Just before we wind up, a couple of words from David about next week.

David Ashton
It is just in concluding the question and answer session. Four questions have been asked which I said at the beginning we would reflect on and pursue them next week. I just want to say what they are, so that you see the process working, but if I have missed a question that you clearly think was outstanding, or that is relevant to next week's look at future lessons, then there will be a chance to flag it up or even just come and have word with me just as we're finishing. The four questions that I think there is an indication you would like to hear more about, were concern from Mr Cook about previous contacts between HSE and Barrow Borough Council, which we are happy to look at in so far as existing records allows us, there is a point in history beyond which you can't go. I have taken note of the question. Mrs Pickerall asked more specifically about the return of the questionnaire and I have taken that question away again to address that a little more, as far as records and recollections allow obviously, but that is I think for next week because there might be lessons within that. Mr Hill has asked two technical questions; publishing the list of registered cooling towers and should the training provided to people who manage legionella plant or cooling towers and suchlike, should that training be accredited. So those are four specific questions.

Mr Hill
Should accredited training be a requirement for people with responsibility?

David Ashton
There are a bundle of things within accredited training such as that. I am taking that as a little bit of a collective question. So we take away those four for specific reflection, as part of next week's deliberations.

Meeting 2

Graham Piggott (following the 'Re-engagement' presentation)
If you agree I could deal with the question that Mr Cook posed last week.

Colin Pickthall
That will be appropriate.

Graham Piggott
It follows on. It gives a bit of background to what I have been saying about what we are now doing, as well as answering Mr Cook's question, which if you remember, was concerning our previous involvement with Barrow Council. What we did last week was give a short account of what we had done and that included enforcement action, of course, on the control of legionella back in 1991. Mr Cook's question was getting at the point 'had we done something like an audit'? Now that you have heard what we are currently doing with the Council, it is possible that the question might be in your minds. Well, why weren't we doing that sort of thing in the run up to 2002? So to answer that I will just give you a short background as to what has been happening in HSE from our perspective in recent years.

HSE's national priorities and initiatives

So the first thing to note really is that our inspection, our preventive work, has always been directed and prioritised in one way or another. At a national level we use intelligence we gather about the different types of injury and ill health and what we know about their causes, ready to channel our inspection into the areas that are causing the biggest problems. If you go back through the 1990s, and it is actually still continuing today, in the public sector the health service was our top priority and the objective there was to reduce the number of days lost through work-related causes. By 2000, as a move by the Health and Safety Commission and the Government to give the whole health and safety system a fresh impetus, the health service still remained very much a priority, but a more strategic approach began to be developed for other parts of the public service, including central and local government. Shortly after that point a body called the Local Authorities Forum was set up and that was to enable local authority employers' representatives, of whom Steve Sumner here today is one of those key figures, to meet together with the trade unions and HSE to share good practice and to come up with a plan for improving health and safety performance in councils. What action arose from that was a letter from the Chair of Health and Safety Commission, Bill Callaghan, to all local authority chief executives in April of 2002 and the purpose of that letter was to encourage chief executives to face up to the challenge of improving health and safety performance and also in that letter set out some actions that local authorities needed to take or at least to check they were already doing it. In that time, moving now to ourselves as an operational team, we were giving serious thought as to how we could also engage with local authorities and yet still meet a lot of other heavy demands upon us. So we settled on an approach that involved meeting with senior officers in councils to find out where they were with health and safety management and what they were doing to meet those challenges. So what we were doing really is following up, asking the question, you have had a letter from the Chair of Health and Safety Commission, where are you with that and what are you doing? We developed that process during 2003. This is while the legionella investigation here in Barrow was still in progress and we started to try it on a sample of local authorities in 2004. Clearly from our point of view, this was a new area of work and it made very much sense to do it on a small scale to make sure it was a good use of resources and was viable and workable. Since then we have found it to be quite a positive and powerful way of structuring inspection. We have had quite a lot of positive feedback from a number of sources. More recently, that has now gone national and that kind of approach has been taken as a sort of blueprint to how we now do more strategic inspections in local authorities. So my concluding point is that, to go back to what I said about what we are about to embark on with Barrow Council, hopefully that will give you at least some assurance and confidence that we are coming to this task with quite a lot of experience already behind us in this area of work. So I hope that does at least address, at least provide you with some information in relation to that question last week.

Local initiative

David Ashton

Why HSE didn't follow up the questionnaire and self-audit proforma

There were four questions which we took notice of last week and said that we would come back with answers. Graham addressed the first of those. The second question that I am going to answer was from Mrs Pickerall and it was about the, what we call the legionella proforma, the background to that and in particular why it didn't generate a follow-up visit to Barrow which would have been prior to or coincidentally round about the time of the

outbreak. So we have done the research to be able to give you a fuller answer to the question than would have been possible off the cuff last week. It stemmed from a key national objective being set for HSE as a whole rolling forth from 1998 to 1999 into the year 1999/2000. There was a delay, a technical delay, in the publication of the Approved Code of Practice which meant, and that is reasonably significant in the little story that I am setting out here, it effected the onward timings and it thwarted the original intention which was a two-part approach, letters followed in a certain year by selected visits where there might be some cause for concern. The Approved Code of Practice, the publication of it and it isn't just an issue at the printers as it were, an Approved Code of Practice has got a defined legal status, so when L8 is described as an Approved Code of Practice, it is actually called up by a particular section of the Health and Safety at Work Act which says, in very plain terms, that it forms a definitive benchmark against which compliance with the law will be judged but you are allowed to do something else if it is equally effective. If you meet the standard in the Approved Code of Practice by other means you are OK. If not and you don't heed the Approved Code of Practice, that will be taken by a court as a breach of the law. There is an interesting point in that it allows technical innovation without you having to go back every few months as technical changes and improvements occur to change very detailed regulations, your Approved Code of Practice just gives more room for advance and it is a common sense approach, but it does mean that the status of an Approved Code of Practice has to be formally acknowledged before it can have that status.

Definition of Approved Code of Practice

That is sort of a national picture. In 1999/2000 our Workplace Contact Officers wrote to local authorities to obtain lists of registered cooling towers. Again, just to clarify a point there, the main task of a local authority is to maintain an accurate list of every cooling tower in their territory, regardless of who runs the plant, it could be a hotel, or it could be a factory for instance. The purpose there is to have an up-to-date list ready, contained in the local authorities register so that if there is a suspicion of an outbreak, as we heard last week, people such as the Health Protection Agency can very quickly look at this and say we need to check these three sites, these could be the cause of a possible outbreak. So that is its primary purpose. Andrew Buck from Barrow Council replied in October 1999, giving that list and including Forum 28. I think we heard briefly about that last week including Forum 28 as one of the relevant premises. So at that stage the intention was to send out a self-audit proforma and then target follow-up visits where there had been a failure to return the proforma or what was said on the proforma indicated poor performance, that the organisation who had sent it back hadn't in some way understood or entirely controlled the risk. Because of the delay in the Approved Code of Practice it changed the timings when visits would have been possible and a decision was made, this was a central decision not a kind of local initiative as it were, that when the Approved Code of Practice received due approval the mailshots could go ahead later than intended, and that was January 2001, but that the second stage, the inspection phase, would not go ahead in 2001/2. I think it is unfortunate, I will say that, the letter wasn't then amended because it gave the impression that there would be some follow-up visits when in fact the decision had been made that there wouldn't be. Locally, just to give an idea of the scale of it, the Workplace Contact Officer from the Preston Office, Mary Clarkson, sent letters with the proforma to about 600 firms in Lancashire and Cumbria. They went in late January 2001. I think it actually re-emphasises the point that has been made a number of times including last week, that it is a common risk and there is still quite a lot of plant which has the potential to cause a legionella outbreak. That is what happened as a result of a policy decision to carry on with the proforma, which very emphatically drew the Approved Code of Practice and its requirements to the attention of everybody that the lists from local authorities indicated to us had appropriate plant, the intention not to follow that up with visits to a selected number of either people who didn't reply or people who replied making remarks, answers giving cause for concern. The letter wasn't modified to actually downgrade that intention. So that it is the full and entire answer to the question that was asked. Thank you for listening, I've set that out in reasonable detail because we do want to discharge the obligation on the questions that were asked as thoroughly as we can.

