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The Byker RDF Plant and the Contamination of Land in Newcastle upon Tyne with Incinerator Ash

"*After 1971 there is virtually no significant risk that this decision will be regretted*"

– Report of the Local Government Operational Research Unit on *Waste Disposal in the North East*, February 1967.

November 2000

Executive Summary

This research programme and this report has been commissioned to provide a clearer outline of the events surrounding the development of the 'Byker Reclamation Plant', and the recent discover of massive environmental contamination in the area.

The History of the Byker Reclamation Plant

Newcastle, out of tradition, has incinerated its waste. Before the 1960s the term 'incinerator' was not used. The plants were known as the 'refuse destructors'. In Byker, a refuse destructor was built in 1886 near to the junction of Shields Road, Fossway and Union Road. Another 'destructor' plant was built in Benwell in 1937, near to the former 'corporation yard'. Both plants were closed around 1960 because they were unable to meet new 'clean air' legislation (neither of these plants had any kind of pollution abatement).

The closure of the incinerators increased the demand for landfill, and increased the costs of waste disposal. In 1965 an investigation of the options for future waste disposal was carried out by the North East Regional Planning Committee and a joint working party was set up by the councils in the Tyne and Wear area. This resulted in the commissioning of the Local Government Operational Research Unit to undertake computer modelling to determine the best ways of meeting future demands for waste disposal They reported their findings in February 1966. This recommended that either 5 incinerator or 6 waste pulverising plants be set up across Tyne and Wear. The local authorities involved acted upon this plan studiously, and subsequently five incinerators were built across Tyneside. Byker was one of those plants.

In October 1967, the Traffic, Highways and Transportation Committee of the County Borough of Newcastle agreed in principle to the construction of an incinerator to serve the city. The regionally-based report had not costed the installation of pollution abatement, and had not considered the use of waste as a heat source within a district heating system. However, Newcastle Council desired both of these to be implemented as part of the proposals. In January 1969, in a report jointly authored Newcastle's City Engineer's department and their consultants, outlined a design for the Byker Reclamation Plant. Planning for the Byker incineration plant began shortly after this, but was delayed by financial difficulties. The County Borough of Newcastle could not afford the 'high tech' plant they desired. When the new Tyne and Wear Metropolitan Authority came into being in 1974, its waste disposal section took over control of the project. In November 1976 the City Council's Housing Committee agreed to go ahead with the development of a pilot heat station, to be developed as part of the Byker Wall development. At the meeting of the City Council's Development Control Sub-Committee on the 28th March 1977, planning permission was granted for the development of the waste reception and treatment plant. On the 21st April 1980, the waste fired 'Byker Heat Station' came online.

Providing clear data about releases over the plant's history is difficult. The IPC register held by the Environment Agency for both the refuse derived fuel and incineration processes are badly put together. There are gaps, and clearly from a detailed reading information that should be on the register is missing. The IPC public register for the Byker plant is, from my previous experience,

incomplete. It would appear that the Environment Agency is keeping details of correspondence and information provided by the plant operator off the public file.

The plant operators

The operation of the plant, in simple terms, is split:

- The RDF plant's activities are run by Cityworks on behalf of Newcastle City Council, but during the late 1990s the management of Cityworks part of the plant was contracted out to NEM SITA (although the workforce are still Cityworks employees).
- The incinerator and the heat plant are operated by Contract Heat and Power, and before them Energy Supplies Ltd.

Energy Supplies Ltd (ESL) took over the running of the Byker Heating Plant in 1987. In July 1991, ESL agreed a mortgage on the plant to raise capital to put into the business, possibly to improve the plant at Byker and a similar plant they operated on the Isle of Wight. This mortgage caused problems for ESL that ultimately led to the bank applied for an order to wind up ESL. In March 1996 the assets of ESL transferred to a new company, Contract Heat and Power Ltd.

Newcastle City Council run all the parts of the site related to waste processing. They inherited the waste polices and assets of the Metropolitan Authority of Tyne and Wear. However, Newcastle City Council have, since their establishment in 1986, sought to develop the Byker plant. However, it is clear that the whole scheme is severely flawed, not least because it consistently loses money.

Newcastle City Council's services contractor – Cityworks – operates the waste sorting and RDF production plant. The RDF plant was a major source of nuisance to local residents, not only because of odours form RDF production, but also from the emission of particulates – made worse by explosions, fires and problems with the ventilation inside the plant. In an attempt to improve operations, Newcastle City Council recently employed SITA UK to bring in their own management to run the plant. Cityworks staff still carried out the operations, but this was under the direction of SITA managers. SITA is, according to their own claims, the fourth largest waste group in the world, and the largest in Europe. SITA UK are part of SITA Group, which holds the international portfolio of waste assets. In turn, SITA Group are owned by Suez Lyonnaise des Eaux. It is not clear what knowledge or role SITA had in the spreading of ash from Byker incinerator in Newcastle.

The management of ash from Byker incinerator

The correct procedure for the management of ash from the Byker incinerator is unequivocal – the ash should be conveyed to an enclosed skip and sent to landfill. That this material did not go to landfill, when all indications were that it should, is therefore an exception that could not have happened without clear mismanagement. Over the period during which ash was being diverted from landfill the incinerator produced up to 40,000 tonnes of ash. That a minimum quantity of 2,000 tonnes, 5% of the ash stream, at least 300 or more lorry movements, could take place over this period without any clear policy or authorisation on the use of this material being in existence is highly irregular. There were

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clear statutory procedures governing the disposal of ash. That these were not adhered to, and that at no point were CHP, Cityworks or the SITA management aware of the breach of these procedures clearly demonstrates a lack of understanding of the regulatory parameters the site was required to operate within.

According to Newcastle City Council, when concerns were raised about the use of ash, they investigated. This is not precisely the case. Concern about the effects of the ash being spread on the allotments in Newcastle began partly as a result of the proposals to increase the size of the incinerator. As people began to research the possible impacts of incinerators, information came to light about the toxicity of incinerator ash. This led some of the allotment holders to commission their own sampling of the ash during late 1999. The results of these tests caused Newcastle City Council to commission their own surveys at the end of 1999.

During the Spring of 2000, preliminary results of the City Council's testing programme, being carried out by the University of Newcastle upon Tyne, began to emerge. Representatives of the Health Authority and Newcastle City Council met in April to decide how to deal with these initial results. This led, on the 6th April, to the Director of Public Health for the North Tyneside Health Authority and the Head of Public Health and Environmental Protection for Newcastle City Council issuing 'precautionary advice' to the public about eating food from local allotments.

According to Contract Heat and Power, and Newcastle City Council, the ash from the burning of RDF at Byker had similar properties to ash from coal-field power stations. But if we compare the results from recent monitoring by the University of Newcastle with ash analyses published in the early 1990s, there is certainly a good fit for the levels of cadmium and zinc. If the values for heavy metals in the ash were to be within the sample range for the Byker ash taken from the allotment paths, then it is difficult to see if this material were ever to have been suitable for reuse on land.

The pushing forward of the waste contract

Currently there is a community-based investigation of the future of waste management in Newcastle taking place, backed by the City Council. As yet, there has been no detailed response to the City Council from the working group on the content of a future waste strategy for Newcastle – other than recommended the closure of the present incinerator and that a new one should not be built. However, despite the fact that the community's working group had not yet reported, the Cabinet went ahead and, in mid November 2000, approved a new waste disposal contract with SITA UK (the current managers of the Byker Reclamation Plant).

SITA UK’s parent company a variety of interests in waste management. SITA operates a number of incineration plants across the world, and has recently acquired new incineration capacity in the UK. SITA has also been vocal in defence of incinerators. They recently opposed the exclusion of incinerator residues from the contribution towards local authority recycling targets – a contentious position given the recent events in Byker. Many of their reports and statements are also unashamedly in favour of expanding incineration across the UK. Why then, given the position of the community working group, has Newcastle City Council has entered into a fifteen to twenty year contract with an organisation that has an avowed wish to expand incineration?

It is difficult to see how the City Council will be able to resolved the corporate policies of its preferred waste contractor with the clear statements of the Byker Working Group to date which are clearly seeking to move the city Council away from incineration. For example, SITA itself has at times cast doubt upon whether high recycling rates are possible. Therefore, given the types of strategy that the City Council's contractor is most likely to offer Cityworks, it is difficult to see how SITA could operate the contract if the Byker Working Group were to recommend high levels (40% plus) of recycling in Newcastle.

Newcastle's households currently produce around 180,000 tonnes of waste per year. The new contract envisages a 3-staged implementation to achieve the targets set in the new National Waste Strategy. The City's target are, in terms of other local authority recycling targets, low. For example, according to the Audit Commission's figures for 1997/8, Dorset County Council was already achieving nearly 30%. What appears to be happening is a deliberate parallel strategy from the Council's leaders. Whilst the community are occupied talking about the general basis of the strategy, the City Council has prejudged the strategy through the setting of the terms of the contract. This bounces the community into only being able to effectively give their verdict on the Byker incinerator. The City's Cabinet has determined the whole scope of a future waste strategy except for permitting the planned expansion of the Byker plant.

But this still does not leave the field open for the views of the community. From analysis of the figures in the report to the City Council's Cabinet on the contract, without phase 3 – the expansion of the Byker incinerator – the current strategy will barely meet all the government targets. More importantly, the reliance on composting as a means to meet both the recovery and the biodegradable waste diversion targets is prone to regulatory risk. The potential alternatives to the strategy were named in the report to the Cabinet (without any detailed analysis) but they alternatives were dismissed as 'more expensive than the proposed strategy'.

The impacts and legal liability of ash spreading in Newcastle

There is more than one organisation involved in the complex web of interconnecting actions that has caused the current contamination of the environment from the Byker plant. Each has to be considered separately, since each has varying legal responsibilities with regards to the pollution from Byker.

ESL/CHP:

Energy Supplies Ltd (ESL) is a dead, bankrupted company. In terms of where we go from our current position in time, it has no role to play. Contract Heat and Power (CHP) Ltd. is a live company. It also shares/has shared directors with the former operators of the Byker Heating Plant, ESL. Therefore, as a corporate body, it should have the experience to operate the plant, and the 'corporate memory' to ensure that past mistakes are not played out anew.

Under their authorisation, CHP should have carried out analyses of the incinerator ash produced in the plant. There is no evidence this was done within the last decade. It is arguable that if CHP had honoured this part of the authorisation on a regular basis, rather than relying on analysis from the

1980s, then the current situation may not have arisen. Cityworks would have been aware of the toxicity of the material, and unless they had a clear ignorance of the impacts of the pollutants present in the ash would not have used t for the purposes they put it to. This perhaps then represents the one clear failing by CHP, as part of the regulated procedures around the Byker Reclamation Plant, that may have contributed to the contamination of land across Newcastle.

The question of liability for CHP rests on what they know of the disposal practices being carried out by Cityworks, or any other parties Cityworks had contracted for ash removal. If CHP never checked how the ash was being disposed of, to satisfy the conditions of their authorisation to incinerate waste, and under the code of practice on waste management, then they are at fault. A prosecution could be brought under waste or air pollution legislation if it were in the public interest. However, if CHP were aware of how Cityworks were disposing of the ash – by landspreading in Newcastle – and did nothing to stop it then that is far more serious. This would be a direct, mindful breach of their authorisation. It would also be a clear offence under the waste code of practice.

Cityworks/SITA:

Cityworks received the ash from CHP, and according to the process agreed with the Environment Agency, that material should have been sent to a local landfill. However, as the organisation involved in the use of this material, Cityworks are bound by far stricter guidelines in relation to waste code of practice. They are subject to waste licensing. This was, it appears, ignored.

Cityworks is clearly liable since it was responsible for the deposit of the waste material on land in contravention of the Environmental Protection Act and the Waste Management Licensing Regulations. However, as managers of the Byker Reclamation Plant, SITA may also be liable if they had knowledge of what the material was being used for. Even if they had no knowledge of the deposit of this material, as managers in charge of waste storage and transfer they should have had regard to the waste codes of practice.

Newcastle City Council:

In terms of Cityworks' masters, the elected members of Newcastle City Council, a simple question arises – where they in control? If the answer to this question is unclear, this also creates a further question as to whether they have the procedures in place within the organisation of the City Council to competently manage the clearly onerous responsibilities of managing waste in Newcastle.

The elected members of a local authority cannot be expected to have knowledge of every detail of the activities of a local authority. But like company directors, they must have due diligence to the process of evaluation and decision-making that form part of their role. The indications, from a variety of sources before them, were there that ash was being reused. What is important is was this policy merely the excess of a number of council employees, or was it an act approved by the City Council as a body. This distinction is important because it changes the nature of how the matter is dealt with.

In terms of the waste disposal contract, the question arises as to whether the City Council has appropriately considered the requirements of the national waste policy framework – both legal and technical. As noted in the City Council's reports, the new National Waste Strategy creates increasing

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demands on local authorities to deliver sustainable waste management. The City Council interprets this as meaning new and higher targets to reach. In fact, the implications of the new National Waste Strategy go far wider.

In my view, from the contents of report to Cabinet on the waste contract, the strategy within the waste contract for Newcastle is directly antagonistic to the objectives of the new National Waste Strategy. This is because the report is a simple response to the question – "how can we dispose of waste and meet the government targets". It is not a thorough investigation of the changing regulatory framework, the environmental and human health impacts of various waste management options, and the 'regulatory risk' of adopting certain disposal options. The approach taken by the City Council is out-of-date and out-of-step with current national policy changes. It is clear the officers failed to provide the members of the Cabinet with the information necessary to make decisions in conformity with the current legal and procedural frameworks.

It would appear also that the motives of the officers in recommending the package that makes up the contract was not wholly decided by what was, in accordance with the national guidelines, the best practicable environmental option. But rather to correct previous management decisions that led to overspends on waste services. From the information I have been able to find, as part of the waste contract review there appears not to have been any clear financial or environmental appraisal of the Byker plant.

Given the recent disclosure that the heating plant itself has been costing the council £300,000 per year because of the losses on the operation, the question must also be raised about the financial management surround waste services. A key factor for the officers is a need to repay past internal loans for waste services. This creates an impetus within the Council to approve phase three of the contract – to expand the Byker incinerator. As stated to the Cabinet Committee before taking their decision:

> *The exact timing of reductions will depend on the completion of each phase, however, on full implementation of phases I and II the £500,000 overspend on the cash limited budget will be eradicated. If the Council chooses at some stage to move to stage 3 further budget savings of up to £1m can be anticipated. The budget saving of £1M at phase 3 is necessary in order to repay an earlier corporate resource pool loan required to stabilise the budget in financial year 1999/2000. <u>If phase 3 is not implemented, this loan cannot be repaid</u>.* [my emphasis]

It would appear that there is some form of cross-subsidy between the housing and waste services budget. Those who pay council rents are subsiding the costs of the entire city's waste budget through the Byker Heating Plant. But quite how the City Council believe that the new contract will save costs is not clear. The figures behind the costs savings promoted by Cityworks do not, on the face of the figures presented t the Cabinet, add up. The figures are further complicated further by the relationship between other council budgets, especially the housing budget. There needs to be a clear account made available to demonstrate the distribution of past costs, and to justify the future perceived savings. This would also indicate to what extent regulatory risk has been included in Cityworks future budget, and whether any of the regulatory risk is borne by CHP or SITA.

The Environment Agency:

The Environment Agency is the regulator for both the waste and air pollution components of the Byker Reclamation Plant. Whilst not responsible for the actions involved, the Agency itself has certain legal responsibilities in relation to its application of environmental law. Byker has represented a challenge to the Agency because of the pollution created from the Byker plant whilst they were in charge of it's regulation. This has exposed serious flaws in the Agency's interpretation and application of pollution law.

I can find no evidence that the terms of the authorisation were ever inspected, point by point, as part of each or any visit. Unless there is a clear point-by-point audit of the authorisations conditions there can be no certainty that all conditions are complied with. In this case one of the key failures was to audit the disposal of ash from the process. A though audit of the authorisation for the Heating Plant should have picked up the reuse of the ash by Cityworks, and CHP's failure to provide regular monitoring and analysis of the ash.

The failures by the Environment Agency have had a direct contributory factor in the serious pollution of the environment. At the moment knowledge of that pollution is restricted to the contamination from ash spreading. But as indicated in testing results from the Walker Road allotments, there may also be serious environmental contamination with dioxins and heavy metals due to direct deposition from the plant. In the national context, when looking at other locations, the failures by the Environment Agency are systematic, not random. The actions of the Agency in relation to Byker have happened at other locations in the Black Country, Merseyside, South Wales, and many other locations. The difference with Byker is that the polluting matter involved is far more toxic than usual.

The Next Steps in Resolving the Contamination from the Byker Reclamation Plant

The spreading of incinerator ash represents a failure of both the external regulatory and the internal audit procedures of CHP, Cityworks, the officers and members of Newcastle City Council, and the Environment Agency. The issue is now where should further investigations take place to resolve this complex web of interrelated issues. After considering the information produced by the investigation of incineration in Byker, it is my view that the following should be a matter of urgent review by the people of Newcastle, the UK Government and the European Commission. These issues are not appropriate for Newcastle City Council or the Environment Agency to investigate because they are potentially both culpable parties in the events that have led to the contamination of the environment.

The need for further research and investigation breaks down into the following categories:

1. Contamination from the Byker ash: It is still not clear to what extent contamination has taken place from the reuse of ash from the Byker incinerator. The total level of ash reuse is also in doubt given that the figures available for the reuse of ash from Byker incinerator do not tally with the figures available for allotments. It is a matter of the greatest urgency to discover how much of the Byker as was diverted from landfill, and to what uses it was put.
2. Contamination from/within the Byker Reclamation Plant: The sampling by the University of Newcastle has indicated raised level of heavy metals and dioxins in land near to the Byker plant, and this contamination cannot be attributed to ash spreading. In order to characterise

and quantify the nature and extent of contamination around the plant there should be sampling carried out in the vicinity around and within the incinerator to identify the distribution of direct deposition from the incinerator and the RDF making plant. This sampling a should also include a representative group of the workforce and members of the local community.

3. The operation of the plant by CHP: There needs to be an investigation of Contract Heat and Power to determine how they managed to operate the plant without, it would appear, any understanding of the toxicity of the ash they were producing.
4. The operation and management of the waste reclamation plant by Cityworks and SITA, and the collection and disposal of incinerator ash: Investigations need to be carried out to determine how ash, meant for disposal to landfill, was used for construction projects and landspreading. There also needs to be an investigation of when the decision was made to divert ash to other location rather than being sent for landfill, and what information this decision was based upon.
5. The role of the Environment Agency in 1 to 4 above: There should be an external investigation of the role of the Environment Agency, not only in Byker, but at many other sites across the country where pollution and waste laws have been breached (it would be possible to specify a long list of sites and particular problems, but it would detract from the focus of this report).
6. The actions of Newcastle City Council in developing it new waste strategy and waste contract: There are many flaws in the arguments presented to the Cabinet of the City Council in the report on the waste management contract. But beyond this, there are a whole series of statements and policies that need further investigation to determine whether there has been any malpractice by the City Council officer and member. In particular, there should be a detailed investigation of the financing of the Byker Reclamation Plant to determine whether the plant represents best value for the people of Newcastle, and whether the monopoly supply of heat to the Byker community represents an unfair imposition of costs on the community. Also, there must be an investigation into the projected finance of the new waste contract, and in particular whether the commitment to the operation of Byker has skewed the selection of sustainable waste manage options for the City. In particular, the projected savings communicated to the committee are valid or, in the longer term, whether alternative strategies would prove more cost effective. For those involved with the community working group in Byker, they must also decide if the recent actions on the City Council, in relation to their work on the waste strategy, could be regarded as duplicitous.

In my view neither Newcastle City Council nor the Environment Agency are responsible enough to carry out these investigations. Both bodies have far too many vested interests in avoiding a detailed critique of their failures to ensure an open and honest appraisal of the events that led to this catastrophe for the people of Newcastle. There should be external investigations by those who have the legal authority to do so – in this case:

- The Local Government Ombudsman/The Parliamentary Ombudsman;
- The Department of the Environment, Transport and the Regions;
- The Food Standards Agency/Ministry of Agriculture, Fisheries and Foods; and
- The European Commission.

In my view what we ultimately need, given the nature of the mistakes made by both the City Council

and the Environment Agency in this case, is an investigation by Parliament, or some other person appointed by the Minister for the Environment. Only a body with a wide remit to consider the events in Newcastle across the many different remits the Byker situation has created can provide the necessary insight into how such breakdown in regulatory systems cannot happen again.

Finally, I would like to thank members of the community in Byker for their assistance in undertaking the research that forms the basis of this report, and their hospitality on the recent and previous occasions when I have travelled to Byker to work on these issues. My thanks also to staff at the Environment Agency, Newcastle City Council, and Newcastle Central Library for their assistance in obtaining the information on waste management in Newcastle that forms the basis of this report.

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Paul Mobbs
November 2000

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Abbreviations

CHP	*Contract Heat and Power Limited* – the private company who currently have the contract to operate the Byker incinerator/heat plant. *CHP* also stands for *combined heat and power* – the co-generation of heat (as hot water) and electricity in the same plant.
CRI	*Chemical Release Inventory* – HMIPs (now the Environment Agency) annual publication of releases from IPC sites.
DETR	*Department of the Environment, Transport and the Regions* – the government department responsible for pollution, contamination, waste and development issues.
dRDF	*Densified RDF* – fuel pellets made from heat sealed pulverised/compacted refuse
ESL	*Energy Supplied Limited* – a private company drafted in to operate the incinerator/heating plant at Byker. This company was wound up and subsequently became CHP
ETSU	*Energy Technology Support Unit* – the government sponsored renewable energy research agency, which was part of the UK Atomic Energy Authority (note, ETSU is still advising government/local authorities on incineration today).
HMIP	*Her Majesty's Inspectorate of Pollution* – until April 1996, the government agency responsible for regulating large polluting industries and the disposal of radioactive substances (it was merged to form part of the Environment Agency).
ICRCL	*Interdepartmental Committee on the Redevelopment of Contaminated Land* – a government committee who set 'action' levels for the investigation and clean up of contaminated land (these levels are due to be replaced by new levels during 1999/2000 developed as part of the Contaminated Land Exposure Assessment Study (CLEA) being carried out by Nottingham University on behalf of DETR).
IPC	*Integrated Pollution Control* – the regulatory system for plants emitting large quantities of certain 'proscribed' air pollutants, administered by the Environment Agency (and pre-April 1996, HMIP). This will be replaced shortly by *IPPC* – Integrated Pollution Prevention and Control.
kWh	kiloWatt hour – a measure of energy used commonly to measure domestic energy use (roughly equivalent to the heat produced by a 1-bar electric fire in 1-hour).
LGORU	*Local Government Operational Research Unit*
NIFES	*National Industrial Fuel Efficiency Service* (Limited) – a private company set up as a partnership between industry and government to advise industry on energy and fuel use
RDF	*Refuse Derived Fuel* – fuel pellets made from processed refuse
UKAEA	*The United Kingdom Atomic Energy Authority* – the body originally responsible for all UK nuclear research, both for civil and military uses, which over time diversified into all aspects of the energy sector (privatised in 1996, and merged with the government's Warren Spring Laboratory, AEA Technology plc now also supplied consultancy and emissions testing services to incinerator operators).

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List of references

To aid use of the background material in this report, the following is a list of references without the duplication of sources in the report's footnotes (in chronological order):

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University of Newcastle

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Introduction

This research programme and this report has been commissioned to provide a clearer outline of the events surrounding the development of the 'Byker Reclamation Plant', and the recent discover of massive environmental contamination in the area. Byker residents originally contacted me in August 1999, regarding the proposed expansion of the incinerator plant. Subsequently, I was invited to speak to the residents of Byker in early September 1999. I have been involved with the ongoing issues of waste policy in Newcastle, and the contamination of the environment from the operations of the current incinerator, from this date.

Byker is an area to the east of the city of Newcastle upon Tyne, to the north of the River Tyne. It was initially developed during the Victorian period, but was extensively rebuilt during the 1970s as part of the redevelopment of the City. Byker has had a number of polluting industries operating within the area during its existence. On the northern bank of the Tyne, there have also been centuries of heavy industry. Traditionally regarded as a 'deprived' area of the city, Byker has many problems that have resulted from a long history of disadvantage. It is therefore a double-injustice that this area has not only been subject to a long history of industrial pollution, but it may also now be heavily contaminated due to the cavalier operation of the 'Byker Waste Reclamation Plant'.

The purpose of the investigations that have led to the compilation of this report were –

- to provide a detailed historical analysis of the policies and actions in relation to waste policy that have led up to the current problems in with waste management in Byker, and Newcastle upon Tyne generally,
- to provide an analysis of the decisions and actions that led to the spreading of incinerator ash from the Byker Reclamation Plant in various public spaces, and
- to provide an analysis of the roles of the main protagonists involved in the environmental contamination in Newcastle, together with an analysis of the legal framework that should have protected the public, and suggests reasons why the system failed the people of Newcastle in this case.

As well as this investigation, the Environment Agency is also carrying out investigations into the events that have led to the gross contamination of the environment in Newcastle. It is not clear whether these investigations are solely in relation to the operations that involved the spreading of the ash by *Cityworks* – Newcastle upon Tyne City Council's direct labour organisation – or whether the enquiries also relate to the operators of the incineration plant in Byker – *Contract Heat and Power*. Newcastle City Council were also carrying out their own investigation into how this problem originated, but were stopped by the Environment Agency because of the possible conflict of interests (for the reason that City Council are possibly culpable in the contamination of the environment). The University of Newcastle upon Tyne are also carrying out investigations of the extent contamination, funded by Newcastle City Council, and the results of the second round of environmental sampling are due to be reported shortly (the first data were reported in May 2000).

The report has been compiled from three primary sources:

- A search of local archives (carried out on the 10th October 2000);
- A search of the various public registers associated with the Byker Reclamation Plant (carried out on the 11th and the 12th October); and

- Discussions/interviews with local people in Byker to provide greater clarity to information gathered from the various public records (various dates over the past year).

The report is divided into three parts:

- The first part is a review of the information available on waste management/incineration in Newcastle. It looks at how the contamination of the environment arose, and the main parties involved.
- The second part provides an analysis of the legal and technical issues that arise as a result of the contamination in Newcastle. Specifically, it considers the effectiveness of current regulatory systems, and how the systems that are intended to protect public health failed in this case.
- Finally, the conclusion of the report highlights the main issues raised in the report, and makes recommendations for further investigation and action.

The report is extensively referenced, and extracts of certain key documents are provided in the annexes to the report.

Problems with access to public files held by Newcastle City Council/ The Environment Agency

The scope of the information produced through this kind of research is heavily dependent on the ability to access the necessary public records. The information held by the Central Library was well organised, indexed and accessible. Given my experience at similar libraries across the country I believe the staff at Newcastle Central Library should be commended on their knowledge and organisation of their archive. However, there were two notable difficulties with this research project in relation to files held by the Environment Agency and the City Council.

I would have hoped to be able to provide far more detail about the operation of the plant under IPC, but the IPC public register for the Byker plant is, from my previous experience, incomplete. It would appear that the Environment Agency is keeping details of correspondence and information provided by the plant operator off the public file. For example, information and drawings supplied by the operator, and which form part of the Fourth Variation the incinerator's IPC authorisation, were not on the public register. There had to be requested specifically, and were only supplied when officers in the Agency's Newcastle office had decided that they could release them.

There are also gaps within the file evident from internal referencing – for example the are pollution incidents where the references to 'similar previous incidents' reported to the Agency do not have correlating entries on the public file. There are also large gaps in the file in relation to the supply of monitoring information, and in particular a number of the quarterly returns for pollution levels and fuel use are missing from the public file.

It is also clear from the structure of the file that a lot of the correspondence between the Agency and the operator, in particular the Agency's letters to the operator, were not on file. It would appear that correspondence and information that are clearly part of the legal requirements for the maintenance of the IPC public register[1] are kept off of the files made available to the public. If so, then a technical

[1] §20 of *The Environmental Protection Act 1990*, as implemented through Regulation 15 of the *Environmental Protection (Applications, Appeals and Registers) Regulation 1991*, SI 1991/507 (as amended).

breach of the law has taken place as it is part of the Agency's statutory responsibilities to provide information to the public[2]. There must also be concern about what the past impacts of the Byker plant may have been, given that the Agency are so reticent in providing information about it.

With regards to the City Council's files, this is more a case of official obfuscation. Newcastle upon Tyne city Council has a central enquiry reception. All public enquires, general as well as specialist, must be routed through the enquiries reception. This makes it very difficult to clearly establish what information is available from the public registers. Whilst the theory of having one contact point can is sound, Newcastle City Council's methods of operation leave a lot to be desires. The computerised booking system appears to be prone to 'logging people off' the system – in which case you have to queue again with a new ticket. After two and a half hours I only managed to view the log sheets for planning applications for the streets around the Byker plant, and obtain copies of six planning permissions (note also, these nine sheets of paper cost £42 – an average of £4.67p per sheet). Copies of the relevant committee reports were promised, but one moth later these have still not arrived.

It would have been useful to have had time to inspect the planning files directly, but this would have taken considerably longer. Likewise, for reasons of time, it seemed impractical to inspect the Local Authority Air Pollution Control Register, or seek to track down the details of the committees who had been involved in the various decisions about the Byker plant over the previous 20 years.

Acknowledgements

I would like to thank members of the community in Byker for their assistance in undertaking the research that forms the basis of this report, and their hospitality on the recent and previous occasions when I have travelled to Byker to work on these issues.

My thanks also to staff at the Environment Agency, Newcastle City Council, and Newcastle Central Library for their assistance in obtaining the information on waste management in Newcastle that forms the basis of this report.

Further copies of this report

If further copies are required, then requests for purchasing details should be made to Mobbs' Environmental Investigations, 3 Grosvenor Road, Banbury OX16 5HN. Tel./fax 01295 261864

Paul Mobbs
November 2000

[2] Both under the IPC Regulation, and under the Agency's statutory objective under section 4 of *The Environment Act 1995*.

Part 1: A Review of Incineration in Byker

1.1. Incineration policy in Tyneside

1.1.1. Incineration in Newcastle-upon-Tyne – 1886 to 1960

Figure 1: The locations of the Byker incinerators

Newcastle, out of tradition, has incinerated its waste. Before the 1960s the term 'incinerator' was not used. The plants were known as the '*refuse destructors*'. There have been many plants burning waste materials across Newcastle over history[3] both as waste disposal plants and as a means of in-house disposal of waste from the former heavy industry of the Tyne valley.

In Byker, a refuse destructor was built in 1886 near to the junction of Shields Road, Fossway and Union Road. This plant comprised 12 cellular grates linked to one 45 metre tall chimney. It had a capacity of 50 tons a day. Figure 1 shows the layout of Byker at the time the first 'destructor' was built. Given that a large part of the land-surface of Byker was erased by the redevelopment of the area in the 1970s, the contamination from this plant will only be likely to remain where the land surface from the first half of the 20th Century has been left undisturbed. In any case, the main concern from Victorian

[3] An historical appraisal of incineration policy in Tyneside can be found in *Refuse Incineration in Newcastle upon Tyne – Project Appraisal*, Newcastle Upon Tyne Corporation, January 1969. See Annex A1, page A-2.

incinerators is the deposit of heavy metals, both by airborne emission and in ash. Larger quantities of the more exotic pollutants, such as organohalogens (dioxins, furans, PCBs etc.) would not have arisen until the period after the 1950s because of the lack of halogented compounds in the waste stream (e.g., plastics, hydrocarbon-based paints and solvents).

Some may claim that the presence of such large levels of heavy industry, particularly metal industries and chemical industries (as can be seen in the map on figure 1) would mean that some of the existing contamination in Byker is the result of contamination from non-incineration sources. This is possible, and should be investigated as part of Newcastle City Council's analysis of land contamination in Newcastle. But the extensive redevelopment of Newcastle during the 1960s/1970s resulted in many of the land surfaces being excavated and removed, or buried as part of new development. Therefore, in large areas of the city that have been the subject of redevelopment, the current land contamination can only represent deposits on the land surface from the past twenty to thirty years.

Another 'destructor' plant was built in Benwell in 1937, near to the former 'corporation yard'. This was more advanced than the Byker plant as it was more of an industrial rather than a waste disposal process. The plant utilised both magnetic and manual sorting of materials for reclamation. This plant had a capacity of 100 tons per day, and used four cellular grates leading to a single chimney. Again, the area around this plant was extensively redeveloped, and so the contamination from this plant will have been buried or diluted by redevelopment operations. However, this site is near the Cruddas Park development which, for a period of time, burnt densified refuse derived fuel (dRDF) produced in the Byker plant (details on this provided later in this part of the report).

The Byker plant was partially demolished in 1956. The Benwell plant was seriously damaged by fire in 1957, and despite attempts at refurbishment, it did not return to full operation. Both plants were closed around 1960 because they were unable to meet new 'clean air' legislation (neither of these plants had any kind of pollution abatement). The City Engineer's project appraisal study actually stated in relation to the two refuse destructors,

> *The operation of both these plants was woefully inefficient and uneconomic by present day standards and fell far below current Clean Air requirements*[4]

This last point is rather ironic given that the incinerators operated on behalf of the City Council had exemptions from meeting the Clean Air Act standards granted in August 1990, effective until mid July 1991[5].

1.1.2. The review of waste disposal policy in Tyneside – the 1960s/1970s

The use of incineration on Tyneside was widespread until the 1960s. The closure of the council's incinerators increased the demand for landfill, and increased the costs of waste disposal. In 1965, on the advice of the corporation officers[6], an investigation of the options for future waste disposal was

[4] Section 3.2, *Refuse Incineration in Newcastle upon Tyne – Project Appraisal*, Newcastle Upon Tyne Corporation, January 1969.

[5] Details are provided within the company records of Energy Supplies Ltd (company no. 1665130) – the mortgage list one of the 'assets' as an exemption to the Clean Air Act.

[6] Appendix 1, ibid.

carried out by the North East Regional Planning Committee, and a joint working party was set up by the councils in the Tyne and Wear area. This resulted, at a meeting on the 21st February 1966, in the commissioning of the Local Government Operational Research Unit (LGORU) to undertake computer modelling to determine the best ways of meeting future demands for waste disposal in order to,

> …*identify the most economic methods of organising the disposal of refuse within the Tyneside/Wearside Area… to show the best number, location and phased installation of plant which would achieve the best economic ends*.[7]

The LGORU reported their findings in February 1966. This recommended that either 5 incinerator or 6 waste pulverising plants be set up across Tyne and Wear. The local authorities involved acted upon this plan studiously[8], and incinerators were built across Tyneside (see Table 1).

Table 1: Tyneside's incinerators[9]

Incinerator	Capacity, Tonnes/week	Date commissioned
Byker Incinerator*	800	1980
Gateshead Incinerator	1,500	1973
South Shields Incinerator	2,400	1972
Sunderland Incinerator	2,200	1972
Tynemouth Incinerator	2,400	1971

* This is the incinerated waste only, with all 3 boilers working[10]

1.1.3. The development of the 'Byker Reclamation Plant' – 1967 to 1979

On the 11th October 1967, the Traffic, Highways and Transportation Committee of the County Borough of Newcastle agreed in principle to the construction of an incinerator to serve the city. The proposals were set out in a report[11] to the Committee, and involved the development of two plants – one for the east of the city by 1973 and one for the west of the city by 1977.

The LGORU report had not costed the installation of pollution abatement, and had not considered the use of waste as a heat source within a district heating system. However, Newcastle Council desired both of these to be implemented as part of the proposals. Whilst such development were becoming common in Europe, such 'advanced' plants were not being developed in the UK. To address this lack

[7] Section 1.1, ibid.

[8] The five County Borough Councils of Gateshead, Newcastle, South Shields, Tynemouth and Sunderland, and the Municipal Borough of Jarrow.

[9] Figures taken from the *Tyne and Wear Waste Disposal Plan – Draft Consultative Document*, 1984. See Annex A8, page A-22.