Background to proforma being sent out by HSE

Content of letter should have been amended

The next question, that is two of the four…

Denise Pickerall

Can we just go back on that please? That was my question. Mr Campbell, you said that that letter was received at Forum 28 and the person who received it didn't know what to do with it, it was filed. Correct?

Tom Campbell
That's correct.

Denise Pickerall
My point is not why didn't you follow it up, the non-acknowledgement of that questionnaire up with a visit, why didn't you hasten a reply to that questionnaire? Not follow up with a visit but you could have hastened a reply. It could have gone on a database. You sent out all these forms and I was a civil servant and part of my duties was the care and custody of documents, some of them highly classified, and in my experience when you don't receive an acknowledgement to a letter it indicates a problem. I think that should have hastened a reply in writing to that questionnaire.

David Ashton
A fair point to make and a point received at this end. It is relevant to the third of the four questions which was asked by Mr Hill which was about in essence, public access to lists, to these lists of registered cooling towers and I am going to turn to Paul McDermott to answer that and Mr Hill's other question concerning the accreditation of training.

Paul McDermott

Obtaining access to cooling tower registers under Freedom of Information Act

One of the questions from Dr Hill concerned this list held or the register held by local authorities regarding sites, where cooling towers and evaporator condensers are being operated. As David has already said, there is a requirement under some regulations for those people who are operating these sorts of systems to notify their local authority and the question from Dr Hill was, 'if that information is being held by local authorities, should it be available under the Freedom of Information Act, should you request it'? Now I have had a view of this myself last week and I have checked with our Freedom of Information office in Bootle and I understand that the information should be readily available to you should you wish to request that information. There are no exemptions that apply to this type of information. So if you want it, you just need to apply in writing and you should be able to get it and that would apply to any local authority.

Accredited training courses for legionella control

That was the first question. The second question was slightly more complicated and it dealt with training of people who are charged with operating or are responsible for the safe operating of cooling towers, and in fact with condensers and other risk systems as well. The question was should those people undergo training that is provided by an accredited body and Dr Hill talked about the City and Guilds accreditation. He wants to know what HSE's view on this would be. Well our view would be that people who have this sort of responsibility, L8 refers to them as the 'responsible person', but it could apply to anybody who has responsibilities for the management of these systems. Our view is that the training should be sufficient, or of sufficiently high standard, to ensure competence for those individuals and that by going to an accredited service provider, a training provider that has undergone some sort of accreditation, you can be more confident that you are going to get that level of training. Dr Hill suggested that the City and Guilds training had now been withdrawn, well I contacted City and Guilds and I made one or two enquiries and the City and Guilds training is still available. There is a company known as Develop who are based near York but have centres around the country who will offer a range of City and Guilds accredited courses for legionella control. There is also the Water Management Society who is, this is a well-respected, well-established society within the industry and they provide accredited, self-accredited training courses for a whole range of activities to do with legionella control. They are based in Tamworth, but they will also provide on-site training as well. So the facility is there. There are accredited training schemes up and down the country where people can obtain training which is of an appropriate standard.

Colin Pickthall
Can we start to concentrate on questions to the Crown Prosecution Service? Now Mr Wicks you had a question last week and I asked you to ask it this week instead. If you could ask your first one just now that would be helpful.

Barry Wicks
….[Inaudible]. My question is why Tom Campbell was not considered a 'controlling mind'. I realise, having heard the CPS, that it is probably not the right question because of the problems of establishing the chain of duty of care each resulting in the death and gross negligence. I think it is unfortunate that the organisations most likely to have a serious fault

in health and safety are also the ones that won't have a controlling mind, in other words, the weaker the management structure the less chance of being accountable. Would you say that is right and can the CPS do anything to get round that Catch 22?

Chris Foren

Controlling minds

Can I deal with the first part of the question first, Mr Wicks? Why wasn't Tom Campbell considered? The short answer to that is that he was considered for prosecution, he was interviewed in his capacity as leader of the Council; he was interviewed by the police at some length. I understand that he wasn't interviewed under caution, but nevertheless he was required to give an account of his involvement in what had taken place. He was not ultimately prosecuted because the police and the HSE investigation did not uncover any evidence to suggest that he had been grossly negligent. The longer the police investigation went on, the more that the person who seemed most to be responsible was Ms Beckingham. One of the witnesses who gave a statement to the police put it in this way, 'that she ran her own show' and so a lot of the decisions taken in relation to the Council infrastructure and the maintenance of the infrastructure was organised by her. The air conditioning system at Forum 28 was initially maintained under contract with a firm called George S Hall. Ms Beckingham was party to a decision to terminate that contract and that is the basis on which the prosecution put its case. In negotiating a new contract for maintenance with another company called Interserve, the prosecution said at the trial that she had failed to understand the details of that contract and that she had failed to ensure that there was provision for cleaning and chlorination of the tanks and for making sure that there was a constant supply of biocide to keep the water tanks safe and free from infection and the basis on which the Crown proceeded against her was that she had taken the decision not to put those things in the new contract and that was one of the reasons for the outbreak. I hope that answers your question. So, yes, I think if anyone was at the time the controlling mind of Barrow Borough Council it was Mr Campbell, but you can't just prosecute the controlling mind, you have got to find a controlling mind who is both a controlling mind and himself or herself grossly negligent and that is one of the big legal hurdles that any prosecution in these circumstances has to overcome and here, although we could identify who the controlling mind was, we weren't able to bring sufficient evidence to show that he himself had been grossly negligent. I hope that answers your question.

Barry Wicks

It does show a weakness in the system…[inaudible]

Chris Foren

Yes, I agree. As my colleague Brian Boulter said in his presentation, the paradoxical situation is that at the moment with corporate manslaughter it is much easier to get a conviction from a one-man band than it is from a larger organisation where responsibility is divided and so you may have one or two directors at very senior level who have some responsibility, but then you have got other people lower down in the structure of the hierarchy who also have responsibility. And so the responsibilities are shared and in those circumstances it is often very difficult to find a controlling mind who has been grossly negligent him or herself and that is why it is easy in the case that Brian Boulter's cited. If you have got a one-man band, well, it has to be him, because he is the only person there. He may have one or two people working for him, but he is the boss and there is no other boss, and so that is one of the reasons why the Government is bringing out this new legislation, in an attempt to resolve some of the problems with the existing law.

Colin Pickthall

Just to follow up the question you said about the weaker the management, the more likely an outbreak would be and what will the new law do to cover that, the answer is we don't know, but you may wish to look at that bill for yourself. Bills become public and I am sure the MP's office will be glad to get hold of one for you, a copy of it. They come with explanatory notes which makes it rather less heavy going, rather than just reading the bill itself, and you may be able yourself to suggest ways in which that bill might be made more watertight in light of the question you are asking. Members of the public quite frequently do, and alter legislation in that way.

Gordon Bushell

Did you not consider Interserve were partly responsible for not bringing this serious matter to the attention of Mr Campbell?

Chris Foren
Well one of the Interserve's engineers did bring the matter to the attention of the Council, but that was a man by the name of McDonald and if you attended the end of the trial you may be familiar with his name. He was an engineer employed by Interserve and he went to see Gillian Beckingham and said, 'look, you have got a problem here', and that again was one of the key facts of the prosecution's case against her. Yes, I suppose you could say in retrospect, what McDonald should have done was to tell more than one person in the hope the message got home.

Gordon Bushell
If he was very concerned, he should have had a written report and a copy of that should have gone to Mr Campbell.

Chris Foren
It is not for me as a prosecutor to make excuses or justifications for him and I suppose he is not here to defend himself, and in hindsight, yes, that is what he should have done. If he had done that, then there was a chance that the message would have been rammed home to someone responsible enough in the Council. But one might have thought that by telling the person he believed he was reporting to, he was told 'you are reporting to Gillian Beckingham', he went to see her, told her, one might have thought you would say he has done his job, he'd gone to her, he said 'look you have got problems, you need to get it sorted out'. With the benefit of hindsight, you may say he should have gone to a more senior level.

Gordon Bushell
I don't accept that, because if he was my employee and I was the Managing Director of Interserve and he was so concerned and didn't give me a report that I could have sent to Mr Campbell, he was putting my company in jeopardy. That company could have been blamed for this incident. It is pathetic.

Colin Pickthall
We take your point, but that is not really a question for the CPS.

Chris Foren
I think Mr Bushell's question is fair enough, did we consider charging Interserve? There again though, could we really say that Andy McDonald was negligent? He identified a problem and he communicated it to the person that he was told to report it to. I think we'd have been hard put to say that he was even negligent and certainly not grossly negligent.

Gordon Bushell
But he was the expert.

Chris Foren
Yes, he was the expert, but I don't think we came anywhere near being able to say that McDonald was grossly negligent and that is what we need for a successful prosecution, or one of the things we need.

Terry Norman
I was a witness on this case. I am a retired engineer now. At the time the incident happened I worked for the HSE and I actually examined the dosing equipment following the incident, at the request of Mr Tetley. I have a question that I have brought with me and the last two questions and answers have sort of hedged on it and touched upon it. I think my question is to the CPS in relation to duty of care, breach of duty and what constitutes gross negligence. The answer may come from yourself or possibly the answer may have to come from Mr Campbell, I don't know. In introducing the question it is about the contract for maintenance and the scope of work. I've handled many maintenance contracts in my life and the single, most important piece of any contract is the scope of work. In this particular case, it appears to me from all the evidence that I have seen that the case is actually much simpler than it appears from all the evidence and all the diversionary information that has been heard. At the time of the incident the contract that was in place for maintenance of the dosing system, the cooling towers and the water systems was inadequate, that it did not include maintenance of the biocide dosing systems, and perhaps the temperature control system as well. But my question comes down to really a simple issue, who in the Council was determined to be responsible, and by that I mean had the complete authority, to

Scope of work

assemble and issue the scope of work for the maintenance contract that was in place at the time? Albeit that was a verbal contract with Interserve, it is still a contract. Who in the Council was responsible for the scope of work, the assembling and issue of it, because that is what this is all about. And you need to know that and what went wrong in order to go forward to the future to see how we are going to avoid it again. So who was actually responsible?

Chris Foren
My answer to that would be I think that, and the prosecution put its case on this basis, that Ms Beckingham was the person responsible. She ran what was called the Design Services Group. We heard from one of the witnesses that she had a very substantial degree of financial delegation and she enjoyed the confidence of the Council as a whole. They delegated these issues to her and I think in my view there is no question that she was the person responsible. I am not sure you are right when you say that the contract was a verbal one, there was a written contract document. There were documents in existence that were written that formed at least part of the contract. I am not a civil lawyer and I wouldn't want to say that they constituted the entirety of the contract between Interserve and the Council.

Terry Norman
Thank you very much, that is a very clear answer. Could I just extend it just a little and say had she not delegated any part of that responsibility to anyone else? Did anybody else have the authority in the budget to raise a contract to maintain that equipment other than Ms Beckingham?

Colin Pickthall
Can you help us with that Tom?

Tom Campbell
What I'd like to say about that is, and I think I am going over the statement that I made last week, is that there was a failure between the Council staff and the contractor to exchange proper contract documentation. The Council staff involved in that didn't pick up that failure and as I explained last week, quite often you would think a contractor would pick up that failure but this particular contractor was, at this time, engaged in relocation and reorganisation also, so they failed to pick up that fact. So there were some documents in place, there were exchanges of letters, there was a PPM I think is the word used to described it, a Planned Programme Management document, but there were clear and obvious omissions from the contract documentation, but they were not discovered either by any employee of the Council or by any employee of the contractor. I can't be more specific than that, I have explained that there are certain areas that I can't discuss in an open meeting at the moment because the Council has its own employer responsibilities and some issues are covered by the employment law. So I can't be more specific than that, at this point in time.

Terry Norman
You can't be specific sufficiently to say who was responsible and had the authority to do the work?

Tom Campbell
I am not in a position to say that at this point.

Mike Tetley
Just two points of detail, some clarification from me. I think it was accepted in the contract that the cleaning chlorinations had been incorporated…[inaudible] and also the other gentleman's point, Andy McDonald, one of the Interserve service engineers, he was a heating and ventilation service engineer who wasn't actually a water treatment service engineer. So he wasn't an expert in water treatment. If he had been and if he had been engaged by professional services in relation to water treatment, that would have been completely different set of circumstances.

Chris Foren
Are we in agreement Mike that it was the dosing that was, there was a question as to whether dosing was in the contract?

Mike Tetley
That's correct. It was the water treatment element as opposed to the heating and ventilation, which is what Interserve are. They are [*involved with*] facilities management, heating and ventilation. Interserve, as an entity, do not provide water treatment services. They sub that out to a separate subcontractor, a part of the company for a different and that company was at the time… [inaudible].

Gordon Bushell
But it's still part of Interserve?

Mike Tetley
No

Gordon Bushell
You said they subcontract to another part of the company.

Mike Tetley
No. It is a completely different company.* It was just a part that they have a working relationship with…[inaudible] can you provide water treatment, yes we can.

Gordon Bushell
Who put that contract out, Mr McDonald?

Mike Tetley
No, he was a very, very lowly individual in the sort of structure of the company. Andy McDonald was just a service engineer who went out to service the…[inaudible].

Colin Pickthall
We are getting into two dialogues here. Chris, you wanted to say something?

Chris Foren
I just wanted to say I accept what Mike Tetley says from the HSE. The cleaning and chlorination of the tanks was unambiguously in the contract, it was the dosing, there was a question mark as to whether the chemical dosing which is the actual injection of chemicals, the biocide chemicals into the water tanks and that was the element of the contract which was at the very least, ambiguous.

Colin Pickthall
Can we move on to all the other issues that have come up. The systems put in place by Barrow Borough Council, for example, the lessons learned by the HSE which have been elaborated on this morning. Are there any questions on any of those aspects?

Mr Milburn
I lost my wife. Tom Campbell, you have painted a lovely picture, health and safety it's going to be marvellous. Why wasn't it already in place?

Tom Campbell
Well last week, I went through in some detail the faults on the Council's side which contributed to the outbreak. What I was asked today was to give a presentation on the current position of the Council, what steps the Council has taken now to make sure that there is no recurrence and also that we are now operating as good a health and safety regime as we possibly can. So I have followed the brief. I think the issues that pertain to Mr Milburn's question stem from my presentation last week.

Colin Pickthall
I think you were here last week, Mr Milburn.

* A contract of work existed between Interserve and Barrow Borough Council; Interserve was responsible for the service of the heating and ventilation system. The provision of water treatment was subcontracted out by Interserve to Nation Water, a completely independent and separate company to Interserve. Nation Water provides specialist water treatment services as contractor to facilities management companies, which include Interserve.

Mr Milburn
No I wasn't.

Colin Pickthall
Sorry, you will see in the report in detail, Mr Campbell did go through a list of errors and shortcomings that the Council were guilty of over a period of time, quite a large period of time and you will have all that, as soon as this is in print, which will answer your question as to why weren't these things in place.

Mr Milburn
How much was it going to cost to keep that maintained properly?

Tom Campbell
I think I said last week this was a relatively, in the great scheme of things, was not an expensive contract. I don't have the figure to hand, but it was not a hugely expensive contract which is one of the reasons why… [interrupted]

Mr Milburn
You are telling me it is not very expensive to run and kept it properly maintained.