[10] Figures for incinerated waste at Byker taken from the quarterly fuel return on the Environment Agency's IPC public register for Byker.

[11] *Regional Refuse Disposal – Implications for Newcastle upon Tyne*, report of the Joint Committee and the City Engineer, 1967.

of knowledge, the National Industrial Fuel Efficiency Service (NIFES) were appointed by the Traffic, Highways and Transport Committee on the 12th February 1968, to consider how to proceed with incineration in Newcastle, and how to use the heat from the incinerator for heating. The NIFES was a non-profit making body formed by the former Ministry of Fuel and Power, and sponsored by the National Coal Board, The Electricity Council and the Gas Council (the bodies representing the nationalised energy utilities). They reported back to the Traffic, Highways and Transportation Committee in January 1969, in a report jointly authored with Newcastle's City Engineer's department, entitled *Refuse Incineration at Newcastle upon Tyne – Project Appraisal Study*[12].

The full council later confirmed the decision of the Traffic, Highways and Transport Committee on the 6th March 1968, and the terms of the NIFES study were stated set as follows:

> *To carry out a detailed appraisal of the incineration problems of Newcastle upon Tyne and to prepare a joint report covering:*
>
> *a). the advantages and disadvantages of one incineration depot as opposed to two, and the selection of site or sites;*
>
> *b). the feasibility and economics of utilising the heat produced by the burning of refuse.*[13]

The report identified six possible sites for incinerators – not including the current site in Byker – where a heat plant/incinerator could be located:

- Benwell (the site of the old Benwell 'destructor', near what is now the Scotswood Road/Amelia Walk area);
- Lemington (near what is now the Scotswood Road/Bells Close area);
- Fawdon (near to where the A1 crosses the metro line near Kingston Park);
- Benton Quarry (near Grange Avenue/Whitley Road);
- Little Benton (near Little Benton Farm);
- Heaton (at the council depot).

The study actually identified, from dispersion modelling, that the best place to put an incinerator was on Town Moor. But this proposal was rejected.

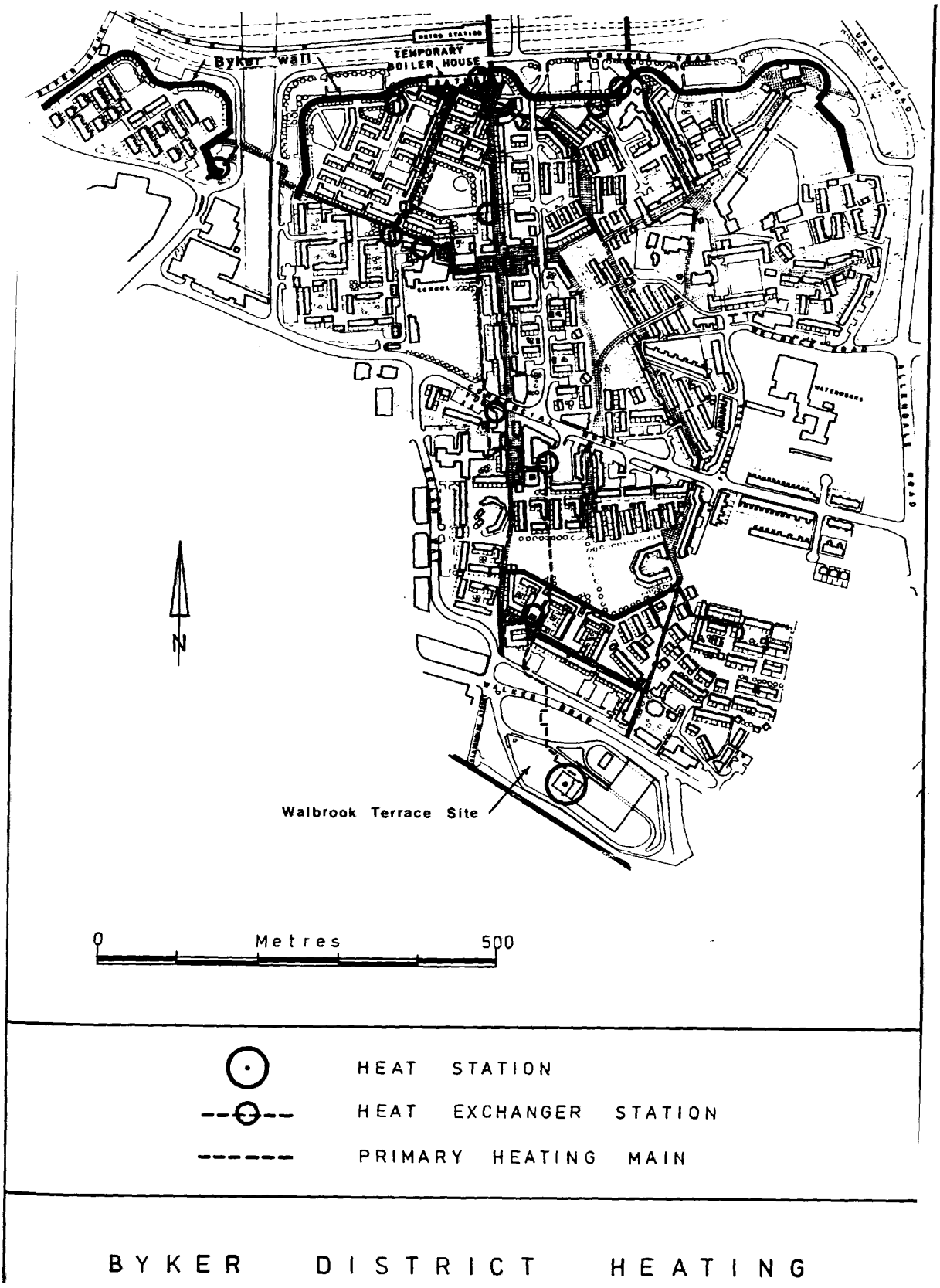
Planning for the Byker incineration plant began immediately, but was delayed by financial difficulties. The County Borough of Newcastle could not afford the 'high tech' plant they desired. When the new Tyne and Wear Metropolitan Authority came into being in 1974, its waste disposal section took over control of the project. In 1976, they manufactured 50 tonnes of prototype RDF fuel pellets, from mixed paper waste, for use in firing trials. The criteria for the development of the Byker plant were set in 1976 by a joint working group involving Tyne and Wear Council, Heenan Environmental Systems Ltd and Warren Spring Laboratory (then, part of the Department of the Environment, but latterly sold to AEA Technology plc). During the early 1980s this working group monitored the development of the plant. However, in 1979, Henley Burrows Ltd., consulting engineers to Tyne and Wear council, had replaced Heenan Environmental Systems Ltd.

Following the fuel trials and the setting up of the development project, in November 1976 the City Council's Housing Committee agreed to go ahead with the development of a pilot heat station, to be

[12] ibid.

[13] Introductory covering letter, *Refuse Incineration in Newcastle upon Tyne – Project Appraisal*.

Figure 2: The Byker District Heating Scheme[14]



[14] From *An Assessment of Refuse Derived Fuel on a Fixed Grate Industrial Shell Boiler*, ETSU Report B-1088, 1984. Contract no. E/5A/CON/1088/174/072.

developed as part of the Byker Wall development. During the early stages of the Byker development, hot water was raised with a gas/oil-fired plant to the north of the Byker development. As the Byker plant was developed the heat load was gradually switched over to the current 'heating plant'.

At the meeting of the City Council's Development Control Sub-Committee on the 28th March 1977, planning permission was granted[15] for the development of the *waste reception and treatment plant* in Walbrook Terrace (a small street, demolished prior to the development, and obliterated by the current site outline). The Waste Disposal Committee of the Tyne and Wear Metropolitan Authority made the application. Permission was then given on the 21st July 1977 for a temporary site access to enable construction[16]. On the 14th December 1978 the same committee gave a further permission in relation to the detailed design of the plant[17].

On the 28th September 1979, permission was also given for a recycling centre[18] alongside the site in Glasshouse Street.

1.1.4. The operation of the Byker plant – 1980 to the present day

On the 21st April 1980, the waste fired 'Byker Heat Station' came online. This was the start of nearly ten years tinkering with the plant.

In October/November 1980, trials were carried out over 9 days with 39 tonnes of RDF. Development of the plant was also taking place – with 2 extra boilers being added in June 1982. Various problems were caused by the use of RDF, in particular the production of far more ash than anticipated. This in turn caused problems with the operation of the plant's boilers. The boilers needed regular cleaning and maintenance to ensure efficient heat transfer, and to stop them 'clinkering' (a hard crust of silicate materials, like dirty glass, that would build up on the boiler tubes). 24-hour firing with RDF did not commence until the beginning of 1983.

The work by the City Council closely involved the Energy Technology Support Unit (ETSU) – the government agency that was involved in renewable energy research, and which was part of the UK Atomic Energy Authority (UKAEA). Their testing programme concluded in March 1983, and they produced their final report[19] to the Secretary of State for Energy – who was grant funding £1 million of the £5 million project – in 1984.

This report details many aspects of the early operation of the Byker plant, most striking of which is the operation of the incineration equipment with very low oxygen levels in the gas stream[20]. The purpose of this was to increase efficiency in the boilers, but in practice this would have led to the formation of

[15] Ref. NC/2214/76/CD, Agenda Item 4/10, *Proposed Reclamation Plant, Walbrook Terrace, Byker*

[16] Ref. NC/893/77/CD – Development Control Committee meeting, 1st July 1977.

[17] Ref. NC/40378/DD – Development control committee meeting, 21st April 1978, also reported to the Tyne and wear Waste Disposal committee 2nd May 1978.

[18] Ref. SS/NC/1418/79 – Development Control Sub-committee, 28th September 1979.

[19] *An Assessment of Refuse Derived Fuel on a Fixed Grate Industrial Shell Boiler*, ETSU Report B-1088, 1984. Contract no. E/5A/CON/1088/174/072. See Annexes A2 to A7, pages A-6 to A-18.

[20] Section 6.1/Table 8, ibid. See Annex A5, page A-12.

higher level of 'products of incomplete combustion', some of which are the precursors to pollutants such as dioxin and some of which are toxic in their own right.

There were still problems with the operation of the plant in accordance with the Clean Air Act[21]. A similar plant at Doncaster – a predecessor to Byker – had problems with economic operation and closed in 1985. In 1986/1987 this led to the involvement of Energy Supplies Ltd (ESL) in order to improve performance. ESL were, as they claimed in their 1992 IPC application, able to demonstrate operation within the limits specified by the Clean Air Act in 1987.

In May 1987, Newcastle City Council awarded ESL the contract to operate the incinerator plant. RDF production was still under the control of Newcastle City Council. Newcastle City Council also gave a contract to ESL to operate the smaller scale Cruddas Park heat plant in May 1989, burning dRDF in the west end of Newcastle. A further 'design/build/operate' agreement was made with Newcastle City Council in March 1991 in relation to power generation.

In terms of the development of the site, a significant change occurred with the setting up of the Tyne and Wear Development Corporation in the 1980s. Development corporations across the UK, particularly in the more depressed areas such as Tyneside or the Black County, have taken a number of bad decisions in relation to polluting development. The first significant permission granted by the Development Corporation[22] was for the erection of a 40-metre chimney at the RDF plant.

In June 1994, ESL applied for planning permission for the '*erection of an electricity generation plant*'[23], but this application was subsequently withdrawn. The position with regard to the planning permission for electricity generation is itself unclear. The company records for ESL, as part of the mortgage agreement on the plant, list a letter from the '*Newcastle upon Tyne Development Corporation*', dated the 19th July 1991, stating that changes to the plant to facilitate electricity generation would not be require planning permission.

In June 1992, ESL applied to Her Majesty's Inspectorate of Pollution (HMIP) for a licence under the new Integrated Pollution Control (IPC) system[24]. The application provides details about ESL's operation of the Byker plant from 1987 to the early 1990s. In March 1993, the IPC authorisation was granted. Almost immediately the First Variation[25] was issued which corrected parts of the main authorisation, and amended the authorisation to permit the burning of wood chip fuel. However, problems began to arise with the operation of the plant during the early 90s. Boiler no. 2 had, since it was installed, caused smoke problems. Correspondence indicated that this was routine, and that nothing could be done until new filters were fitted[26]. Accordingly, HMIP issued the Second Variation[27] to the authorisation that permitted visible smoke to be emitted, and then, when ESL could not comply

[21] This is the position stated by ESL in the IPC application of June 1992. However, ESL themselves have an exemption to the Clean Air Act, operational from August 1990 until July 1991, listed in their Companies House records.

[22] Ref. UDC/01/0008/89 – 30th January, 1989.

[23] Ref. UDC/01/0869/94 – received in June 1994 but withdrawn October/November 1994.

[24] Ref. AF7690, validated by HMIP 1/7/92.

[25] Ref. AJ3042, 20th July, 1993.

[26] Letter from Richard Wilson, ESL, to HMIP, 30/7/93.

[27] Ref. AJ6955, 28th September, 1993.

by the date indicated, the Third Variation[28] was issued that put-back the deadline for the completion of installing new gas cleaning plant on boiler no.2.

There is an enforcement notice[29] on the register dated the 5th October 1993, which appears to relate to failure to meet the upgrading programme. But the register copy of the hand-written notice is of such poor quality that it is not possible to decipher the detailed content of the enforcement proceedings issued by the officer. ESL replied to the enforcement notice, supplying a large volume of information[30]. The officer then replied to ESL[31] indicating that the new information is still incomplete as it does not contain information on the assessment methodology used, the assumptions made, and the justification of these assumptions. However, there is not information on the file to indicate how this dispute was resolved.

There were also problems noted with the bag filters during 1993 and 1994. In late 1993 there were bag failures due to unforeseen degradation of the bag fabric. Many bags burst and had to be replaced. At one point it would appear that so many bags burst that the operator's stocks were exhausted, and the bag vents were capped off. A full set of replacement bags had to be ordered. In December 1994 there were also mass bag failures, and over 120 bags had to be replaced.

The period from 1994 to 1999 is very patchy. In September 1993, after complaints about excessive cadmium discharges to sewer by HMIP, Alan Tweedale of ESL complained that the cadmium discharge for the isle of Wight plant was ten times higher (the figures stated by Alan Tweedale were 50mg/m^3 and 5mg/m^3). Consequently, the Fourth Variation[32] to the authorisation removed the annual mass limit for releases of cadmium and lead to sewer.

In August 1995, HMIP issue a further enforcement notice[33] in relation to the ash handling system, because the ash handling procedures did not minimise the release of dust to the air. HMIP required that a closed conveyor system be installed. ESL provided new proposals for ash handling in November 1995, and these were formalised in the Fourth Variation.

In April 1996, there is a letter on the file indicating that the operation of the plant had transferred from ESL to Contract Heat and Power (CHP). Much of the data on the register from 1996 onwards is very sketchy – mostly just annual returns. There were some pollution incidents, such as in February 1997 when a hatch blew on the lime silo and 200kg of lime were blown across the roof of the plant. The Fifth Variation of the authorisation, in November 1998, changed the reporting procedures of the plant in order to bring it in line with the standards set within the Chemical Release Inventory.

In October 1999, CHP apply for a new IPC authorisation, as part of a proposed upgrade of the plant. Copies of the authorisation, and the public responses, were on the file when I visited on the 11th October 2000. There was also a letter from CHP in reply to questions from the Agency. But other than that the detailed questions or queries submitted by the Agency in response to the IPC

[28] Ref. AL3852, 12th December 1993.

[29] Ref. EP/E 00161

[30] Information supplied by ESL with covering letter dated 29/19/93.

[31] Letter from P. Whitworth to ESL dated 15/11/93.

[32] Ref. AN2927, effective 19th December 1995.

[33] Ref. EP/E 01843, 11/8/95.

application were not on file. There were also no details relating to the investigation of the ash spreading by Newcastle City Council.

1.1.5. The Byker public registers

Providing clear data about releases over the plant's history is difficult. The IPC register held by the Environment Agency for both the refuse derived fuel and incineration processes are badly put together. There are gaps, and clearly from a detailed reading information that should be on the register is missing. The IPC public register for the Byker plant is, from my previous experience, incomplete. It would appear that the Environment Agency is keeping details of correspondence and information provided by the plant operator off the public file. For example, information and drawings supplied by the operator, and which form part of the Fourth Variation the incinerator's IPC authorisation, were not on the public register. There had to be requested specifically, and were only supplied when officers in the Agency's Newcastle office had decided that they could release them.

It is also clear from the structure of the file that a lot of the correspondence between the Agency and the operator, in particular the Agency's letters to the operator, were not on file. It would appear that correspondence and information that are clearly part of the legal requirements for the maintenance of the IPC public register[34] are kept off of the files made available to the public. If so, then a technical breach of the law has taken place as it is part of the Agency's statutory responsibilities to provide information to the public[35]. There must also be concern about what the past impacts of the Byker plant may have been, given that the Agency are so reticent in providing information about it.

There is a fairly continuous set of data for one year on the register for a period during 1993 to 1994. This data is shown in Table 2.

The monitoring regime required that continuous monitoring of particulate matter (*AF7690/3, PM*) and carbon monoxide (AF7690/6, CO) were kept, and the average and maximum figures for this data were reported monthly. Quarterly data were reported for sulphur dioxide (*AF7690/4, SO2*), nitrogen oxides (*AF7690/5, NOx*), hydrogen chloride(*AF7690/7, HCl*), hydrogen fluoride(*AF7690/8, HF*), and the heavy metals Nickel and Arsenic (*Ni+As*), Lead, Chromium, copper and Manganese (*Pb+Cr+Cu+Mn*), and Cadmium and Mercury (*Cd+Hg*). Once a year there were tests for dioxins and furans.

There is not a consistent set of quarterly monitoring return on the file – some of the data comprises annual returns. There are quarterly returns for various periods during the plants operations, but a number of the quarterly returns are missing.

Data is also provided on the fuel input to each boiler in the plant. The quarterly returns provide figures for the total quantity of dRDF, coal, tyres and wood burnt in each month. Again, there is not a consistent body of data because of the missing quarterly returns. Some fuel input figures are provided in Table 3.