Tom Campbell
No, it wasn't… [interrupted]

Mr Milburn
How much has this whole case cost, the trials and the fine? Who pays the fine?

Colin Pickthall
The fine of Barrow Borough Council is paid ultimately by the taxpayer.

Mr Milburn
That's right. I lost my wife and I've got to pay the fine.

Colin Pickthall
We understand Mr Milburn what that must feel like, at least we hope we do. But can we move on to what is happening in the future? We are trying now if we may, to concentrate on whether the systems that are being put in place largely as a result of this disaster are going to be adequate to prevent the same thing happening to somebody else, as has happened to you.

Denise Pickerall
Mr McDonald, if I remember right, voiced his concerns on two occasions to the Council that something was not being done correctly. Am I right?

Chris Foren
I think that is right.

Denise Pickerall
Was one of these concerns about the dosing?

Chris Foren
I don't think I am in a position to answer that in detail. I am happy to research it and give you an answer in writing.* I want to check precisely what Mr McDonald, what his evidence was to the court and his evidence was when he made his written statement.

Denise Pickerall
If it was on the first occasion by all means voice it. If on the second occasion those concerns hadn't been addressed, ie if it was the dosing, it should be law or mandatory to inform a higher authority because it affects the general public, regardless of whether it was in his contract or not. My training on health and safety is health and safety in the workplace is the responsibility of everyone.

* Please refer to paragraph 66.

Chris Foren
Yes it is, you are legally right about that… [interrupted]

Denise Pickerall
So he saw a problem and it was the dosing and he never addressed it, or he did address it and nothing was done to correct those concerns on the second occasion, he should have to report it to somebody else. I am not trying to pick fault, but for the future.

Chris Foren
I think that has been taken on board.

Colin Pickthall
You have had an offer of a reply in writing.

Denise Pickerall
If it was the dosing, the concern which he addressed and he had to do it twice and on the second occasion he should have had to have done something. The maintenance wasn't being done, he should then go to a higher authority.

Colin Pickthall
Your point's well taken, any further questions?

Richard Herbert
I work at the *Evening Mail* as a reporter. I am just trying to find out who was recommended to be prosecuted by the prosecution for the Legionnaires outbreak. What individuals were recommended by the Health and Safety Executive to be prosecuted?

Colin Pickthall
Recommended by Health and Safety to the CPS or to the police?

Richard Herbert
To both.

Chris Foren
I think the answer to that is that the people who were certainly recommended by the police to the CPS were those two individuals, one individual who ended up in court and the Borough Council, so Mrs Beckingham and the Council.

Richard Herbert
Just those two then?

Chris Foren
Yes

Mr Wicks
[Inaudible]…steps to minimise the risk in the future, I think Mr Campbell has covered that in great detail. The other bit about the accountability, what steps have you taken in that? I don't think you have mentioned the word accountability directly.

Colin Pickthall
Tom, the question is that, when you outlined all the steps that had been taken what is there in there to ensure correct accountability?

Tom Campbell
The Council's health and safety policy, which is a public document, sets out responsibilities for individuals within the organisation, what their duties and responsibilities are. The health and safety working group which we have set up is actually made up from a cross section of employee grade and department and those, the minutes of that meeting is automatically reported to the Council's management team, the Council's management trade union liaison meeting and to the Council's corporate overview and scrutiny committee. But the responsibilities within the Council are set out for each individual or each post holder within the Council's health and safety policy.

Colin Pickthall
Which is available to Mr Wicks?

Tom Campbell
It should be available generally.

James McPeake
I have to empathise with Mr Milburn with his view on the health and safety improvement plan, which Mr Campbell presented. It looked more like to me like the state of things of how we should be, not how we are going to be. It looked like bread and butter health and safety to me. The question I have got is how many people on the Council now have been trained specifically in the management of legionella? As in like an accredited course.

Tom Campbell
All of the Council's senior managers have now been put through certificated training. The Council uses an external expert company to provide both risk assessment and control measures for legionella control and there are, I wouldn't be able to say specifically how many have been trained in legionella, there has been some discussion about accreditation. What the Council has done is set up arrangements with a company which can offer that level of guarantee.

Terry Norman
My question is prompted by the last two questions. Within this newly developed Council procedures, who is actually specifically responsible for water treatment maintenance now in the Council or is going to be in the future?

Tom Campbell
We have a single contract with our specialist contractor to provide water safety management. We have monthly inspections of all premises and as I indicated in my presentation, multiple reporting on that. We have reporting to the managers of the premises and to the Facilities Manager to ensure that the work that has been requested has been done.

Terry Norman
So you've got a competent contractor with a full scope of work, a specialist contractor, but the question was who is actually responsible? Who has the responsibility or the authority within the Council for ensuring that is done? You can delegate work, but you don't delegate the responsibility. Who holds that now in the Council? The responsibility that was previously held by Gill Beckingham, does she still hold it or has it been delegated to someone else?

Tom Campbell
The responsibility for on-site management is the responsibility of the Site Manager for all health and safety issues but we also have, as I explained, a Facilities Manager who provides a central control for that. The requirement to have it done is implicit in the Council's procedures.

Terry Norman
When you say it is implicit, given the nature of this incident and the size of it, does he not have it specifically written in the terms of his contract which he is responsible for, not legionella control as such, but water treatment?

Tom Campbell
Not specifically for water treatment, if that were the case we would have to specify for every other hazard that is clearly identifiable in any premises. We have dealt with continued legionella control on what we are judging as high-risk equipment, but it is certainly not of the same level of risk as the air conditioning system which has been removed. So that responsibility lies with the Operational Manager of the premises, but through a back-up system with the Facilities Manager, and it is the Facilities Manager's job to make sure that all of these procedures are being applied consistently across the Council.

Terry Norman
Thank you. So the responsibility lies with the Facilities Manager. Is that Facilities Manager in the centralised Council?

Tom Campbell
Yes and he has been trained to a high standard in health and safety.

Questioner [unable to hear name]

BS ISO 9001

This morning it was concentrating on the health and safety procedures, in my opinion the legionella epidemic was caused by inadequate organisational control. Everyone involved, including Interserve, could and should have done more to prevent the incident. Had a control procedure been in place, it would have prevented the omission and errors which led to the epidemic. Mr Campbell has the Council considered introducing a control procedure such as BS ISO 9001, which has been established since 1980s, to improve the organisation and control within the Town Hall?

Tom Campbell
We haven't considered ISO 9001 specifically, because generally it has not been considered an appropriate system for us. What we have committed ourselves to, is the Investors in People system and we have recently been reaccredited with that. So that is what has happened since the outbreak. We have set up within the health and safety working group a contract control group to ensure consistency in how we manage on-site management of contractors. But as I explained last week, one of the reasons why controls were not in place is because the original installation of the system was never communicated to the organisation, so there was actually a very small number of people in the Council at the time of the outbreak who knew of the existence of both the cooling towers, the risk of legionella and the fact that an automatic dosing system had been installed.

Questioner
You say you've considered 9001 and yet 9001 will get rid of all the confusion that exists between the air conditioning plant and the treatment plant, and the various department monitors. It specifies an organisation chart must be available… [inaudible] signed copies of their job description, what they're responsible for…

Tom Campbell
We have applied 9001 to some elements of the Council but generally, and it is certainly my understanding of the situation in local government, that general application of that standard across a council is not something that is prevalent at the moment and particular departments within the Council seek accreditation standard.

Questioner
The next requirement is work instructions; personnel must have a work instruction. That means the man operating the plant needs a work instruction. The next thing you have is an audit programme…[inaudible] what you did miss was the audit review. You're supposed to do the audit review, so you can amend and correct any deficiencies.