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[34] §20 of *The Environmental Protection Act 1990*, as implemented through Regulation 15 of the *Environmental Protection (Applications, Appeals and Registers) Regulation 1991*, SI 1991/507 (as amended).

[35] Both under the IPC Regulation, and under the Agency's statutory objective under section 4 of *The Environment Act 1995*.

Table 2: Incinerator monitoring data from the IPC register

	AF7690/3, PM	AF7690/4, SO2	AF7690/5, NOx	AF7690/6, CO	AF7690/7, HCl	AF7690/8, HF	Ni+As	Pb+Cr+ Cu+Mn	Cd + Hg	Dioxin
Limits for RDF and (coal) mg m^{-3}, except dioxin, ng m^{-3}	30	300 (2850)	350 (1700)	100	50	2	1	5	0.2	1
April 1993 (mean/max)	15/ 25			40/ 90						
May 1993 (mean/max)	12/ 27			50/ 85						
June, 15/6/93 (mean/max)	15/ 30	195	293	55/ 95	20.9	0.73	0.02	0.171	0.026	0.3
July '93 (mean/max)	12/ 28			50/ 100						
Aug. '93 (mean/max)	15/ 30			60/ 100						
Sept. '93, 23/9/93 (mean/max)	20/ 30	215	305	70/ 100	42	0.92	0.026	0.191	0.03	
July '94 (mean/max)	4/ 24			55/ 95						
Aug. '94 (mean/max)	5/ 20			50/ 95						
Sept. '94 (mean/max)	4/ 15	254	288	50/ 90	28	0.87	0.024	0.2	0.018	

Table 3: Fuel input figures from the IPC register

	Boiler 1				Boiler 2				Boiler 3			
Month	*RDF*	*Coal*	*Tyres*	*Wood*	*RDF*	*Coal*	*Tyres*	*Wood*	*RDF*	*Coal*	*Tyres*	*Wood*
04/93	1,251				730				1,235			
05/93	1,410				610				1,258			
06/93	965				195				935			
07/93	106				710				1,358			
08/93	889				715				395			
09/93	1,202				600				360			
07/94	1,076					373			1,100			
08/94	1,175					428			1,163			
09/94	922					370			909			

all figures are in tonnes

Given the lack of consistent release data, the only source of detailed information is the HMIP Chemical Release Inventory. This is a publication summarising the total releases from IPC sites on a

yearly basis. However, there are problems with the data in the CRI itself, and the document as a whole contains many inconsistencies, and sometimes does not tally with the annual returns sent in by the process operators. But in an effort to provide a consistent analysis of the plants releases, data from the CRI for the years 1993 to 1996 is presented in Table 4.

The waste management license[36] for the Byker reclamation plant was also inspected. This has recently been updated as part of the change in operations on the waste processing side. However, a review of recent inspection reports by John Fairey, the Environment Agency's site inspector, has found numerous recurrent problems at the site. These are listed in Table 5.

Some of these faults, such as damage to the impermeable surfaces of the tipping area, may give rise to long term ground contamination problems. Others, such as litter or dust will give rise to nuisance in the immediate area. But a few of the faults, particularly the problem of birds roosting in the plant, represent quite serious threats to local health. This is because birds can carry potentially infectious material outside the plant. If they are feeding on the material in the plant they may also carry infectious material, with pathogens such as salmonella, outside the plant and deposit this material in the neighbouring areas through their droppings.

It is clear, from reading the waste license register, that the operations on the waste processing side of the plant are not carried out in strict compliance with the site license.

1.2. The plant operators

1.2.1. The division of the site

The operation of the plant, in simple terms, is split:

- The RDF plant's activities are run by Cityworks on behalf of Newcastle City Council, but during the late 1990s the management of Cityworks part of the plant was contracted out to NEM SITA (although the workforce are still Cityworks employees).
- The incinerator and the heat plant are operated by Contract Heat and Power (CHP), and before them Energy Supplies Ltd.

Figure 2 shows the location of the Byker Heat Plant within the area of the Byker Reclamation Plant. The Byker Heat Plant is a plant-within-a-plant – like a Russian doll. It has a different management, a different workforce, and is regulated separately by the Health and Safety Executive and the Environment Agency.

From the research carried out, it would appear that there is a 'hole in the wall' between the Byker RDF Plant and the Byker Heating Plant. Waste, as it passes through this hole, transfers from the responsibility of Cityworks/Newcastle City Council to Contract Heat and Power Ltd. At the other end of the process there is a conveyor belt that bring ash residues out from the incinerator. The ash on the incinerator is the responsibility of CHP, but as it falls off the incinerator into a skip that is provided by Cityworks it becomes Cityworks responsibility. This division of responsibility is important from the point of view of liability for the waste, and the impacts on the environment that it may cause.

[36] Environment Agency Waste Management License No. EAWML64016, 7th September 1999.

Table 4: Figures from HMIPs chemical Release Inventory

HMIP Chemical Release Inventory figures for Byker RDF and incinerator plants

	IPC Annual Limit		CRI '93 data		CRI '94 data		CRI '95 data		CRI '96 data	
	To air, kg/yr	To water, kg/yr	To air, kg/yr	To water, kg/yr	To air, kg/yr	To water, kg/yr	To air, kg/yr	To water, kg/yr	To air, kg/yr	To water, kg/yr
Byker RDF - Cityworks										
Cadmium	13/26	0.09/0.18	0.94	0.0200	0.94	0.0200	0.80	0.0080	0.80	0.0166
Mercury	4/8	0.035/0.07	2.00	0.0040	2.00	0.0040	1.00	0.0050	1.00	0.0020
Heavy metals (ex. Hg/Cd)	245/490	10.5/21.0	61.00	1.0000	61.00	1.0000	9.00	1.0000	0.90	4.0000
Suspended solids		900/1,800		1,309		1,309		1,105		1,144
Particulates	11,250	22,500	4,057		4,057		3,770		1,626	
(Note: two limit values are shown as the limit doubled between 1993 and 1994)										
Byker Incinerator - CHP										
Cadmium		unlimited		0.0333		0.0143		0.0166		0.0000
Carbon monoxide	25,500		11,510		7,750		10,160		11,200	
Hydrogen chloride	14,000		9,302		4,996		7,060		6,890	
Hydrogen fluoride	600		282		165		174		177	
Mercury		unlimited		0.0380		0.0031		0.0023		0.0000
Heavy metals (ex. Hg/Cd)	830		56		40		53		64	
Cadmium and mercury	830		7		3		5		5	
Nitrogen oxides (as NO2)	98,000		92,400		51,300		53,580		57,030	
Particulates	8,500		3,408		1,380		2,060		2,410	
Sulphur dioxide	84,000		68,930		45,650		42,550		43,760	
Solids (ash)	10,010		8,410		8,570		7,995		6,889	

Table 5: Summary of inspection faults noted on the waste license register for the Byker RDF plant

Date	Dust problems	Birds roosting	Fence broken	Tipping surface needing repair	Broken kerbs/ potholes outside	Not inspecting wastes	Odour complaint	Litter outside	Holes in roof, rain ponding inside
24/9/99	Y	Y	Y	Y	Y			Y	
25/11/99		Y		Y		Y			
11/1/2000		Y		Y			Y		
2/2/2000		Y		Y					
6/3/00		Y		Y			Y		
14/4/2000				Y					
8/5/2000				Y					
16/5/00		Y		Y				Y	
26/5/00		Y		Y					
12/6/00	Y	Y		Y					
23/6/00		Y		Y					
27/7/00		Y		Y				Y	
29/8/00				Y					Y

There is a complex web of associations that run through this site, stretching back many years. Understanding the evolution of those involved with the plant reveals much information about the plant itself. These details can be found from a number of sources, principally the Companies House file for each company. However, due to their turnover, most of the companies involved with Byker are small enough to qualify for 'small business' exemptions, and so do not have to file detailed records with Companies House.

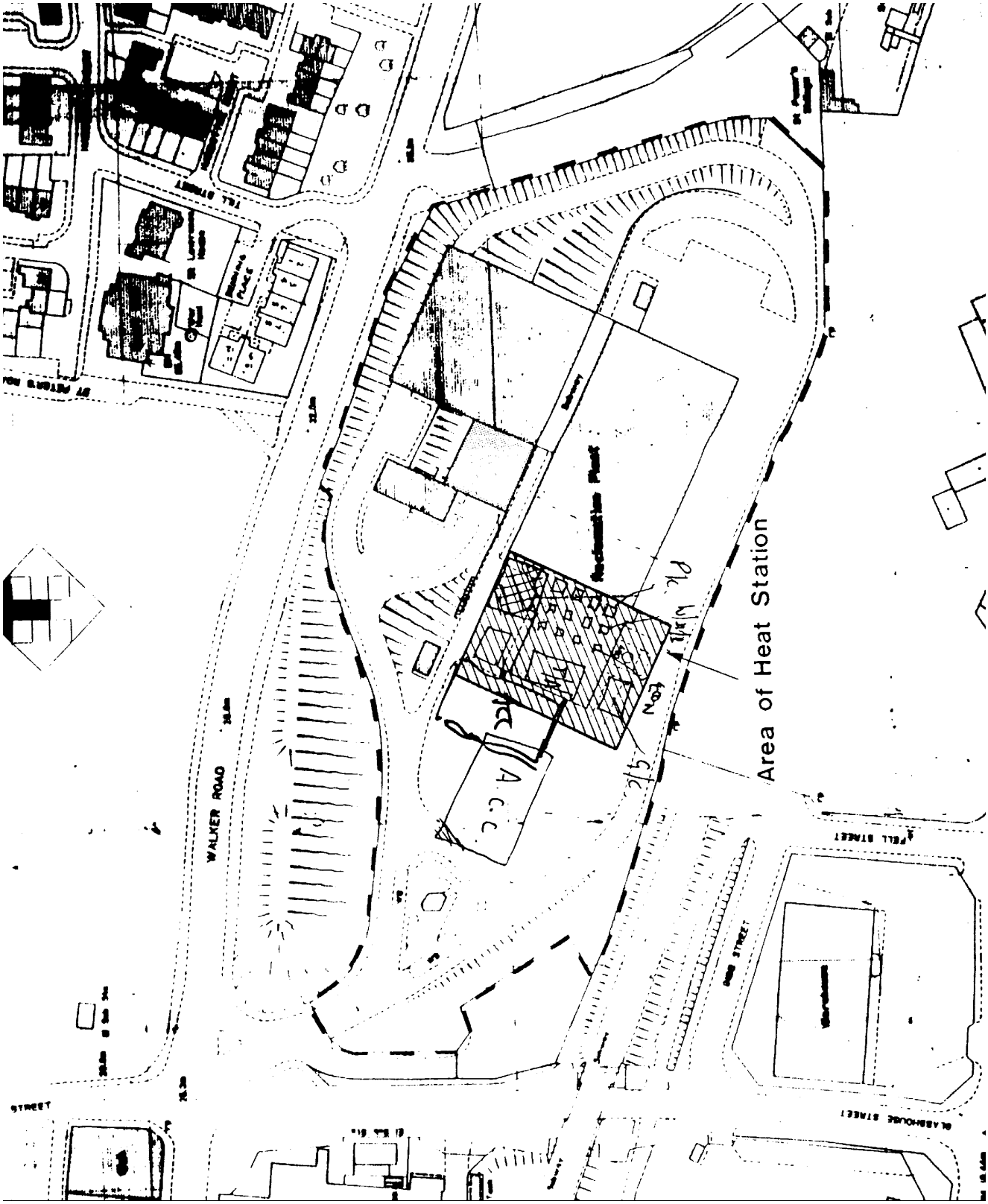
1.2.2. Energy Supplies Ltd and Contract Heat and Power Ltd.

As noted in section 1.1.3 above, the National Industrial Fuel Efficiency Service (NIFES) were recruited by The County Borough of Newcastle upon Tyne to advice on the development of the Byker plant. The company that eventually received the contract for operating Byker, Energy Supplied Ltd., has close associations with NIFES through three of its directors – Alan Tweedale, Andrew Carter and Howard Metcalfe.

Energy Supplies Ltd was incorporated[37] on 17th September 1982 for the purposes of, '*carry on the business of heating engineers and dealers in heating systems of every description whether operated by gas oil solid fuel electricity or otherwise*'. There were changes in directors around May 1985, at

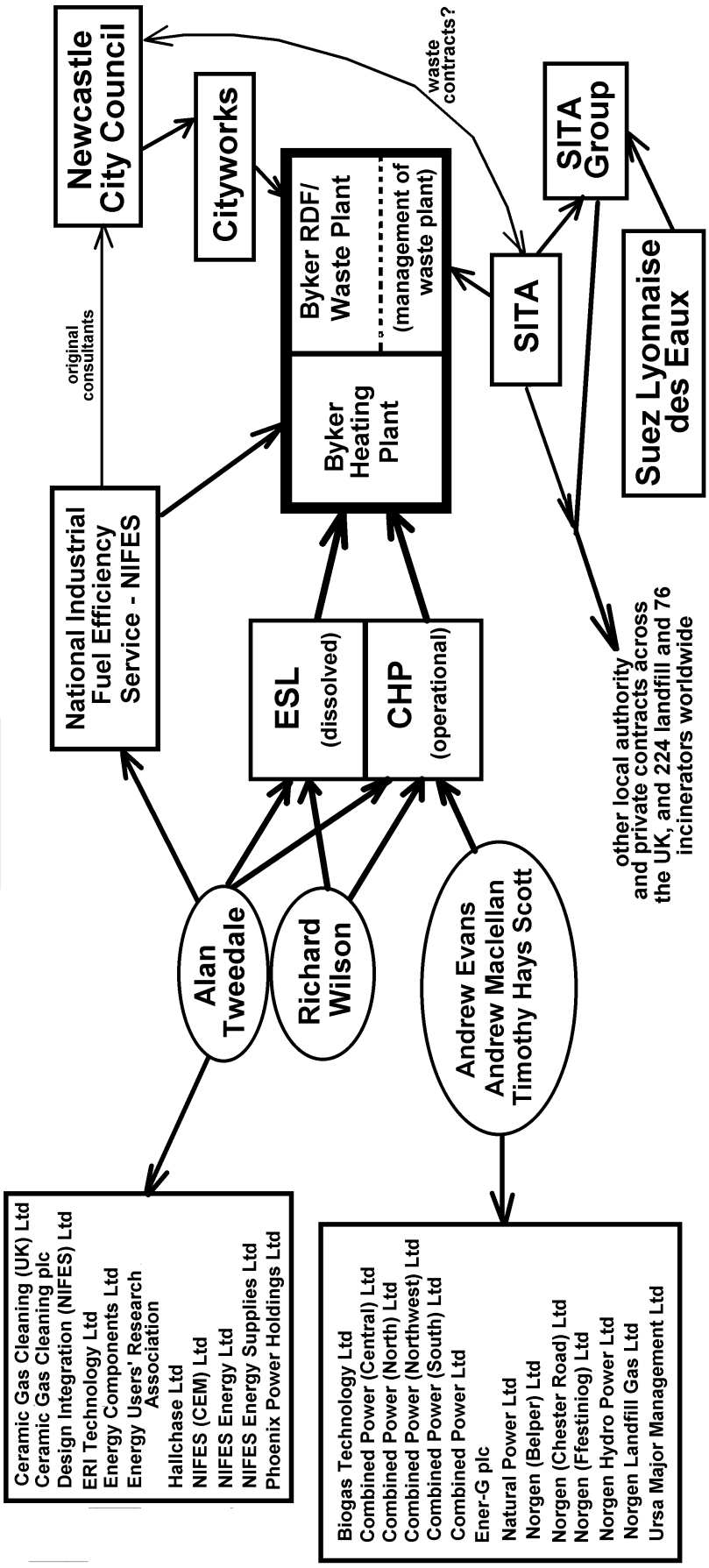
[37] Company number 1665130.

Figure 3: The layout of the Byker Reclamation Plant[38]



[38] Source: *Contract for the Provision of Waste Recovery Services – Tender Document*, Newcastle City Council July 1997

Figure 4: An organisational map of those involved with the Byker Reclamation Plant



which time Alan Tweedale joined ESL as a director, and the objectives in the articles of the company were amended by special resolution as follows:

> *To carry on all or any of the business of manufacturing fuel from waste and low grade heat materials producing energy from waste and other fuels marketing and selling fuels and energy carrying out associated service work consultancy and advisory work installing and operating such plants and fuel producing equipment and servicing thereof for and on behalf and in conjunction or partnership with industrialists local authorities other public bodies hospital authorities commercial enterprises*

Over its history ESL had 10 main directors[39] (i.e., excluding temporary appointments):

- A.W. Tweedale [appointed May 1985];
- Sir J. Smart [appointed May 1985, resigns May 1987];
- C.A. Prendergast [appointed May 1985];
- G.E. Newton [appointed May 1985, resigns August 1990];
- P.A. Kreamer [appointed May 1985, removed from the board at an extraordinary general meeting, September 1990];
- M.T. Stainton [appointed May 1985, resigns January 1990]
- John Wilson [appointed August 1987, resigns May 1990]
- Richard Wilson [appointed April 1993]
- Howard David Metcalfe [appointed April 1990]
- Andrew William Carter [appointed April 1990]

In April 1987, Alan Tweedale became the major shareholder of ESL, taking 4998 shares. In the financial statement of March 1988 this had increase to 5,000. This same statement listed the company's main business as 'making fuel from waste materials'.

In July 1991, ESL agreed a mortgage with the Westpac Banking corporation. It would appear that they needed to raise capital to put into the business, possibly to improve the plant at Byker and a similar plant on the Isle of Wight. The mortgage agreement is a useful source of information as it lists ESL's important 'assets':

- A design/build/operate agreement with the Isle of Wight council for the waste plant dated 14/3/91;
- A Non-Fossil Fuel Levy agreement for IoW (a guaranteed contract for 'renewable energy' from the Department of Trade and Industry);
- A planning consent to operate the IoW plant dated 7/3/91;
- A design/build/operate agreement with Newcastle City Council dated 27/3/91;
- An agreement for the operation of the 'special plant' with Newcastle City Council dated 26/5/87;
- An agreement with Newcastle City Council for the operation of a 'special plant' at Cruddas Park, 19/5/89.
- An exemption under Clean Air Act to operate Byker plant granted 23/8/90, extending until 9/7/91;
- A letter from Newcastle Upon Tyne Development Corporation, 19/7/91, indicating that changes to plant to permit energy generation would not require planning permission.