Tom Campbell
The situation is that the Council welcomes the engagement of the Health and Safety Executive and wants to work with the Health and Safety Executive to provide the best possible service that we can. We will always be prepared to consider any accredited system that will strengthen and improve that and we have done in some aspects of the Council's work where particular departments who are suitable for that form of accreditation have been put forward for it. The list I was given for today, I was asked specifically to present the current state of affairs at the moment and to identify the issues that have been addressed since the outbreak, to show what the Council has been doing since the outbreak. That is all I am trying to do today. Last week, I gave a very clear statement which I hope would be replicated in the report which identified where faults had occurred, when they occurred, what their impact has been and what contribution we had made.

Bill Merewood
Could I just ask a question of the Chief Executive of the remarks he made earlier, after the last meeting. At the end of the two court cases as everybody is aware that Ms Beckingham and also the Borough Council was first held guilty of offences against the health and safety legislation. When summing up the judge said that the Council's failings were grave to the extreme and he quoted a few members of the Borough Council including the Chief Executive. Now the Chief Executive was reported to have said after last week's meeting, it was reported in the press that his part should not be considered misconduct. What would he call it on reflection, just bad management? What would he call it?

Tom Campbell
Well, generally I would prefer not to discuss what might and might not have been properly quoted in the press. In terms of the issue, I think the point that was put to me, I was making the distinction between an act and an omission was the point that I was making and the question has been asked today why, it would seem fairly obvious one would imagine, to a lay person, that if you want to charge a corporate organisation and you want to bring a successful prosecution for corporate health and safety, you have to do two things. Not only do you have to identify a controlling mind, but you have to get a successful conviction for manslaughter. There have been two trials neither of which have resulted in a successful conviction for manslaughter. So if I had been guilty of an act of misconduct then I would have thought that would have been the natural avenue for the court to pursue. That was the issue that I was dealing with. I identified the failings last week and I included myself in that statement last week and the statement, I have issued copies of it to the media, I presume it will be replicated in the final report.

Mr Wicks
I've got a two-page document here, it's actually for…[inaudible] On the first page it's got the statement and policy, on the second page right from the top to the bottom… [inaudible] [? relevant]… levels of responsibility. Do you have anything like that?

Tom Campbell
Yes. In our health and safety policy, it identifies the responsibilities and a hierarchy of the responsibilities. Every employee of every company has a duty of care.

Colin Pickthall
I suggest, Mr Wicks, you ask for a copy of the document and if it doesn't live up to your expectations, then you make your opinions known.

Tom Campbell
Can I say we are welcome to receive any suggestions as to how we can improve or strengthen any of our procedures or any of the documents.

End

Part 3 Conclusion and recommendations

120 The outbreak cannot, and should not, be attributed purely to the Design Services Group or to the individuals working within the department. Significant failings are directly attributable to Barrow Borough Council as the employer and primary duty holder. In passing sentence, Mr Justice Burnton concluded that the failings, which contributed to the outbreak, stretched from the lowest levels to the top of the Council in terms of its serving officers. (A full copy of Mr Justice Burnton's sentencing remarks can be found in Appendix 2). He added; 'It is likely they went beyond the officers to the councillors because there is no evidence that there was proper attention given to health and safety within the Borough'. These failings were, unfortunately, compounded by the actions of a senior employee, Ms Beckingham.

121 The six key failures identified are individually addressed below, accompanied by advice aimed at legionella control and for more general purposes so others can apply the lessons and principles, regardless of the nature of the organisation or their line of work. The term 'leader' is used to describe individuals at senior board level, which includes directors, chief executives or councillors, to allow individual organisations to interpret the term for their own purposes.

We firmly believe that the lessons of Barrow (shown in **bold**) are general ones from which we hope many others will benefit.

Failure 1: Poor lines of communication and unclear lines of responsibility

122 The investigation identified basic corporate failings, which significantly contributed to the outbreak. A general lack of leadership and direction within the Council and poor communication channels between the different levels of management, meant health and safety, in particular the risks from legionella, were not appropriately controlled.

123 It was the duty of Barrow Borough Council to appoint a person to take managerial responsibility for the air conditioning system and to provide supervision for the implementation of the water treatment and other preventive controls. The officer appointed as the 'responsible person' should have had sufficient authority, competence and knowledge of the installation to manage, control and communicate the necessary requirements. An appointment of this kind should have bridged the communication gap between Forum 28 and leaders and prevented the outbreak from occurring.

124 **Organisations need to define the responsibilities and relationships within their health and safety policy, particularly where special expertise is called for. A clear policy allows managers, supervisors and team leaders to understand what is required from them and how they will be held accountable. Ignorance is no excuse for failing to address serious risks such as legionella.**

125 **Effective lines of communication, which include both written communication and face-to-face discussion, allow those individuals with specific responsibilities to ensure necessary information is communicated throughout the organisation, right up to the leaders**.

126 **Leaders need to ensure they are kept informed of, and alerted to, relevant health and safety risk management issues and that they are sufficiently aware of what is being achieved in health and safety by the organisation they command. We recommend that the organisation appoint someone who is in a leadership role to be responsible for making sure health and safety is being well managed. We commend Joyce Edmond-Smith's letter (see Appendix 3) to Council leaders, specifically her recommendation that 'a senior elected member with specific responsibility for health and safety is identified…(and) trained as appropriate.'**

For more guidance please refer to *Managing health and safety: Five steps to success*[5] and *Directors' responsibilities for health and safety*.[6]

Failure 2: Failure to act on advice and concerns raised

127 The corporate failings referred to in paragraph 122 were further compounded by certain individual failings. Before the outbreak, a contractor had expressed his concerns to Ms Beckingham, a senior officer at Barrow Borough Council, about the lack of water treatment for the cooling towers. Ms Beckingham acknowledged his concerns but failed to communicate these to other officers at the Council or to managers at Forum 28, or to take effective remedial action. The deficiencies identified may have been addressed if the contractor's concerns had been formally recorded and communicated to the responsible person and also made known to the leaders of the organisation.

128 HSE had sent out correspondence and guidance on the control of legionella to Forum 28. The previous building manager at Forum 28, who received the correspondence from HSE, failed to act on it and, again, leaders at the Council were not notified of its existence.

129 External auditors, who carried out an audit of the Council's activities, had reported on the general lack of health and safety risk assessments, yet no effective remedial action was taken. On receipt of the audit report, leaders at Barrow Borough Council should have constructed an action plan to complete the risk assessments, with an allocated timescale, and appointed individuals whose responsibility was to ensure the plan was put into effect and completed on time.

130 Where changes are made to planned work, HSE should ensure the consequences of the changes are adequately addressed. In this case, it would have been appropriate to send out a supplementary letter, informing dutyholders that the second phase of the programme, ie the follow-up visits, was no longer taking place.

131 **Systems need to be in place to support effective monitoring and reporting to ensure leaders are being kept informed about any significant health and safety failures. Effective management of health and safety risks depends on the active participation of workers and co-operation between all individuals. Workers should be actively encouraged to raise issues and voice their concerns to line managers, without the fear of reprisal, but with the knowledge it will be actioned where appropriate.**

132 **Co-operation and communication is not only vital within any organisation in developing a positive health and safety culture. All parties external to the organisation also need to be aware of any liaison arrangements, particularly where more than one contractor or sub-contractor is engaged.**

For more guidance please refer to *Managing health and safety: Five steps to success* and *Directors' responsibilities for health and safety*.

Failure 3: Failure to carry out risk assessments

133 Since the introduction of the Control of Substances Hazardous to Health Regulations in 1988, it has been a requirement to carry out an assessment of the risk to health created by work involving substances hazardous to health, including legionella. By the mid-1990s there was a general expectation that good quality assessments for legionella ought to be in place. Up until the outbreak in 2002, Barrow Borough Council had failed to properly assess the risks from legionella, or any other health and safety risks arising from the activities at Forum 28. Lack of resource resulted in a backlog of uncompleted risk assessments and, consequently, a suitable control scheme for legionella was not drawn up.