[39] Details of all the other directorships held by the main directors of ESL and CHP are listed in Annexe 20, page A-48.

This agreement also lists the plant's insurers for public liability of Lloyds (policy dated 22/19/92).

This mortgage causes problems for ESL. It would appear that a failure to replay on the mortgage led to the Westpac banking corporation applying for an order to wind up ESL. The administrative receiver's report of August 1985 notes that ESL has a viable business – running the Isle of Wight and Byker reclamation plants. Unaudited accounts from 31/3/94 to 1995 indicate losses on ordinary activities before taxation – resulting in cash flow problems. ESL was then involved in litigation '*in relation to the supply of plant and equipment*'. The debt at this time was £3,362,500 plus £61,000 interest. 20 pages of creditors are listed in the receiver's report in relation to operations in Byker and the Isle of Wight. The petition for winding up sought on 30/8/95, and the process was completed on 25/3/96.

At this stage the assets of ESL somehow transferred to a new company, Contract Heat and Power Ltd. (the process is not clear, but presumably CHP bought the assets of ESL from the receiver).

CHP was incorporated[40] as 'Awardferry Ltd' on 2/10/95 (an off-the-peg company created by an agent). The name was then changed to ESL Energy Supplied Ltd. on 6/10/95. The name was finally changed to Contract Heat and Power on 19/3/96. There are five main directors, and the company's 1,000 shares are held by timothy Hays Scott. The registered office is currently based in Salford.

Over is history, CHP has had five main directors[41] (i.e., excluding temporary appointments):

- Andrew John Evans [appointed December 1995];
- Timothy Hays Scott [appointed December 1995];
- Richard Wilson [appointed March 1996];
- Andrew Ian Maclellan [appointed December 1995];
- Alan Walter Tweedale [appointed March 1996, resigned July 2000];

The next company return was due on the 30th October, and so wasn't on file when the records were requested from Companies House. The next accounts are due on the 31st January 2001.

1.2.3. Newcastle City Council and SITA UK

Newcastle City Council have inherited the waste polices and assets of the Metropolitan Authority of Tyne and Wear and the County borough of Newcastle upon Tyne before them. However, Newcastle City Council have clearly, since their establishment in 1986, sought to develop the Byker plant. However, it is clear that the whole scheme is severely flawed, not least because it consistently loses money[42].

The original purpose of the scheme was to use waste to create fuel to use in large industrial boilers. This had two clear problems:

[40] Company number 3109022.

[41] Details of all the other directorships held by the main directors of ESL and CHP are listed in Annexe 20, page A-48.

[42] Letter from Newcastle City Council, November 2000. See Annex A19, page A-47.

- Coal-fired boilers had problems burning the dRDF pellets – the results of the trials at the Byker plant in the early 1980s are a testament to this[43];
- More significantly, many of the large companies on Tyneside who were identified as possible buyers of the RDF pellets in the late 1960s had closed after the recession of the early 1980s.

However, it was clearly the decision of Newcastle City Council to proceed with the operation of the RDF plant, even when they themselves were the only significant customer, both for the Byker Heating plant, and the Cruddas Park development.

Newcastle City Council's services contractor – Cityworks – operated the waste sorting and RDF production plant. The RDF plant was a major source of nuisance to local residents, not only because of odours form RDF production, but also from the emission of particulates – made worse by fires and problems with the ventilation inside the plant.

It is not clear what level of involvement, other than fielding complaints from the public, the elected members of Newcastle City Council have had in the decision on the operation, and the commitment to future operation, of the Byker plant. It is not necessary to fire the district heating system with RDF – the plant could easily be converted to natural gas, which would also result in a considerable cost saving. It would appear that the City Council's officers are aware of this, especially as they are now recommending a large gas-fired CHP project for the city centre, heating the civic centre and the University[44].

In an attempt to improve operations, Newcastle City Council employed SITA UK to bring in their own management to run the plant. Cityworks staff still carried out the operations, but this was under the direction of SITA managers. SITA is, according to their own claims, the fourth largest waste group in the world, and the largest in Europe. SITA UK are part of SITA Group, which holds the international portfolio of waste assets. In turn, SITA Group are owned by Suez Lyonnaise des Eaux.

It is not clear what knowledge or role SITA had in the spreading of ash from Byker incinerator in Newcastle. When Communities Against Toxics recently mentioned SITA in one of their publications on Byker, SITA immediately wrote to complain that they had absolutely no connection with the ash contamination. However, given that SITA managers run the Byker site with the exception of the heating plant, it is difficult to see how, if they were on site during the period of the ash spreading, they could not have been aware that the ash was being taken off-site by Cityworks.

In 1997, Newcastle City Council issued tender documents for the operation of waste collection and recovery services in Newcastle. That process is still not complete as the City Council has suspended concluding the contracts procedure until the results of the Byker Working Group – a group of residents and local organisations commissioned by the City Council to consider what the future policy for waste disposal in Newcastle should be – has reported. However, in advance of the Working Group reporting, the waste officers recommended to the Council Cabinet at their meeting in early November 2000 that SITA be accepted as the contractor, and that the waste contract be phased in three stages beginning in January 2001. Whilst not approving the expansion of the Byker incinerator,

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[43] *An Assessment of Refuse Derived Fuel on a Fixed Grate Industrial Shell Boiler*, ETSU Report B-1088, 1984. Contract no. E/5A/CON/1088/174/072. See Annexes A3 to A7, pages A-6 to A-18.

[44] The proposals were discussed at the Council Cabinet meeting on the 15/03/2000 – report by the Director of Cityworks and Director of EEC, '*Energy Provision*'.

it approved all other aspects of the waste strategy[45]. This followed on from a report to the City Council meeting in June where the officers recommended that SITA operate the waste transfer facilities at Byker and Benwell for the next 15 years[46].

In terms of finding detailed records of who authorised what actions, the public records of the proceedings of Newcastle city Council are not very helpful. It is clear that within Cityworks, there was a decision taken to remove ash from the Byker site and transfer it to other sites. It is not clear whether those operations were in anyway sanctioned officially. Already it would appear that the records of transfers that the Cityworks offices have are incomplete. The initial list of sites has since been supplemented with information supplied by Cityworks employees who transported ash around the city.

It is also not clear whether, at any time, the elected members of the City Council were made aware that, in contravention of the IPC authorisation of the Byker plant, ash was being diverted away from landfill for other purposes. The logical inference must be that there was some knowledge of the operations being carried out by Cityworks amongst the elected members, or that the elected members were not engaging in the appropriate oversight of Cityworks' activities.

1.3. The management of ash from Byker incinerator

1.3.1. Approved ash disposal procedures

The correct procedure for the management of ash from the Byker incinerator is unequivocal:

> *IN3. The variation notice permits the combustion and deposition of ash and spent lime from boilers 1, 2, 3 into one skip. The skip will be under permanent cover to prevent fugitive releases into the air, deposition directly onto land or leaching of metals. Ash/spent lime skips will continue to be transported to a local landfill.*[47]
>
> *1.1.7. Ash and spent lime shall be conditioned and contained so as to minimise their release into air.*[48]
>
> *4.1. The Company shall undertake appropriate measurement and analysis of all releases from the process which are designated for off-site disposal to ensure that accurate information on the nature, quantity and type of waste may be given to those persons or companies disposing of the waste.*[49]
>
> *Ash generated by combustion of the fuel falls from the chain grates into a water filled trough. Spent lime and ash from the bag filters is transferred by a screw feed into the*

[45] The proposals were discussed at the Council Cabinet meeting on the 15/11/2000 – report by the Director of Cityworks, '*Waste Management Contract*'. See Annex A.26, page A-76, to this report.

[46] The proposals were discussed at the City Council meeting on the 7/6/2000 – report by the Director of Cityworks, '*Update on Byker Reclamation Issues*'.

[47] Fourth variation, IPC authorisation AF7690, December 1995. See Annex A.14, page A-37.

[48] Section 1, IPC authorisation AF7690, March 1993. See Annex A.11, page A-34.

[49] Section 4, IPC authorisation AF7690, March 1993. See Annex A.12, page A-35.

> *trough. Both the wetted ash and spent lime are conveyed to an external open skip by a screw feed. This material is disposed to landfill.*[50]

That this material did not go to landfill, when all indications were that it should, is therefore an exception. Over the period during which ash was being diverted from landfill the incinerator produced up to 40,000 tonnes of ash[51]. That a minimum quantity of 2,000 tonnes, 5% of the ash stream, or at least 200 to 300 lorry movements, could take place without any clear policy or authorisation on the use of this material being in existence is highly irregular.

There were other controls on the disposal of ash operated by the planning authority. On the 14th December 1978, the City Council's Development Control Sub-Committee gave planning permission in relation to the detailed design of the Byker plant[52]. This decision of the committee required,

> 6. *That details of the arrangements for handling and disposing of ash and other waste materials shall be submitted to and approved by the City Council as District Planning Authority before construction starts on the site, and shall be carried out in accordance with the approved plans before the first use of the premises for any purpose*.

Without access to the full planning files it is not possible to confirm whether this condition was met. If these plans also required ash to go to landfill, then a technical breach of planning control could have also taken place. But as well as governing the initial disposal of ash from the plant, any significant change to the ash disposal procedures agreed at the outset of the project could be considered a change to the planning regime operative on the site. Any substantial change should therefore have been referred back to the planning department for their opinion.

There were clear statutory procedures governing the disposal of ash. That these were not adhered to, and that at no point were CHP, Cityworks or the SITA management aware of the breach of these procedures clearly demonstrates a lack of understanding of the regulatory parameters the site was required to operate within.

1.3.2. The discovery of the ash contamination

According to Newcastle City Council[53],

> *Ash from the Byker Heat Station has been used for the construction of surface footpaths, bridleways and hardstandings at various locations in the city though mainly for paths in allotments since 1994.*
>
> *This process was ceased in mid-1999 after fears were raised about the chemical composition of the ash and Newcastle University was commissioned by the City Council,*

[50] Explanatory memorandum, IPC authorisation AF7690, March 1993. See Annex A.13, page A-36.

[51] The 40,000 tonnes figure was quoted in a report to the City Council meeting by the Director of Cityworks on the 7/6/2000 – '*Update on Byker Reclamation Issues*'.

[52] Ref. NC/40378/DD – Development control committee meeting, 21st April 1978, also reported to the Tyne and wear Waste Disposal committee 2nd May 1978.

[53] Newcastle City Council press release 7/04/2000, *Precautionary Advice For Some Allotment Holders In Newcastle.*

with advice from the health authority, to sample and analyse the ash at a number of allotments.

Initial results have now been received from this analysis which show, in some cases, raised levels of some metals and dioxins.

Concern about the effects of the ash being spread on the allotments in Newcastle began partly as a result of the proposals to increase the size of the incinerator. As people began to research the possible impacts of incinerators, information came to light about the toxicity of incinerator ash. This led some of the allotment holders to commission their own sampling of the ash during late 1999. The results of these tests, some of which were above the ICRCL's trigger levels for gardens, in turn caused Newcastle City Council to commission their own surveys at the end of 1999.

On the 19th January 2000, a public meeting was held at Byker Primary School, attended by over 200 members of the public, to discuss the proposed expansion of the Byker incinerator (I also attended and spoke on the panel at this meeting on behalf of some Byker residents). Concern was expressed at this meeting about the effect of the ash[54]. The meeting concluded with the meeting calling for a public inquiry into the expansion of the incinerator to assess the impacts of past operations.

During the Spring, preliminary results of the city Council's testing programme, being carried out by the University of Newcastle upon Tyne, began to emerge. Representatives of the Health Authority and Newcastle City Council met on the 4th April to decide how to deal with these initial results. This led, on the 6th April, to the Director of Public Health for the North Tyneside Health Authority, Tricia Cresswell, and the Head of Public Health and environmental Protection for Newcastle City Council, Stephen Savage, issuing 'precautionary advice' to the public[55]:

The Director of Public Health, Newcastle and North Tyneside Health Authority, and the Head of Public Health and Environmental Protection, Newcastle City Council, have decided to issue the following precautionary advice:

- *Children aged 2 and under should not play in the named allotments in order to avoid contact with the ash;*
- *Eggs and poultry and other animal produce from the named allotments should not be consumed until further notice;*
- *All produce from the named allotments should be thoroughly washed and root vegetables should be peeled before eating.*

The University of Newcastle published the full research in a report[56] in May 2000. This report shown significant levels of contamination in the ash paths at sites receiving Byker ash. The report provides details of:

- The sites receiving ash, and the years deposits were made (see Table 6 below);
- The concentrations of dioxin/furans (as I-TEQ) in the sampled sites (see Table 7);

[54] Newcastle City Council, *Draft Minutes of the Public Meeting Re Byker Reclamation Plant*, 19/01/2000

[55] Letter from Newcastle and North Tyneside Health Authority, *Health Issues Arising From The Use Of Ash From The Byker Incinerator On Allotment Pathways*, 6th April 2000. See Annex A.17, page A-41.

[56] *Report On The Analysis Of PCCD/PCDF And Heavy Metals In Footpaths And Soil Samples Related To The Byker Incinerator*, Dr Tanja Pless-Mulloli/Dr Richard Edwards, Department of Epidemiology and Public Health, University of Newcastle upon Tyne, May 2000. This report is available from Newcastle City Council's website: http://www.newcastle.gov.uk/

- The average/median levels of heavy metals and dioxins at the sampled sites (see Table 8);
- And, for comparison with the sample results, the 'recommended levels' of heavy metals in soils for different types of site are provided (see Table 9).

Note that Tables 6 to 9 of this report have been directly extracted from the University of Newcastle report[57].

The results, as described in the report, were as follows:

> *Copper, lead and zinc were major contaminants in the large majority of samples. Levels were in the order of magnitude that could be expected in slag from municipal waste incinerators. 13 out of 16 ash samples showed a characteristic pattern of simultaneous elevated levels of copper, lead and zinc.*
>
> *Arsenic, mercury, nickel contamination was not a major problem in any samples, chromium contamination was measurable, but not a major problem, cadmium contamination was considerable in a majority of sites.*
>
> *There was a massive contamination with dioxins/furans in a large majority of Byker ash samples. The median of 16 ash samples was 918 ng/kg I-TEQ, values ranged between 11 and 4224 ng/kg. Contamination with dioxins/furans was in the order of magnitude that would be expected in fly ash from municipal waste incinerators. Contamination with dioxins/furans was highest in those samples with a high copper content. A characteristic zigzag shaped pattern of the sums of dioxins and furans was found, apparently indicative of Byker derived ash. This pattern was not found in soil samples from the vicinity of the plant, or in the ash from the coal-fired power station.*

This last point is significant. According to Contract Heat and Power[58], and Newcastle City Council[59], the ash from the burning of RDF at Byker had similar properties to ash from coal-field power stations. This had been the position of the plant operators since the application for the Integrated Pollution Control (IPC) license in June 1992. An analysis of both fuel and dRDF composition is provided in the application (see Table 10 below), as well as an analysis of the releases to land (see Table 11). If these statements are taken from the dataset assembled for the IPC application it is difficult to see how this comparison is made. If we compare the results from the monitoring by the University of Newcastle with the ash results in the IPC application, there is certainly a good fit for the levels of cadmium and zinc. To provide a conclusive match would require the full analysis of the ash used as the basis for the IPC application. But if the values for heavy metals in the ash were to be within the sample range for the Byker ash taken from the allotment paths, then it is difficult to see if this material were ever to have been suitable for reuse on land.

We do have to consider if the information presented by ESL/CHP represents a meaningful dataset. As noted in the IPC application then the sampling systems operated by ESL at the time of the application left considerable doubt about emission levels. In relation to hydrogen chloride emissions the application states (and there were exclamations in the margin at this point, presumably from the HMIP officer reviewing the application):

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[57] Tables 6 to 9 of this report are extracted from, respectively, Tables 1, 4, 6 and 7 of the University of Newcastle report

[58] Letter from Alan Tweedale, Managing director of Contract Heat and Power, 17th November 1999. See Annex A16, page A-39, of this report.

[59] Letter from John Dobson, Agency Services Manager of Newcastle City Council, 9th November 1999. See Annex A15, page A-38, of this report.

Table 6:

List of locations with ash according to Newcastle City Council November 1999 (in alphabetical order)

No	Category	Name	to of ash	Years
1	O	Big Water	30	96, 97
2	A	Blaney Row[1]	50	97, 98, 99
3	O	Blaney Row	40	97,98
4	A	Blucher	10	95
5	A	Branxton B	30	94, 99
6	A	Brickfield	20	99
7	A	Brunswick	20	99
8	A	Christen Rd	100	97
9	O	Coach Lane Throckley	20	95
10	O	Coronation Road	40	96
11	A	Coxlodge	40	94
12	A	Denton Bank	50	94, 97
13	A	Denton Dene	110	94, 95, 96, 97, 99
14	O	Dinnington Rec	40	96
15	A	Fenham Nursery	150	94, 95, 96, 97, 99
16	F	Feversham School	80	96
17	A	Hulne Terrace	10	98
18	O	Jesmond Old Cementry[2]	10	98
19	A	Jesmond Premier	10	95
20	A	Jesmond Vale	20	94
21	A	Keebeldale Pigeons[3]	10	98
22	F	Lightwood Avenue	40	95
23	A	Little Moor	50	95, 97, 98
24	A	Moorside	50	97, 99
25	O	Other site[5]	40	98
26	A	Nun's Moor	40	94, 98
27	O	NE Mason Farm	80	96
28	O	Newburn Riverside	40	99
29	A	Walkergate Hospital	10	96
30	O	Reith Burn Throckley	40	98
31	A	Ridgewood Crescent	40	97
32	A	Salters Lane	20	94
33	O	Stamfordham Rd	40	96
34	A	St Anthony's[4]	10	99
35	A	St Michael a	20	94
36	A	St Michael b	20	94
37	B	Three Hills	140	95
38	O	UFAMS	90	96, 97
39	O	Walbottle Dene	10	97
40	A	Walkergate Hospital	10	96
41	A	Walkergate 3a	70	95, 96, 97, 99
42	A	Walkergate 3b	100	94, 96, 97, 99
43	A	Westmacott Str	100	94, 95, 96, 97
44	A	Whinneyfield Rd	10	97

A: Allotment, B: Bridle Path, F: Footpath, O: Other, exact nature of site has not been established, [1] Site listed as allotments as well as under other sites [2] According to later information this load was not delivered, [3] Classed as other site on original list and reclassified as allotment following inspection, [4] according to later information no evidence of ash, [5] private property, the owner did not wish the name to be released

Table 7:

Arsenic and heavy metal concentrations in mg/kg, PCDD/PCDF content in ng/kg I-TEQ

		As	Cd	Cr	Cu	Hg	Ni	Pb	Zn	PCDD/ PCDF
ASH SAMPLES FROM ACROSS NEWCASTLE										
1	Coxlodge	10	5.4	78	1180	0.2	37	390	529	4224
2	Lightwood Av	10	6.7	101	3620	0.2	86	397	567	2015
3A	Walkergate Hospital A	84	0.7	10	30	1.0	15	186	32	16
3B	Walkergate Hospital B	8	1.0	73	576	0.2	39	183	369	35
4	Ridgewood Crescent	10	1.0	30	70	0.2	43	85	339	88
5	Keebledale P	9	4.3	93	912	0.1	40	409	490	440
6	Brunswick	10	2	13	84	0.1	33	430	209	373
7	Christen Rd	12	11	104	2350	0.1	187	619	1420	3535
8	Denton Dene	12	5.4	141	1360	0.3	77	51	676	1636
9	Fenham Nursery	12	7.2	126	1770	0.2	57	515	1070	2521
10	Walkergate 3b	15	5.9	93	2330	0.2	44	481	1010	976
11	Westmacott Street	10	7.8	115	1770	0.2	45	590	1180	2123
12	Three Hills	13	6.0	96	1070	0.2	46	399	952	415
13	Feversham School	7	0.4	13	10	0.1	14	17	31	11
16	Walkergate 3a	23	4.2	91	605	0.3	54	404	504	1932
ASH SAMPLES FROM NEAR INCINERATOR										
14	St Michael a	15	5.7	182	1020	0.6	47	620	731	783
15	St Michael b	16	6.4	61	400	0.3	34	338	446	860
SOIL SAMPLES FROM WALKER ROAD										
17	Pl123/124 u	38	2.5	81	292	1.1	136	1000	1830	26
18	Pl 52 u	22	1.4	58	172	0.8	43	480	402	34
19	Pl 29 d	26	1.7	57	430	1.0	58	722	772	36
20	Pl 115 d	24	1.4	68	207	0.6	45	693	431	88
CONTROL SAMPLES										
22	Highbury	10	0.6	53	62	1.2	40	278	214	13
23	Oxnam Cr	18	0.8	41	155	0.3	70	579	334	16

As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Hg: Mercury, Ni: Nickel, Pb: Lead, Zn: Zinc, PCDD/PCDF: dioxins and furans; u = undisturbed soil, d = disturbed soil

Table 8:

Results:

Descriptive statistics of 16 Byker ash samples for heavy metals [mg/kg] and PCDD/PCDF in I-TEQ [ng/kg] and guideline values for soil[1]

	Arsenic	Cadmium	Chromium	Copper	Mercury	Nickel	Lead	Zinc	I-TEQ
Dutch list[2]	20	1	100	50	0.5	50	50	200	
Basler list[3]							target value		5
Mean	12	5.0	88	1195	0.2	55	399	659	1373
Median	**11**	**5.7**	**93**	**1045**	**0.2**	**45**	**407**	**548**	**918**
Minimum	7	0.4	13	10	0.1	14	17	31	11
Maximum	23	11.0	182	3620	0.6	187	620	1420	4224

[1]This analysis included the sample from near Feversham School, which is unlikely to have received ash from Byker, but was included in the list of sites, [2] Guideline values for further risk assessment for contaminated land from the Netherlands, [3] Target values for PCDD/PCDF contamination of soil

Table 9:

Recommended levels of heavy metals in soil with different uses (*8, 12, 13*)[1] in mg/kg soil (ICRCL in brackets)

	Play-ground	Allotment or garden	Sport field	Park	Agriculture
Arsenic	20-25	20-40 (10)	35 (40)	40 (40)	40
Cadmium	2-10	1-2 (3)	2 (15)	4 (15)	2
Chromium	50-200	70-100 (600)	150 (1000)	150 (1000)	200
Copper	50	50 (130)	100	200	50
Mercury	0.5-10	2 (1)	0.5 (20)	5 (20)	10
Nickel	40-70	70-80 (70)	100	100	100
Lead	200	200-300 (500)	200 (2000)	500 (2000)	500
Zinc	300	300 (300)	300	1000	300

[1] The ICRCL list distinguishes between contaminants which may pose a hazard: Arsenic, Cadmium, Chromium, Lead, Mercury, and those that are phytotoxic but not normally hazards to health: copper, nickel, zinc

Table 10: RDF Fuel analysis by Warren Spring (all % w/w)[60]

"Byker dRDF":		Coal – "Lynmouth washed smalls":	
Moisture	9.5-12.2	Moisture	15.5% w/w
Ash	9.5-14.0	Ash	7% DMAF
Volatile matter	66.5-69.2	Volatiles	30.6% DMAF
Fixed carbon	3.9-9.3	Fixed carbon	46.9% DMAF
Ultimate analysis dry:			
Carbon	34.4-38.7%	Total carbon	82.0% DMAF
Hydrogen	5.05-5.7%	Hydrogen	5.2% DMAF
Nitrogen	0.53-0.98%	Sulphur	1.3% DMAF
Chlorine	0.19-0.50%	Chlorine	0.8% DMAF
Sulphur	0.12-0.15%		
Lead	26.2-38.6mg kg-1		
Chromium	12.5-16.9mg kg-1		
Copper	11.4-64.8mg kg-1		
Manganese	157-206mg kg-1		
Nickel	7.8-10.4mg kg-1		
Arsenic	43.6-52.1mg kg-1	Arsenic	11-30ppm
Cadmium	1.3-2.1mg kg-1		
Mercury	3.4-4.8mg kg-1		
Bulk density	370-400kg m-3	Bulk density	480-520kg m-3

[60] This data is extracted from the tables in part 3 of ESL's IPC application, June 1992.

Table 11: Ash analysis[61]

	Typical Analysis, mg kg-1	Hourly, kg	Annualised tonnes pa.	*Newcastle University Monitoring*
pH	9-11			
Al	6,100	3.599	28.7	
As	2	0.001	0.008	*11*
Cd	6	0.003	0.024	*5.7*
Cd (water soluble)	<0.01	--	--	
Pb	200	0.118	0.094	*407*
Pb (water soluble)	<1.0	0.0006	0.0047	
Hg	0.1	0.00006	0.0004	
Zn	530	0.312	2.497	*548*
Zn (water soluble)	2	0.001	0.008	
Na + K	not detected			
Total metals:			*31.33*	
SiO2	304,000	356.4	2,851	
Na2O	47,576	28.07	224.6	
K2O	22,796	13.45	107.6	
Fo2O3	53,661	31.66	253.3	
MgO	29,746	17.55	140.4	
CaO	182,000	107.64	861.1	
CaOH	42,034	24.8	198.4	
SO3	3,966	2.34	18.7	
Cl	474	0.28	2.3	
C	6,407	3.78	30.3	

Analysis by Warren Springs Laboratory

> *Although there are no data available giving ambient hydrogen chloride concentrations, it is likely that these concentrations are low*[62]

It is also clear that ESL were aware that the incinerator ash collected from the bag-house filter would contain dioxin compounds because they state in the IPC application:

> *The chlorinated material in the fuel could lead to the production of Dioxins and Furans. These are minimised by maintaining a combustion chamber temperature of 1350C which is well above the recommended 850C, and the calculated residence time is 1.23 seconds. The selection and design of gas cleaning equipment took account of the presence of small quantities of Dioxins and Furans in using a lime injected bag filter to further reduce emissions.*

If ESL used lime injection on the principle that it would take out the dioxin load, as well as other contaminants, from the gas stream, they must have logically known that the reuse of this material would have been heavily dependent upon the particular quality of it. Certainly, it should not have been released for reuse without detailed testing to ensure that the material posed little risk for the

[61] This data is extracted from the table in part 6(a)(ii) of the IPC application. The 'Newcastle University' data is the median of samples taken from the University of Newcastle monitoring report, May 2000.

[62] Chapter 6 of ESL's IPC application, June 1992.

purpose it was being put to. This note of caution about the reuse of ash being dependent upon testing is actually the position taken in the 1967[63]:

> *After magnetic separation, larger objects can be removed from the residue by screening as a first stage to achieving a more uniform product.*
>
> *Possible uses for the residue which should be considered more closely as part of a detailed plant design would include land reclamation, road fill and sub-base material, building blocks, etc. Some further treatment such as grading would be necessary were any of these to be adopted. Specific recommendations are not possible until the actual residue of the plant in operation has been analysed and tested.*
>
> *The ultimate aim would be to dispose of all residue, if not at an overall profit, at least at a saving of the haulage costs and this ideal is, in fact, claimed by some continental plants. However, any financial benefit derived from residue disposal should be considered as a bonus and it is stressed that there will always be a need to hold vehicles or containers in readiness to effect residue disposal irrespective of market fluctuations or alternatively to have stand by tipping space within the incinerator site.*

So, even at this early stage, despite the potential for reuse of this material there is clear caution. However, ESL's IPC application notes that[64]:

> *The spent lime and dust removal screws transport the material to the submerged ash extraction system where the total solid discharges are mixed and conveyed to an open skip. The skip is removed daily by the City of Newcastle for disposal to a licensed landfill site. Trails have been carried out on the possible use of this material for hardcore and building block aggregate.*

An identical statement is made in the application for a new IPC authorisation[65]:

> *The spent lime and dust removal screws transport the material to the submerged ash extraction system where the total solid discharges are mixed and conveyed to an open skip. The skip is removed daily by the City of Newcastle for disposal to a licensed landfill site. Trials have been carried out on the possible use of this material for hardcore or building block aggregate.*

No information is available about these block-making trials, where they took place, whether this material was sampled, or what happened to this material when trials ceased. Also, given previous concern, there is no information regarding the quality of the material used in these trials, and whether it was bottom ash, fly ash, or a mixture of both.

Following the application for a new IPC authorisation, the Environment Agency put various questions to CHP. In their response to these questions CHP describe their current proposals for ash management. This states[66]:

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[63] Appendix 5(c), *Refuse Incineration in Newcastle upon Tyne – Project Appraisal*, Newcastle Upon Tyne Corporation, January 1969.

[64] Section 3(f), ESL's IPC application, June 1992.

[65] Contract Heat and Power, *Proposed modifications and upgrading of existing RDF fired CHP scheme* – application to the Environment Agency, October 1999.

[66] Paragraph 4.2.1, letter from CHP to the Environment Agency regarding IPC application, 26th June 2000.

> *We are having on-going negotiations with a Yorkshire-based company, Ashco2000, who are in the process of establishing ash recycling sites which aim to encapsulate ash blocks for use in the Construction Industry, and the metal from combustion of shredded tyres would be thus incorporated. It is also possible to recover part of the steel ash (slag) by magnetic detection, but the scrap value of this metal is currently low and the ash from the wire has been degraded during combustion. Disposal of ash from both wire and from the RDF will be kept under constant review to determine safe methods of recycling*.

It would appear then that CHP still intend to institute some form of ash recovery at the plant. Ashco2000 is a recently formed company[67], trading under that name since March 1999. It would appear to be some sort of joint venture between two other companies, Omec Engineering and A.R. Davidson Associates, given they have provided the funding for the company's two directors, J. M. Beardsley and A.R. Davidson. There are few details about the actual operations of the company available, but the company return of May 1999 lists the company's interests as, "*ash/residue disposal systems and spares*", "*servicing*" and "*process consultants*". The financial statement for the trading period over 1999 provides a little more detail:

> *Principle activity of the company in the period under review was that of the design, manufacture, installation, commissioning and operation of plant to process ash and mineral products for the building and construction industry and the marketing of these products.*

It has been argues for a long period, not just at Byker but at other sites, that the ash from incineration processes can be reused as a secondary aggregate. The problem at Byker was that that took place with no proper monitoring procedure in place. Usually it is only the bottom ash that is proposed for use as an aggregate – as described in the 1967 project appraisal. The bottom ash itself is contaminated, and must be carefully handled. But at Byker the situation was far worse because both the bottom ash and the fly ash – containing the pollution load scrubbed from the incinerator's gas stream, were used. However, it would appear that this is NOT and isolated incident:

- There is evidence emerging that Edmonton incinerator, in North London, has also sent both bottom and fly ash mixtures for recycling. Again, there is no precise information on the purposes this material was used for, or whether testing was carried out prior to the use of the material.
- Enquiries made regarding Dudley's incinerator also reveal that a company has been taking ash from Dudley and processed it. This ash was then used to make the 'bottom coat' of tarmac (the base layer of tarmac about 5cm below the surface) of a road – in Netherend Lane in Cradley Heath. Dudley Council will not divulge if any testing was done, and have said that any sampling results that did exist would be 'commercially confidential' because they would have been carried out by the contractor who used the material to build the road. This is a curious position, given that at the time of the road's construction earlier this year Dudley Council courted national media attention for their 'green road'. It would appear that the processing of ash from Dudley has actually been taking place at a depot near to Tyseley incinerator in Birmingham, and may also include Tyseley's ash. It is also not clear if the ash used was just bottom ash, or a mixture of bottom and fly ash.

With regards to Byker, it is important that the quantities of ash removed from the site are precisely

[67] Company no. 3559343, formed as Bondco666 and changed to Ashco2000 on the 24th March 1999. The registered office of the company is in Southampton.

established so that this material can be accounted for. So far only 2,000 tonnes of ash have been identified. But from Newcastle City Council's own information, as much as 40,000 tonnes of ash may have been produced over the period the ash was used[68].

But there are clear inconsistencies in the Council's data when comparing the recent figures for ash spreading on allotments and paths, and figures for 'ash recycling' supplied in council documents. The table provided with the 'precautionary advice' in April 2000 indicated that in the year 1996/7, 200 tonnes of ash was spread on the allotments. However, the data supplied with the 1997 tender documents[69] for the waste disposal contracts lists under "Ash Recycled" a figure of 520 tonnes. Likewise, in a report to the City council's Recycling Working Group in March 1997, there is an entry under "Ash Recycled" in Table 1, for the year 1995.6, of 290 tonnes. The corresponding figure provided in April 2000, for 1995/6, indicates 180 tonnes. How can the City Council account for the 320 tonne discrepancy between these figures?

As well as allotments, ash deposits have been found at other sites such as parks. These sites are not just in Newcastle. For example a quantity of ash was found at a riding stable near Durham (this was brought for use at the stables, but the owners did not use it after they noticed that the run-off from the heap of ash was killing the plants around it). Cityworks kept no proper records of ash usage. It would also appear, from interviews with staff on site, that a number of loads of ash were not sent out across the site's weighbridge to verify the size of the load.

There is a clear lack of information about how this ash has been used. If this material was used in trials, by Cityworks or someone else, then information on these trials should be made available. There are also clear gaps in the knowledge regarding the use of this ash for other construction projects by Cityworks.

Under a worst case scenario, we could assume that this material has not only been used, either singularly or as a binder with another aggregate, to make rough paths, but it may also have been used as the sub base for Cityworks construction of paths and roads across the city. Potentially then, any road across the city may have this material beneath it. This represents a clear hazard to Cityworks staff, but also to the staff of the utility, telephone and cable TV companies who may be carrying out trenching or excavation works on roads and pavements. Further investigation of this issue clearly required.

1.3.3. The actions of Newcastle city Council in response to the ash contamination

As noted earlier, the press statement issued by Newcastle City Council indicated that they were very active in identifying the problem of the ash spreading. This is not precisely the case.

For many years Newcastle City Council have been 'committed' to the Byker Reclamation Plant. This can be seen from the many policy documents produced by the Tyne and Wear metropolitan authority, and more latterly Newcastle City Council, on the 'value' of the Byker plant. Therefore, in the face of

[68] Report of the Director of Cityworks to the City Council, 7/6/2000 – '*Update on Byker Reclamation Issues*'.

[69] Appendix 1, Table 3, *Contract for the Provision of Waste Recovery Services – Tender Document*, Newcastle City Council July 1997

any criticism of the Byker project, they have been very swift in defending the operation of the plant. Even as recently as 1997, officers in the council viewed the Byker Plant as a 'major asset'[70]. This makes an objective debate on the value of this plant, or even of Newcastle's traditional policy of incinerating waste, very difficult.

Prior to the closure of the pellet-making line in 1999, there were many problems with the operation of the plant. Even the Council's own reviews acknowledge 'difficulties' – for example the explosions in the pellet-making process that lost 30 weeks production[71].

When, in 1999, local residents questioned the expansion of the plant's capacity the various representatives of CHP, Cityworks and the City Council were defensive. Local residents raised the issue of the safety of the ash in late 1999, and in November 1999 representatives of Cityworks accepted that testing was necessary, and was being carried out with the University of Newcastle upon Tyne[72]. The Environment Agency also became involved at this time, after the issue was raised with them in August 1999, but it would appear that the Agency was not informed of the spreading of the ash until November or December of 1999[73].

The responsibility for the management and disposal of the Byker ash is, in practical terms, blurred. As the originators of the ash, CHP have a duty to ensure it's safe disposal under waste law, but also have a responsibility to ensure appropriate disposal under terms of their IPC authorisation. However, the position of CHP is that, contractually, it is Newcastle City Council's responsibility to remove the ash produced by the heating plant[74]. The removal of the ash was presumably carried out by Cityworks, but the issue also arises as to whether the managers of the waste processing side of the Byker Reclamation plant, SITA, had any involvement in or were aware of the diversion of the ash from landfill.