134 As an employer it was Barrow Borough Council's duty to identify the hazards in their workplace, including those at Forum 28, and to determine and implement the precautions needed to control the risk to workers, contractors and members of the public. A fully trained and competent person, either in-house or external, should have assessed the risk of legionella and prepared a written scheme detailing exactly how the risk of legionella would be managed.

135 **The Management of Health and Safety at Work Regulations 1999 provide a broad framework for controlling health and safety at work. Under these regulations all employers and self-employed people are required to assess and review the risks to workers and any others who may be affected by their work or business. This will enable**

them to identify the measures they need to comply with health and safety law. The level of risk arising from the work activity should determine the degree of sophistication of the risk assessment. Those who employ five or more employees should record the significant findings of that risk assessment.

136 **People required to identify and assess the risk of exposure to legionella bacteria must have the ability, experience, information, instruction, training and resources to enable them to carry out their tasks competently and safely. The risk assessment should identify the 'responsible person' authorised with the overall control of legionella and it should include a written scheme setting out how the risk will be controlled. The scheme should describe the system (with the aid of a schematic diagram), detail the safe operating procedures, including start-up and shut-down procedures, and specify details of the water treatment regime, in particular, the monitoring and audit checks.**

For more guidance please refer to *Legionnaires' disease: A guide for employers*[7] and *Five steps to risk assessment*.[8] (This leaflet is designed for low hazard and low risk workplaces but the same principles apply to higher risk activities).

Failure 4: Poor management of contractors and contract documentation

137 The failure by Barrow Borough Council to properly manage contractors was a significant factor in the cause of the outbreak. Officers in charge of procuring the new contractor failed to request or exchange proper formal contract documentation or agree the specification for the work. The Council did not then properly check whether the contractor had carried out the specified work.

138 In any client/contractor relationship, both parties will have duties under health and safety law, as would any sub-contractor employed. Barrow Borough Council could not discharge its legal duties simply by engaging contractors, they had a duty to manage those contractors by demonstrating a competent procurement process, checking sufficiently what they were doing and checking also that they were doing it in a safe manner.

139 **It has frequently been found that operators of water cooling towers/systems are unclear as to the precise terms of their contracts with their water treatment company. Some water treatment companies only have a remit limited to provide biocidal treatment of the water, with no one responsible for implementing the other equally important areas of control (such as the checking and cleaning of drift eliminators, the maintenance of tower condition etc). Clients need to clearly identify all aspects of the work they want a contractor to do. They should include a full specification of the work at the tendering stage to allow the contractor to provide a comparable quote for the work and then fulfil their side of the contract, by providing the service expected by the client. In drawing up the contract, it is essential both parties are clear about the work that has been agreed, and that the process has been competently managed. Part of any reasonable enquiries by the client in establishing a contractor's competence, should include identifying whether the contractor is accredited to a relevant trade body.**

140 **Clients must decide what they need to do to effectively manage and supervise the contractors' work. The more impact the contractor's work could have on the health and safety of anyone likely to be affected, the greater the management and supervisory responsibilities of the client. It is essential that the nature of the controls exercised by the client is agreed before work starts. An important part of this is the arrangements for the selection and control of any sub-contractors. Clients should also arrange periodic checks on the contractor's performance to see if the work is being done as agreed.**

141 **Contractors employed for legionella control must ensure that any deficiencies or limitations, which they identify in the client's system or written scheme, are made known, orally if appropriate, but always also in writing, to the appointed person responsible for the cooling tower/system.**

142 **The larger the number of contractors employed by an organisation, the greater the requirement for co-ordination and regular communication between the client and contractor (and sub-contractors). Leaders should be aware of what areas of work are**

contracted out and acknowledge and provide input into the substantial contracts. They should also satisfy themselves that the general arrangements for managing their contractors, as described above, are working. Councillors should accept ultimate responsibility for the appropriateness, accuracy, effectiveness and monitoring of all Council contracts and sustain the structures to exercise those responsibilities.

For more guidance please refer to *Managing contractors: A guide for employers*[9] (aimed at owners, directors and managers of small-to-medium sized chemical companies, but will be of use to other industries) and *Use of contractors: A joint responsibility*.[10]

Failure 5: Inadequate training and resource

143 Health and safety management of Barrow Borough Council was found to be lacking and under-resourced by the authority. The available resource was mainly reactive to requests for help and advice with no time for preventive checks. Vacancies in management posts were blamed for the shortage of risk assessments and absence of in-house monitoring.

144 Barrow Borough Council had a duty to identify all appropriate people requiring training and to make sure there were sufficient numbers trained to cover any absences or shortages. Staff responsible for the management of the control of legionella should have received training to ensure they were competent to carry out the work they were assigned to do.

145 **Under the Health and Safety at Work etc Act 1974, there is a general duty on employers to provide such training as necessary to ensure the health and safety at work of their employees. New recruits have particular training needs, as do people changing jobs or taking on extra responsibilities, and young employees. Regular auditing and refresher training helps ensure people's skills are kept up to date.**

146 **Those appointed to carry out the legionella control measures and strategies should be properly trained to a standard that ensures tasks are performed in a safe and technically competent manner. The Legionella Control Association (LCA) is able to provide advice on competent organisations that deliver legionella control training (see Appendix 2 for the LCA's website). Details of qualifications in accredited training were given in Part 2, page 36.**

147 **Where posts that carry health and safety duties are unfilled, leaders must take effective steps to ensure that essential standards are not compromised.**

For more guidance please refer to *Health and safety training: What you need to know*[11] and *Legionnaires' disease: A guide for employers*.

Failure 6: Individual failings

148 The investigation identified a number of failures made by different officers over a period of time, however Ms Beckingham's acts and omissions were more significant than others'. She was subsequently convicted under section 7 of the Health and Safety at Work etc Act 1974.

149 Ms Beckingham should have applied her expertise in contract procurement, which fell far short of the expected standards. In addition, when concerns about the water treatment were brought to her attention she should have done more, for example by seeking assistance from the Council Safety Advisor and taken the matter up with either the Operations or Sales Manager from the contractor, which should have identified the deficiencies.

150 **Section 7 of the Health and Safety at Work etc Act 1974 places important duties on the employee, while at work, irrespective of the obligations on the employer. Employees may commit an offence if they contravene the general duties imposed by section 7 by failing:**

- **to take reasonable care for someone's health and safety (including their own), or**
- **to co-operate with their employer, so far as was necessary to enable their employer to comply with a statutory duty or requirement.**

151 The public meetings highlighted a catalogue of errors and series of oversights that led to the legionella outbreak. The number of fateful ‘coincidences’ involved was scarcely credible. Such basic failings should not have occurred and, sadly, these failures could have been easily prevented. The remedial actions already taken and proposed by Barrow Borough Council since the outbreak have been acknowledged and supported, as has HSE’s re-engagement programme. Furthermore, it is hoped that by producing this report others will be alerted to the risks of legionella and in applying the lessons will help in preventing a comparable tragedy.

Appendix 1 Legislation

Health and Safety at Work etc Act 1974

1 Objectives of the Act are to secure the health, safety and welfare of people at work and to protect other people from risks arising from work activities.

2 Section 2 (1) states: '*It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health safety and welfare at work of all his employees.'*

3 Section 3(1) states: *'It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety.'*

Management of Health and Safety at Work Regulations 1999 (MHSWR)

4 MHSWR provides a broad framework for controlling health and safety at work. As well as requiring risk assessments, it also requires employers to have access to competent help in applying the provisions of health and safety law; to establish procedures to be followed by any worker if situations presenting serious and imminent danger were to arise; and for co-operation and co-ordination where two or more employers or self-employed people share a workplace.

Control of Substances Hazardous to Health Regulations 1999 (COSHH)

5 COSHH[12] provides a framework of actions designed to control the risk from a range of hazardous substances including biological agents.