One of the arguments used by the City council is that, despite its excessive cost, the operation of the Byker plant is cheaper overall because of the costs of waste disposal saved through RDF manufacture/incineration. However, with the introduction of the landfill tax in October 1996, the disposal of ash would have meant an additional cost for the operation of the plant. Assuming ash production of around 8,000 tonnes per year, the cost would at least £56,000 if disposed as 'active' waste or £16,000 if disposed of as 'inert' waste. The question must arise as to whether a financial motive existed for the use of the Byker ash for other purposes[75].

The position of the City Council changed at the end of March 2000. On the 31st March the City Council received the preliminary results of the testing of the ash paths on allotments in Newcastle. On the 4th April, the Health Authority and Newcastle City Council met to decide how to deal with these initial results. This led, on the 6th April, to the Director of Public Health for the North Tyneside Health

[70] Minutes of the Newcastle City Council Recycling Working Group, 10th March 1997.

[71] Appendix 2, *Waste Disposal Plan – Draft Consultative Document*, Tyne and Wear County Council 1984. See Annex A.9, page A-27, to this report.

[72] Letter from Newcastle City Council, 9th November 1999. See Annex A.15, page A-38, to this report.

[73] Details contained in 'Byker CHP Plant fact sheet', Environment Agency, April 2000. See Annex A.18, page A-45, to this report.

[74] Letter from CHP, 17th November 1999. See Annex A.16, page A-39, to this report.

[75] For example concerns/issues regarding the future costs of waste disposal are dealt with in a report – *Waste Management strategy* – to the Newcastle City Council Recycling Working Group, 10th March 1997.

Authority, Tricia Cresswell, and the Head of Public Health and Environmental Protection for Newcastle City Council, Stephen Savage, issuing the 'precautionary advice' to the public[76]. On the 7th April the City Council also issued a press release[77].

Shortly after the announcements in early April, Cityworks began removing ash from the allotments identified in the University's report. The Cityworks staff undertaking the removal were issued with protective clothing. This led to criticism of the Council because for so long both Cityworks staff and allotment holders had moved/used this material with no protective clothing because of the failure of the City Council to understand that hazards involved. Concern was expressed on the cleanup o the ash, the future operation of the Byker plant, and the need for an independent inquiry to discover how the contamination had occurred at a number of local meetings[78].

On the 7th June, the Director of Cityworks made a report[79] to the City Council meeting. The report noted that allotment holders and residents had raised concerns about the use of ash, and that sampling had been undertaken after consultation with North Tyneside Health Authority. The report also notes, in relation to the allotments near the site in Walker Road:

> *The University report also included analysis of soil taken from the Walker Road Allotments which indicated an elevated level of dioxin although no ash had been deposited at this site. The analysis indicated that the pattern of dioxin found was one associated with deposition. The samples of soil taken also indicated elevated levels of heavy metal which would possibly be due to the industrial history of the area. Further samples of soil will be taken for analysis from the area surrounding the plant as part of the environmental impact assessment.*

The report concluded by noting that the Environment Agency was conducting and investigation. It also suggested that the Environment and Public Protection Select Committee of Newcastle City Council should also conduct and investigation.

At the next meeting of the Environment and Public Protection Select Committee on the 12th June, the issue of an investigation was discussed. The report[80] of this meeting noted that:

> *Whilst agreeing to undertake the above, Members emphasised the need to have independent officer support for this process, in order to ensure it was adequately co-ordinated at a reasonably senior level and requested that this matter be referred to Cabinet*

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[76] Letter from Newcastle and North Tyneside Health Authority, *Health Issues Arising From The Use Of Ash From The Byker Incinerator On Allotment Pathways*, 6th April 2000. See Annex A.17, page A-41.

[77] Newcastle City Council Press Release, 7th April 2000 – *Precautionary Advice For Some Allotment Holders In Newcastle*

[78] For example, the meeting of Heaton Community Sub-Committee, 15th May, 2000 (information on the meeting available through Newcastle City council's minutes of the meeting).

[79] Director of Cityworks report to City Council, 7th June 2000 – *Waste Management - Byker Reclamation Plant/Heat Station*

[80] Report to Cabinet of the Environment and Public Protection Select Committee's meeting of the 12th June – *Waste Management - Byker Reclamation Plant/Heat Station*

On the 19th June, the City Council Cabinet considered the issued and decided that[81]:

> *Given the complexity of this issue and the level of public interest, the Select Committee have proposed carrying out this investigation via a Working Group comprising Councillors A Bell, Graham, Povey, Rice and Schardt.*

In the mean time concern was still being expressed at the local level. For example the issue was discussed at the Grange Community Sub-Committee on the 28th of June where a report was given on the cleanup of the Christon road allotments. This made it clear that Cityworks had removed the ash from these allotments. However, reports from people in the area since this meeting have indicated that because of transport problems, the Cityworks staff who collected the ash on Christon Road allotments simply dug a large hole and buried the ash on site.

Via the Byker Working Group – the community-based inquiry into the Byker ash issue and future waste strategy in Newcastle – concern was also being expressed about the presence of certain council officers at the meeting of the working group, and the proposals for an investigation to be carried out by the City Council. It was felt that, as a culpable party, it was inappropriate for the Council to investigate itself because the Environment Agency may bring criminal proceedings against the City Council. For these reasons also, it was felt that the presence of officers at the working group's meeting who had been involved with the decision to spread the ash might prejudice their future defence.

On the 10th of July the meeting of the Environment and Public Protection Select Committee considered a detailed report[82] on the Byker ash problem and the proposals for a formal investigation by the council. The minutes of the meeting note:

> *It was agreed therefore that a working group of the Select Committee should be convened to address this issue, and identify a work programme. The Chair indicated however that independent officer level would be required at a senior level, and requested that this matter be referred to Cabinet. It was noted that the working group would be time limited, and the Opposition would have the opportunity to publish a separate report. AGREED – That Councillors A Bell, Graham, Povey, Rice and Schardt be nominated as the Select Committee's representatives on the Working Group.*

A report to the subsequent meeting of the Cabinet on the 19th July noted the report of the Environment and Public Protection Select Committee[83]. The report to the Cabinet also noted the concerns of the Environment Agency, very similar to those raised earlier through the Byker Working Group:

> *Shortly before the first meeting of the Working Group of the Environment & Public Protection Select Committee set up to inquire into the use of ash from the Byker Heat Station the Council received a letter from the Environment Agency requesting it to defer its investigation until the outcome of any possible legal proceedings of the Agency. The*

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[81] Cabinet 19th June 2000 – *Administrative Issues - Addendum Report*

[82] Environment And Public Protection Select Committee 10th July 2000, report of the Head of Legal Services Strategic Support Directorate – *Investigation relating to the Use of Ash from the Byker Combined Heat & Power Plant*

[83] Report by the Head of Legal Services Strategic Support Directorate to the Cabinet meeting of the 19th July 2000 – *Byker Ash Inquiry*

Agency felt that any prior publicity would make a fair trial impossible

However, despite the requests of the Environment Agency, the proposal before the Cabinet was:

Cabinet is recommended to approve the Working Group's proposed response to the letter from the Environment Agency as endorsed by the Select Committee on 10 July 2000….

Members of the Working Group were of the view that the Council investigation should continue but in order to avoid any prior publicity making a fair trial impossible it should not be held in public and the outcome of its investigation should not be made public until after the Environment Agency have concluded their proceedings.

The minutes of the Cabinet meeting also demonstrate the exceptional nature of the advice being given by officers to the Cabinet but, nether the less, the Cabinet went ahead with the recommendations of the Head of the Legal Services Strategic Support Directorate[84]:

During discussion, members were advised that the Council would normally accept the legal advice given from the Environment Agency but it was suggested that the Select Committee should meet in public subject to any further legal advice received on this suggestion.

RESOLVED - That the Select Committee be requested to hold meetings in public, subject to further legal advice. [Note – my emphasis included]

However, despite the Cabinet's belief that the City Council could appropriately investigate it's own actions, in a report[85] to the City Council meeting of the 1st November:

With regard to the ash from the Byker Reclamation Plant the Council decided to hold its own investigation in public and a working group was set up to do this. The Environment Agency said that the publicity generated by such an investigation could prejudice any future actions they may wish to take and asked the Council not to proceed. The City Council have accepted the agencies request and the working group was dissolved. The Environment Agency's report is expected by the end of November.

The Cabinet's meeting of the 19th July also considered a report[86] on the progress of the Byker Working Group. The report noted:

3.2 An interim statement was agreed by the Working Group at its meeting on 10 May 2000. This statement was as follows:

"The Working Group expressed its grave concerns about the preliminary results from the samples of ash and evidence of airborne dioxin emissions from the Byker Waste Plant. We therefore recommend that the City Council agrees to permanently cease burning rubbish or waste derived fuel under the current arrangements. In the meantime the Working Group will continue its work, including the alternative options from dealing with waste".

3.3 The Working Group has subsequently agreed a further statement as follows:-

[84] Unapproved copy of the minutes of the Cabinet meeting, 19th July 2000.

[85] Cabinet Members Report to City Council, 1st November, 2000

[86] Report by the Director of Cityworks to the Cabinet meeting of the 19th July 2000 – *Byker Plant Working Group*

"The Byker Working Group recommends the closure of the present incinerator and that a new one should not be built. If the Cabinet agrees, the Working Group will investigate waste management strategies. If the Cabinet disagrees, the Working Party will also prepare the criteria for a health impact assessment and an environmental impact assessment".

3.4 The Working Group is continuing to meet and examine the issues surrounding the future proposals. It is suggested that the statements submitted by the Working Group are considered in detail when the Cabinet reviews the Councils Waste Strategy.

The Byker Working Group is still organising a community-based investigation of the future of waste management in Newcastle. As yet, there has been no detailed response to the City Council from the working group on the content of a future waste strategy for Newcastle. However, despite the fact that the community's working group had not yet reported, the Cabinet went ahead[87] and approved a new waste disposal contract with SITA UK – currently the managers of the Byker Reclamation Plant:

The Council relied for many years on landfill sites outside the City as the principal means of handling the 180,000 tons of waste produced annually in Newcastle. Recycling and recovery of waste took place at Byker Reclamation Plant producing fuel for the combined heat and power facility.

Prior to the contracts for these operations elapsing, a review of the Council's waste management strategy was undertaken. The most advantageous option for the Council was identified through a procurement process conducted to secure waste management contract for the next 15 - 20 years.

PHEP Committee on 13 July 1998 authorised the Director of Cityworks, the Director of Strategic Support and the Head of Legal Services to negotiate the award of the contract to Northumbrian Environmental Management Ltd (now SITA Holding (UK) Ltd), or to Henley Burrowes should those negotiations fail.

PHEP Committee on 13 September 1999 approved the completion of formal documentation subject to the agreement of Finance Strategy Committee. Part of the process included consultation with local residents and this led to significant public concerns being raised. Arising from these concerns the City Council decided in February this year that no contract be entered into regarding "Byker Heat Station" until the BAN Waste Group had a reasonable time in which to consider the issues and come forward with views. Members are aware of the current progress of the Working Group having previously received speakers at Cabinet on behalf of the Group. The broad approach set out in this report has been shared with the Working Group. The recommended approach seeks to resolve short term issues and stabilise the waste disposal budget whilst not committing the council to proceed to combined heat and power. The joint working with the BAN Waste Group will continue together with wider public consultation and health and environmental impact studies with the results being brought back to Cabinet for full debate on all the issues. This approach is seen as compatible with the spirit of the decision of City Council in February and it is proposed that formal approval to the proposals set out in this report sought from City Council.

SITA UK, as noted earlier, have through their parent company a variety of interests in waste management. SITA operates a number of incineration plants across the world, and has recently

[87] Report to the Cabinet meeting, 15th November 2000 – *Waste Management Contract*

acquired new incineration capacity in the UK. SITA operates the waste incinerator at Teeside. It also recently took over a tyre incinerator in Wolverhampton (note, that plant had actually closed after an explosion, and recently local people have been picketing the plant to protest about SITA's proposals to reopen it). In July 1999 SITA also won the waste disposal contract for Surrey, involving the provision of 3 Material Recycling Facilities (MRF), a composting plant and 2 Energy from Waste (EfW) plants in the county.

SITA has also been vocal in defence of incinerators. SITA recently opposed the exclusion of incinerator residues from the contribution towards local authority recycling targets[88] – a contentious position given the recent events in Byker – in one of its 'lobby messages. In fact, one could consider their position to be in direct contradiction to the evidence currently emerging from the Byker ash contamination incident:

> *Quite simply, if ash can be recycled effectively, then there is absolutely no logical reason why it should not count in the recycling targets. In modern plants, bottom ash recycling is inert, is segregated from all contaminants, and has the potential to be used widely in the construction industry. Let's look at resource recovery in its widest sense and not get hung up on terminology, or on implementing policy by what is least controversial.*

In fact, SITA's position is, by it's own statements, unashamedly in favour of expanding incineration[89]:

> *Energy from Waste (EfW) incineration provides numerous environmental benefits. It significantly reduces the volume of waste; 'green' electricity is supplied to the National Grid; metals recovered before or following combustion can be easily recycled; and ash residues can be processed and used as aggregate substitutes.*
>
> *EfW will become an increasingly important option for waste treatment in the UK. New EU legislation to reduce waste to landfill, an escalating Government tax on the price of landfill, regional pressures on land, and the social and political desire to recover more value from the waste stream are all increasingly relevant trends.*
>
> *It is against this backdrop that EfW must play a more important role, not in isolation to other methods but as a valuable part of a package of services.*

Therefore, looking at the decision of the Cabinet on the waste disposal contract, Newcastle City Council has entered into a fifteen to twenty year contract with an organisation that has an avowed wish to expand incineration. At the same time, the Byker working Group, which has yet to report it's findings, has at least recommended[90],

> *the closure of the present incinerator and that a new one should not be built.*

It is difficult to see how the City Council will be able to resolved the corporate policies of its preferred waste contractor with the clear statements of the Byker Working Group to date which are clearly seeking to move the city Council away from incineration.

SITA itself has at times cast doubt upon whether high recycling rates are possible[91]. Therefore, given

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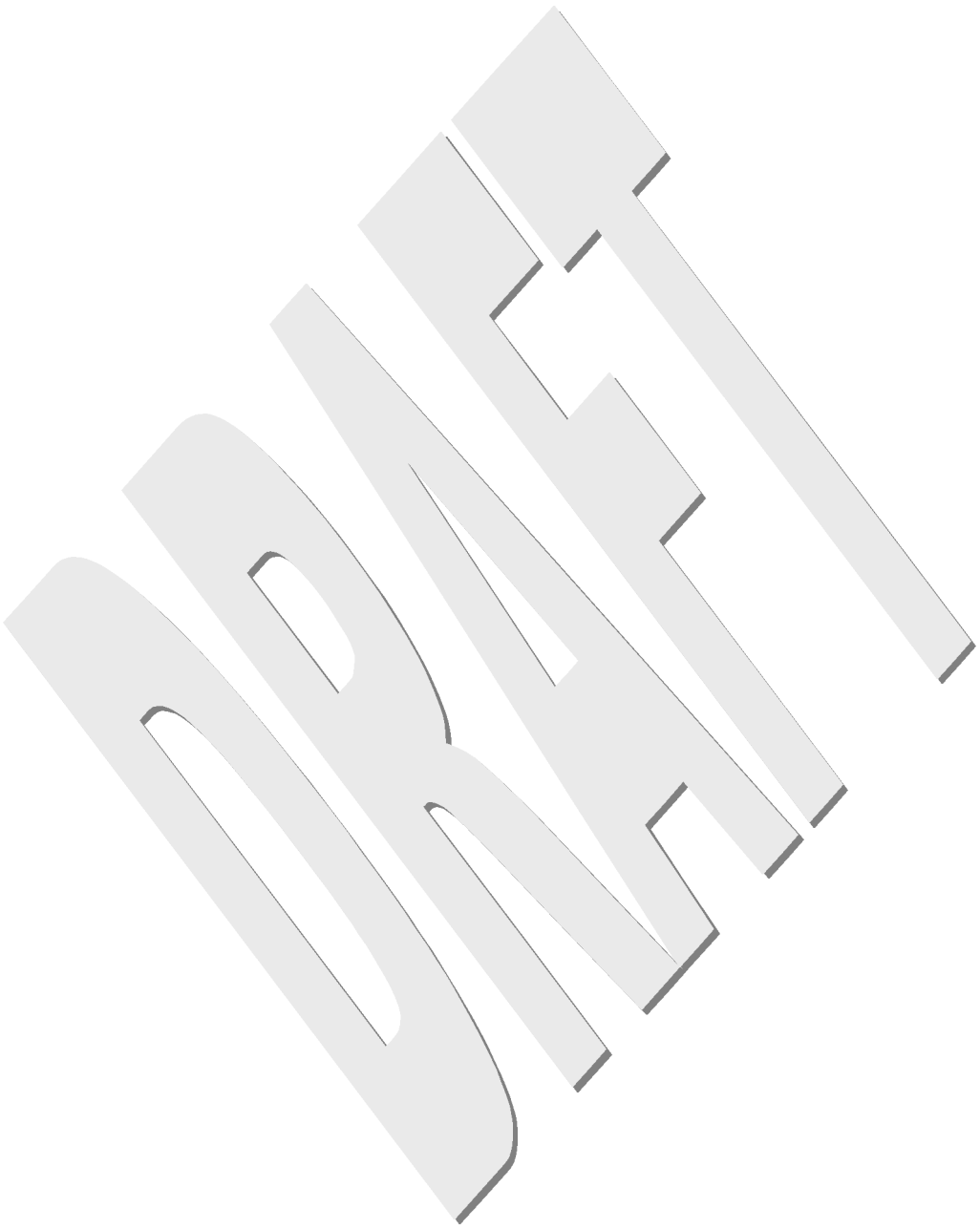
[88] SITA 'Lobby Message', 21st September 2000 – *The Folly of Excluding Ash Recycling*

[89] Statement on 'energy from waste' available from SITA UK's website – http://www.sita.co.uk/

[90] Report by the Director of Cityworks to the Cabinet meeting, 19th July 2000 – *Byker Plant Working Group*

[91] SITA 'Lobby Message', 21st September 2000 – *The Folly of Excluding Ash Recycling*

the types of strategy that the City Council's contractor is most likely to offer Cityworks, it is difficult to see how SITA could operate the contract if the Byker Working Group were to recommend high levels (40% plus) of recycling in Newcastle. For SITA to deliver such a contract would be to go against their position of the possibilities for recycling, and the role of incinerators, in local authority waste management systems.