Notification of Cooling Towers and Evaporative Condensers Regulations 1992[13]

6 Occupiers have a duty under these Regulations to notify the local authority (LA) in writing of details of 'notifiable devices'. These comprise cooling towers and evaporative condensers, except where they contain no water exposed to air and/or their water or electricity supply is not connected. The requirement is to notify the LA, although the Regulations are enforced by the relevant enforcing authority for the premises with the notifiable device.

7 The main purpose of such requirements is to assist in investigating outbreaks. There is no obligation for LAs to maintain a register, although in many cases they will do so and it is expected that, whatever the form in which the information is collated, it will be made readily available.

Health and Safety (Enforcing Authority) Regulations 1998

8 The Health and Safety (Enforcing Authority) Regulations 1998[14] allocate to HSE and LAs the responsibility for enforcing the Health and Safety at Work etc Act 1974 and the relevant statutory provisions, subject to specific exceptions, in different premises, depending on the main activity. HSE regulates health and safety in factories, farms, mines, nuclear installations, offshore installations, hospitals, schools and many other sectors. Local authorities are responsible for enforcement in offices, shops and other services.

Appendix 2 The Hon. Mr Justice S Burnton's sentencing remarks

Monday 31 July 2006

I propose to deal with Barrow Borough Council first since what I have to say about Barrow will make it more understandable what I have to say about Ms Beckingham.

This outbreak of legionella was a tragedy, which should never have happened. When I summed this case up to the jury, I did not dwell on the agonies which must have been suffered by those who died as a result of that outbreak, and the agonies and the lasting disabilities and pain and suffering suffered by those who survived the outbreak and who did not fully recover. We heard the evidence live from one such survivor. Her life has been blighted by that outbreak.

There were numerous occasions, during the course of this trial, when one heard evidence of the opportunities open to many to take steps to prevent this outbreak. If one could bring back to life those who died and give a full recovery to those who were ill and still suffer from the effects of the disease one would of course. Criminal proceedings cannot achieve that miracle. But I wish the public, and in particular the bereaved and those who still suffer and those who have recovered from this outbreak, to appreciate how serious the Court regards it, and the limitations on the powers of the Court; and, as you know, the limitations here are to financial consequences.

I consider first, as I said I would, the position of Barrow. The failings of Barrow, which led to their early plea of guilty, which of course I take into account, have been indeed emphasised during the course of this trial, but I must repeat so that others will know the basis on which I arrive at the decision I do.

In my judgement, the prosecution submission that the ethos within Barrow was inimical to a proper concern for heath and safety, and the taking of proper, easily taken, precautions for health and safety is entirely justified on the evidence. And in my judgment the failings were not only at the lowest levels, or even at the level of Ms Beckingham, those failings went all the way, I am afraid to say, to the top of the Council in terms of its serving officers. It is likely they went beyond the officers to the councillors because there is no evidence that there was proper attention given to health and safety within the Borough. The result of that, it seems to me, was an ethos where insufficient attention was given to the requirements of health and safety. And that is one reason why, within the Design Services Group, it was not given the attention and consideration it required, and it was for similar reasons that within Forum 28 the attention to health and safety was not what was required.

In 1991, the Health and Safety Executive closed down the cooling towers at Forum 28 because there was no adequate water treatment. That was a warning which should have been heeded. It should have resulted in the putting into place of foolproof arrangements to ensure that there could be no outbreak of legionella. Whatever lessons were learned in 1991, they had been forgotten by 2001.

Health and safety, as we have heard, was not an agenda item for senior management. The result of that was that health and safety was not, and the necessary precautions were not, monitored by senior officers. There was a written policy on health and safety, which as a matter of drafting was a thing of, as I said, some beauty. If it had existed beyond its existence on paper, it would have very substantially mitigated the blameworthiness of those representing the Borough, so far as this outbreak is concerned. But there was no evidence that that policy existed otherwise than simply on paper.

Forum 28 had been notified to the Health and Safety Executive by Mr Buck, the health and safety officer, as premises which contained a cooling tower which, if not properly protected, could give rise to legionella. There is nothing to indicate that proper steps were taken as a result of that notification.

In September 1999 and a year later, Deloitte and Touche reported on the lack of risk assessments throughout the Borough. Nothing effective was done so far as Forum 28 so far as that was concerned, despite the commitment given by the Borough to Deloittes, and indeed to the District Auditor, in relation to those matters.

In January 2001, the Health and Safety Executive wrote to the Borough enclosing a proforma, which, if properly circulated around within the Borough, would have set alarm bells ringing at the highest level. It was not disclosed. It enclosed a 'Guide For Employers' which should have made it clear what enquiries were necessary, what precautions were necessary. It too was ignored.

The health and safety officer, Mr Buck, had insufficient time and insufficient resources to deal with precautions, as against reactions, to accidents which had already occurred. The time he gave was the time he had available, not the time that the function and his important responsibilities needed.

HELA circulars came to the Environmental Health Department. They gave important guidance as to the enforcement of the necessary precautions to prevent legionella within the Borough, not only on the part of those outside the Council: private bodies, any other public bodies within Barrow, but so far as the Borough itself was concerned. There was no evidence as to what steps were taken, if any, by the Environmental Health Department to ensure compliance with those circulars and with the Health and Safety Executive guidance on the prevention of legionella, so far as outside bodies were concerned, but whatever attention they gave to outside bodies none was given to themselves.

L8, the Health and Safety Executive guidance on legionella, came to the local authority at the beginning of 2001. It required not only a risk assessment, a risk assessment which was by then outstanding and had been outstanding for many years, but a written scheme, a document which would have set out precisely what steps were to be taken not only by contractors, but by those within Forum 28 and anyone who is negotiating a maintenance contract. So far as Forum 28 was concerned, it should have required staff at Forum 28 to inspect those cooling towers regularly, if necessary, daily, to ensure that the dosing pumps were connected to the power supply, were working, and that there were chemicals to go into that water. One of the causes of the outbreak is that no such things were ever done. Nor was there any monitoring of the state of the water for any of the purposes set out in L8. Nor did anyone check whether there was such monitoring being carried out.

Kevin Borthwick was appointed as health and safety officer for Forum 28. His evidence was that that was a nomination effectively in name only. The importance of his giving attention to legionella precautions within the cooling towers seems never to have been clearly brought home to him. There was no responsible person appointed, as required by L8, a person of at least managerial status who would ensure, by delegation and monitoring, that the precautions required by those guidelines and by that code of conduct were adhered to. That was a major failing on the part of Barrow.

There were no adequate records of either of the distribution of documents, of control measures, or of what precautions were being taken during 2002, and indeed the latter part of 2001, in relation to those cooling towers. Anyone, Mr Buck and others, could have asked for those records if there were none at Forum 28, the contractors should have been required to provide them, and it would then have been apparent that nothing was happening so far as water treatment was concerned.

The defects on the part of Ms Beckingham have been the subject of a conviction, one which was amply justified on the evidence, and I shall deal with those in a moment. But for all the reasons I have given, I regard the failings of Barrow as being grave in the extreme. That is one side of the considerations I have to bear in mind in arriving at an appropriate penalty. There are, however, others. One of the purposes of criminal proceedings of this kind is to demonstrate to those who have responsibilities for health and safety that if they do not fulfil those responsibilities they will be brought before the courts and properly punished. Happily, so far as cooling towers are concerned, these proceedings have already had that salutary effect. But that is not the only purpose of criminal proceedings. Another purpose is to demonstrate to the public, and to those who have suffered as a result of a tragedy as great as this tragedy, how serious matters such as this are.

As I indicated during the course of argument, and indeed as has troubled me from the beginnings of this case, there is no right, no perfect decision, so far as the penalty for Barrow is concerned. The powers of the court are limited to a financial penalty. A financial penalty can only be met by a local authority, such as Barrow, out of either the contributions of its council taxpayers, or out of a reduction in the services it provides, assuming that there is no fat, no large reserve, which can be drawn on to meet that penalty. There is, therefore, no right penalty in a case such as this. I do bear in mind the necessary consequences of any financial penalty I impose. If Barrow had been a commercial organisation with a multi-million pound turnover, I should not have hesitated to impose a fine exceeding £1m. That is the, I hope, gives some estimation of the seriousness with which the court sees these failings. However, it is not such and those who will suffer will be, in part, those who have already suffered, and those who will suffer if I impose too great a penalty will be those in need of council services. And apart from those there will be council taxpayers who have no individual responsibility for any of the events in question. However, one of the purposes of a financial penalty is to demonstrate to those council taxpayers, to the electorate and to councillors the importance and the gravity of matters such as this. As I have said, in other circumstances the fine I impose would be very much greater than the fine I do impose.

Taking into account all that has been said, including the early recognition of fault, but taking into account the fact that Barrow is a local authority representing one of the most deprived communities in this country, a community, therefore, which is in greater need of council services than communities in prosperous areas, a community on which any increase in council tax will bear more hardly than it would in more prosperous areas, but having to mark the seriousness of this matter, in my judgment, the appropriate fine is one of £125 000. In addition, Barrow will be required to pay the prosecution costs of £90 000.

Subject to anything that may be said by Mr Webster, there will be an order in respect of Barrow's own costs of the previous trial and a defendant's costs order.

Gillian Beckingham, in my judgment, your failings were repeated and serious. But for the context in which your failings occurred, but for the lack of support you received from the local authority for which you worked, but for the general ethos, as I see it, the general regard or disregard had to health and safety the result of this trial might have been very different. But fail you did. You failed in respect of a matter which was liable to lead to multiple deaths, and did lead to multiple deaths, and to multiple and very serious suffering.

If you were a lady of wealth I should not hesitate but to impose a very much greater penalty than I propose to do. But I see that your income net is, even taking child tax credit into account, some £30 000 a year. It does not leave room for a very substantial penalty of the kind that might otherwise be appropriate.

In my judgment, your failings over a period call for a penalty which is significant but of course cannot be beyond your means. I make it clear that I assume for these purposes that your employment will continue, if it does not for any reason other considerations will arise and other steps may have to be taken.

It is, in my judgment, regrettable that you were not able to admit those failings which were clearly established on the evidence, even if that meant facing other charges. Such an acceptance of responsibility, and responsibility there clearly was, an expression of contrition would have been greatly in your favour. As it is I am limited, by your means, to the order I can make.

In my judgment, the appropriate fine in this case, and I do not pretend that it is in any way commensurate with the consequences of your negligence, is one of £15 000.

Courtesy of Cater Walsh and Co

Appendix 3 Joyce Edmond-Smith's letter to Council leaders

Dear Leader of the Council

Elected Members – Why Health and Safety is an Issue for you

Last year the Chairman of the Health and Safety Commission, Bill Callaghan wrote to your Chief Executive as the person with ultimate responsibility for the health and safety of your authority's employees, and others affected by its work activities. I hope that your Chief Executive has taken the opportunity to inform you about the Local Authorities Health and Safety Forum (LA Forum) and its aims to assist LAs in achieving effective health and safety performance.

As champion of the Forum, I am now urging you to ensure that, as an elected member, you are aware of your responsibilities under health and safety legislation.

Local authorities are responsible for a wide range of services. The way they are delivered can affect the health and safety of service users and providers. Therefore, it is important to ensure that every part of the work is done safely.

Unfortunately last year, 15 employees were killed and 6622 seriously injured as a result of their work for a local authority. Injuries and ill health caused through work cost councils, as employers, between £150 to £200 million. Costs to society ranged between £450 and £640 million. These are unacceptable costs.

The Government, and the Health and Safety Commission has set tough targets for reducing the levels of deaths, accidents and ill health caused by work. By 2010:

- a reduction in the number of workplace fatalities and serious injuries by 10%
- a reduction in the number of workplace illnesses by 20% and
- a reduction in the number of days lost to sickness by 30%.

The LA Forum has endorsed these targets.

If they are to be met, tough action will be needed by every local authority. This means more than simply complying with the legal duty authorities have under health and safety legislation. Neither is it an issue, which can be left with the health and safety specialist officers. It requires commitment at all levels of the Council, including elected members.

The Health and Safety Commission has stressed the importance of placing responsibility for occupational health and safety at the top of the organisation. Where exactly that responsibility lies within your Council will depend on how it's organised. Every local authority should ensure that there is a chief officer with specific responsibility for health and safety as a significant part of their work. In addition, an elected member, preferably either at committee chair or cabinet level, should also have responsibility for health and safety.

There is a collective responsibility for providing leadership and direction, which means that all elected members still have a responsibility for ensuring health and safety within the authority. The goal of effective management of occupational health and safety is more likely to be achieved where all elected members have a proper understanding of the risks, the systems in place for managing the risks, and an appreciation of the causes of any failures.

As an elected member I hope you ensure that:

- A senior elected member with specific responsibility for health and safety is identified.
- That elected member is trained as appropriate.
- The local authority sets targets for reducing the number of injuries and ill health, agreed jointly with the staff trade unions.
- You seek regular reports on how these targets are being met.

Yours sincerely

Joyce Edmond-Smith
Health and Safety Commissioner

References and further information

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2 *Health and Safety at Work etc Act 1974* (c.37) The Stationery Office 1974 ISBN 978 0 10 543774 1

3 *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance* L21 (Second edition) HSE Books 2000 ISBN 978 0 7176 2488 1

4 *Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice* L144 HSE Books 2007 ISBN 978 0 7176 6223 4

5 *Managing health and safety: Five steps to success* Leaflet INDG275 HSE Books 1998 (single copy free or priced packs of 10 ISBN 978 0 7176 2170 5) Web version: www.hse.gov.uk/pubns/indg275.pdf

6 *Directors' responsibilities for health and safety* Leaflet INDG343 HSE Books 2001 (single copy free or priced packs of 10 ISBN 978 0 7176 2080 7) Web version: www.hse.gov.uk/pubns/indg343.pdf

7 *Legionnaires' disease: A guide for employers* Leaflet IACL27(rev2) HSE Books 2001 (single copy free or priced packs of 15 ISBN 978 0 7176 1773 9)

8 *Five steps to risk assessment* Leaflet INDG163(rev2) HSE Books 2006 (single copy free or priced packs of 10 ISBN 978 0 7176 6189 3) Web version: www.hse.gov.uk/pubns/indg163.pdf

9 *Managing contractors: A guide for employers. An open learning booklet* HSG159 HSE Books 1997 ISBN 978 0 7176 1196 6

10 *Use of contractors: A joint responsibility* Leaflet INDG368 HSE Books 2002 (single copy free or priced packs of 10 ISBN 978 0 7176 2566 6) Web version: www.hse.gov.uk/pubns/indg368.pdf

11 *Health and safety training: What you need to know* Leaflet INDG345 HSE Books 2001 (single copy free or priced packs of 15 ISBN 978 0 7176 2137 8) Web version: www.hse.gov.uk/pubns/indg345.pdf

12 *Control of substances hazardous to health (Fifth edition). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* L5 (Fifth edition) HSE Books 2005 ISBN 978 0 7176 2981 7

13 *The Notification of Cooling Towers and Evaporative Condensers Regulations 1992* SI1992/2225 The Stationery Office 1992 ISBN 0 11 025225 X

14 *The Health and Safety (Enforcing Authority) Regulations 1998* SI1998/494 The Stationery Office 1998 ISBN 0 11 065642 3

Useful links

Health and Safety Executive	www.hse.gov.uk
Please refer to HSE's legionella website for up-to-date and new guidance:	www.hse.gov.uk/legionnaires/index.htm
Legionella Control Association	www.conduct.org.uk
Health Protection Agency	www.hpa.org.uk
Crown Prosecution Service	www.cps.gov.uk
Barrow Borough Council	www.barrowbc.gov.uk

Further information

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An electronic copy of this report is available at www.hse.gov.uk/legionnaires/index.htm.

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