Part 2: An Analysis of the Legal and Technical Issues Raised by the Ash Contamination in Byker

The following section considers specific issues in relation to the technical and legal basis of the events that have taken place in Newcastle. In particular, the development of waste policy, the operation of the Byker Heating Plant, and the legal responsibilities for the disposal of the ash from the Byker incinerator. Unlike Part 1 of the report, this part seek to provide more analysis and abstraction of data from the information available on events in Newcastle, rather than just reporting the factual content of reports.

2.1. Waste management in Tyneside

In the 1980s, before the requirement for local authorities to sell-off their waste management assets under the Environmental Protection Act 1990, Tyne and Wear council operated the Byker Pant, four other incinerators, the Benwell transfer station, six landfills sites and seven waste reception sites[92]. These sites handled municipal waste, as well as a proportion of the commercial waste streams in Tyneside.

Table 12 shows the source of and disposal to incinerator for the years 1982/3. This year represented, with the full operation of the Byker plant, the culmination of the waste disposal strategy developed by the joint working group of local authorities back in 1967.

Table 12: Sources of and disposal to Tyneside's incinerators, 1982/3

	Incinerators:				
Waste source:	**Tynemouth**	**Gateshead**	**South Tyneside**	**Sunderland**	**Byker HP/ Cruddas Park**
Direct input from:					
North Tyneside	62,785				
Newcastle	50				
Gateshead		32,865			
South Tyneside	651	514	47,627	197	
Sunderland		3,921		86,385	
Secondary from:					
CA/trade wastes:	7,992	7,078	5,660	7,848	
Benwell TS	224	3,932	3,862	403	
Byker RP	19,394	690	9,756		2,980
Total waste input:	91,096	49,000	66,905	94,833	
Metal reclamation:	996	1,018	500	640	249
Landfilled residue:	38,389	30,927	45,190	50,512	?

all figures are in metric tonnes, deposited at the various incinerators in the year 1982/1983

[92] *Waste Disposal Plan – Draft for Consultation*, Tyne and Wear Council 1984.

During 1982/3, 301,834 tonnes of waste were incinerated. This represents about 40% of the waste disposed of at County council waste facilities, but nearly 75% of the domestic waste collected by the local authorities on Tyneside. But the important feature of the waste system under Tyne and Wear's governance is that the Byker Plant and the Benwell transfer station were crucial in keeping all the incinerators running at capacity. Waste was transported from Byker and Benwell to the four main incineration plants to ensure they ran at full capacity. This can be seen from the data in Table 12. In fact the only transfer not to take place was between the Byker Reclamation Plant and Sunderland Incinerator.

The break up of the metropolitan authority in 1986 meant that the control of the incinerators was not unified. Hence there was less trucking of waste all over Tyne and Wear to plug shortfalls in capacity at the incinerators. During the early 1990s, as the incinerators began to close, waste deposits developed a new equilibrium with a network of landfill sites in Durham and Northumberland.

Newcastle City, in terms of other local authorities, claims a high level of recycling – around 30%. But much of this is due to the burning of RDF in the Byker Heat Plan. In terms of actual materials reclamation, Newcastle recycled only 5.9% of its household waste[93] – which puts it between Calderdale on 5.7% and Surrey on 6.1%. This is also below the average for the whole of England during this period – 7.4%.

The future strategy for waste management in Newcastle is currently unclear. The Cabinet of Newcastle City Council has undertaken to receive the view of the Byker working Group before they move to determine a new waste strategy for Newcastle[94]. However, in approving a new waste contract for the City[95] they have in effect determined a large part of the strategy, if only through their selection of SITA as their preferred contractor. Given that the new contract sets the broad objectives for the waste strategy, it is difficult to see how, if the people of Newcastle wish, a strategy could be set which seriously detracts from the new contract – certainly not without difficult renegotiations with SITA.

Newcastle City Council currently (1995/6 figures, as supplied in the tender document) produces around 180,000 tonnes of waste per year. The new contract envisages a 3-staged implementation to achieve the targets set in the new National Waste Strategy[96]. The overall aims of the new contract are:

- To double our recycling targets by 2003 (there is no figure attached to this, but as current rates are 5.9% we could assume this to mean 12%);
- To recycle or compost at least 25% of household waste by 2005;
- To recycle or compost at least 30% of household waste by 2010;
- To recycle or compost at least 33% of household waste by 2015.

These target are, in terms of other local authority recycling targets, low. For example, according to

[93] Figures taken from Newcastle City Council's returns to the Audit Commission for the year 1997/8.

[94] Report by the Director of Cityworks to the Cabinet meeting of the 19th July 2000 – *Byker Plant Working Group*

[95] Report by the Director of Cityworks to the Council Cabinet meeting on the 15/11/2000 – *Waste Management Contract*. See Annex A.26, page A-76, to this report.

[96] *Waste Strategy 2000*, Cm4693-2, May 2000

the Audit Commission's figures for 1997/8, Dorset County Council was already achieving nearly 30% – this in a predominantly rural area where recycling is far more difficult to achieve. In other areas, such as Daventry District Council, current 'diversion rates' for waste from landfill (that is, composting and the reclamation of recyclable waste) is around 37%. The setting of figures in the objectives for the contract does prejudge the strategy, but the contract agreed this month goes further still. As noted in the report to the Cabinet:

> *The proposed arrangements with SITA enable a phased implementation of the contract. This will allow uncontroversial measures to be implemented without committing the Council to phase 3 to produce waste derived fuel for use in the Byker combined heat and power plant. This would require health and environment impact assessments to be carried out and further debate and decision by the Council before any decision would be made to proceed or not to proceed.*

The phases outlined in the report to the Cabinet are:

- **Phase 1:**
  - Refurbishment of Byker Reclamation Plant with a new materials recycling facility (MRF) to recover ferrous and non-ferrous metals together with a compostable fraction. This compostable material will be taken to Ellington in Northumberland and will be converted to compost using windrows.
  - Community "bring" schemes will be increased to 200 throughout the City.
  - The Contractor will also provide funding of £110,000 per annum, which will be utilised to develop a range of sustainable waste management options, to include kerb side collection/separation at source, awareness raising and education programmes, home composting, materials recovery systems and greening the supply chain.
- **Phase 2:**
  - Once the redevelopment of Byker is completed it is intended that Benwell Transfer Station will be refurbished and relaunched as a further materials recycling facility (subject to any development proposals for the site). This will recover a range of materials from the commercial waste stream, which is currently landfilled.
- **Phase 3:**
  - The introduction of a further recovery system at Byker to produce a refuse-derived floc fuel to power plant at the adjacent heat station.

It would appear then, from the phasing of contract, that the Cabinet has determined the whole scope of a future waste strategy except for permitting the planned expansion of the Byker plant.

According the report to Cabinet, the first two phases will result in the following levels of reclamation:

- Dry recyclables via Byker, Benwell and bring schemes – 34,830 tonnes/year.
- Compost from upgraded Byker MRF – 40,200 tonnes/year.

On a waste stream of 186,500 tonnes/year, that represents a recovery rate, if all the compost is reused (which is not certain) of 40%, and a diversion of biodegradable waste from landfill (assuming half the total dry recyclables are paper) of 31%. The reclamation of 'dry recyclables' is nearly 19%. In terms of government targets:

- The target for 'recovering value' from municipal waste will be met for the year 2005, but not beyond that;
- The 'recycling rate' target (including compost) is met for all years;
- The 'biodegradable diversion' rate for the Landfill Directive may just be met – but this is a complex calculation because it assumes that no biodegradable material that was incinerated is composted

The National Waste Strategy reinforces the importance of the targets for minimising the disposal of biodegradable waste under the Landfill Directive. The Directive is based on 1995 levels of biodegradable disposal. Assuming:

- waste arisings in 1995/6 of 180,000 tonnes, less
- 40,000 tonnes for the RDF burnt at Byker, and that
- the waste is composed of around 32% paper and 35% of other organic refuse,

…produces a 1995-based 'biodegradable disposal' of 74,400 tonnes/year.

In any case, this is not an accurate calculation based on the data produced by the City Council. Article 2(b) of the Directive describes 'municipal waste' as:

> *"municipal waste" means waste from households, as well as other waste which, because of its nature or composition, is similar to waste from households*

The Directive therefore not only encompasses household waste collected by Newcastle City Council, but also a large part of the commercial and some industrial waste streams. The actual level of cuts in biodegradable waste disposal for the City may therefore have to be much greater.

Article 5(2) of the Directive requires that the weight of waste disposed to landfill to be reduced to (includes an additional 4 years for compliance for the UK under Article 5(2)) by:

- 75% of the 1995 level – a cut of 23,450 tonnes annually – by April 2010;
- 50% of the 1995 level – a cut of 46,900 tonnes annually – by April 2013;
- 35% of the 1995 level – a cut of 60,970 tonnes annually – by April 2020;

Without phase 3, the current strategy, as outlined in the contract, will barely meet the government targets. More importantly, the reliance on composting as a means to meet both the recovery and the biodegradable waste diversion target is prone to regulatory risk. The proposals for Byker and Benwell, given that the emphasis will not be on segregated collection, will mean that the organic fraction recovered for composting will contain a high level of contamination. If proposed standards for compost are introduced within the next few years, this could curtail the use of this material.

In any case, the actual level of organic waste composting is incredibly high. If we assume that 29% of the waste stream is organic matter, and another 15% is soiled paper, then to proposed 40,000 tonnes of composting represents around 50% of the mass of this material in the waste stream. It is not certain that this level can be recovered, unless all collected waste is processed. In any case, such composting would be in competition with the needs of the Byker Heating Plant for paper to make the RDF floc. Any cut in the proportion of paper and organic material, and hence an increase in the levels of plastics, could create problems with the operation of the incinerator.

It is clear that to provide certainty in meeting national recovery targets, that phase 3 – the expansion of the Byker incinerator – would be required. This is noted in the report to the Cabinet:

> *The Council, at a later stage, will need to determine whether or not phase 3 will commence. If the Council did pursue phase 3 it will increase recovery rates to over 73%. This could be delivered by 2003, well in advance of the government target of 67% by 2015. If it decides not to pursue stage 3 as set out, the Council would still have to achieve the above but by alternative means.*

The potential alternatives to the strategy outlined in the plan, considered by the city council, were mass burn incineration, kerbside collection, aerobic and biological degradation, pyrolysis/gasification, bring centres, home composting, centralised composting, large scale MRF plant and landfill. However, the report noted that these alternatives, '*are significantly more expensive than the proposed strategy, which balances the most appropriate elements to provide a viable way forward for Newcastle*'. However, no detail is provided to substantiate this. For example, does the assessment of these alternatives always include the operation of the Byker Heating Plant? If so, these alternative assessment are not valid.

In any case, it would appear that, rather than environmental criteria to define the form of the strategy, the main driver for this strategy is financial. As noted in a letter from Newcastle city Council recently, the Byker Reclamation Plant as a whole has been losing £300,000 to £400,000 per year[97]. The chaotic state of the finances surrounding the waste management budget in Newcastle is clearly a significant reason for adopting the new contract with SITA, as outlined in the report to Cabinet:

> *The exact timing of reductions will depend on the completion of each phase, however, on full implementation of phases I and II the £500,000 overspend on the cash limited budget will be eradicated. If the Council chooses at some stage to move to stage 3 further budget savings of up to £1m can be anticipated. The budget saving of £1M at phase 3 is necessary in order to repay an earlier corporate resource pool loan required to stabilise the budget in financial year 1999/2000. If phase 3 is not implemented, this loan cannot be repaid.*

This is a highly risky strategy. It is clear now that incineration will be excluded from any future energy subsidies under the non-fossil fuel levy (this was indicated a the recent policy speech by Stephen Byers[98], and following the exclusion of incineration as 'renewable' from the draft EC Directive on Renewable Energy by the European Parliament[99]). Likewise, a tax on incineration, possible in the next few years, would significantly increase disposal costs. We have to question whether the report to Cabinet provides an appropriate basis on which Newcastle City Council can plan future waste disposal, in particular with regard to regulatory risk. The potential for regulatory risk as is very important with regards to waste contracts as standards are changing so quickly. As long ago as 1998, DETR wrote[100] to all chief executives of local authorities and waste disposal authorities stating:

> *My purpose in writing is to explain that any existing contracts, or any contracts currently being negotiated, may not be a determining factor in deciding any requirements to be*

[97] Letter from Newcastle City Council, November 2000. See Annex A.19, page A-47, to this report.

[98] *The Green Industrial Revolution*, Rt. Hon. Stephen Byers MP, Minister of State for Trade, October 5th, 2000

[99] The European Parliament's debates on the draft EC Renewable Energy directive took place on the 17th November, 2000.

[100] Letter from Martin Nesbit, Team Leader DETR Waste Policy 4, to Chief Executives, 29th May 1998

> *placed on authorities by legislation to implement the requirements of the* [landfill] *directive. You authority will wish to bear this in mind when making decisions on waste disposal contracts, and to consider appropriate arrangements for the apportionment of regulatory risk.*

In total, the recent changes in waste policy within Newcastle City Council are, to say the least, confusing. A new contract has been agreed with SITA for the next fifteen to twenty years, but it has not been finalised. The Byker Working Group will continue to deliberate on the future for waste strategy in Newcastle, but many of the key decisions about the form of future strategy are set in the agreed phases 1 and 2 of the new contract. Finally, it is clear that, to be certain of meeting government targets, Byker incinerator must be refurbished and expanded. However, this is in direct opposition to the statements that have arisen so far from the Byker Working Group.

2.2. The operation of the Byker Heating Plant

The aims of the Byker Heat Plant, as stated in the CHP's IPC application of June 1992[101], were to:

> a. *Provide heat for the residents of the Byker District Heating Scheme at costs which are lower than those arising from the use of fossil fuels.*
> b. *Dispose of 33% of the City of Newcastle Municipal Waste by using the extracted light fraction, wood, cardboard, paper and light plastics, as fuel.*
> c. *Generate electricity for sale to the Non-Fossil Fuel Purchasing Agency under the Government's initiative to produce electricity from Non-fossil and Renewable alternatives.*
>
> *It is fundamental to the success of this project that the environmental aspects at all times show an improvement by comparison to the existing methods of waste disposal and power generation.*

We have to question whether these objectives were practical. Most significantly, with regard to point (a), the costs of heating to the Byker Wall residents are excessive. The comments made by residents of the dwellings receiving heat from Byker Heat Plant indicate that there are problems controlling the use of the energy. Thermostats do not always work, and even is Summer it is necessary to have the heating on. But the costs of the heat from Byker Heat Plant are more significant.

From enquiries made with residents of the dwellings supplied by the Byker Heat Plant, it has been possible to roughly calculate the economics of being tied to receiving the heat from Byker heat plant. This is actually quite difficult because the heat is not metered, and charges are made at a standard rate for different bands of dwelling. It is therefore difficult to provide any precise figures for costs. There are some figures indicating that the plant generates around 2 million therms[102] (around 59 million kiloWatt hours – kWh) supplied to 1,700 homes, and nearby municipal buildings. But in the absence of any detailed figures from the City Council/CHP indicating the distribution of the heat load, the only way to assess heating costs is to estimate the heating requirements for an average home in the Byker area (assumed to be between 12,000 and 15,000kWh per year).

[101] Chapter 2, ESL's IPC Application, June 1992.

[102] Paragraph 3.2.9, *City of Newcastle upon Tyne Recycling Plan*, 1992

The separate heating charges indicated in the rent books for 3, 4 and 5 bedroom dwellings supplied by the Heat Plant are shown in the Table 2.1. On the face of it these figures may seem to represent a steep increase in charges for heat. But these figures need to be manipulated to remove the effects of inflation, and them compare them to general domestic heating charges. Figures for both the retail prices index excluding mortgage payments (RPIX) and general prices for domestic energy are available from a number of sources[103]. Likewise other figures for this analysis have been taken from other relevant energy publications[104].

Table 13: Heating charges to Byker residents who are part of the district heating system

Year	Charge
1977/8	£4.06
1978/9	£4.20
1979/80	£4.49
1980/1	£5.76
1981/2	£7.78
1982/3	£9.58
1983/4	£8.86
1984/5	£9.46
1985/6	£11.42
1986/7 to 92/3	£11.88
1993/4	£5.00
1994/5 to 98/9	£11.88

Table 14: Comparison of Byker heat charges and the charges for equivalent conventional fuels

Assumptions:

- Total domestic energy use for space and water heating only is between 12,000 and 15,000kWh;
- The average split between gas and electricity usage for this purpose is 60% to 40% respectively;
- The prices for conventional fuels are those currently offered to domestic users by Scottish Power (gas 1.83p/kWh, electricity 5.01p/kWh);

Energy consumption & supply	12,000 kWh/year		15,000 kWh/year	
	Byker CHP	*Scottish Power*	*Byker CHP*	*Scottish Power*
Cost/kWh, p	5.15p	3.10p	4.12p	3.10p
Weekly bill	£11.88	£7.16	£11.88	£8.95
Annual bill	£617.76	£372.24	£617.76	£465.30

Note: For the CHP-derived energy to have a cheaper unit costs than energy from the cheapest current utility prices, energy use mist exceed 19,914kWh per year

Unlike the rest of the public, those on the Byker district heating system have no incentive to conserve energy. In fact, the more energy they use, the cheaper it becomes (as can be seen by the different unit costs for heat in Table 2.2 when supplied at 12,000 and 15,000 kWh/year). With un-metered energy there is also no cost–benefit for the residents to install insulation to conserve energy used for space heating – in fact just the opposite, it is a positive cost to install insulation since the cost is not recouped.

It is clear, on the current system, that the residents are paying two-thirds more at 12,000kWh/year energy consumption, and one-third more at 15,000kWh/year. If they use even less energy they pay proportionately more.

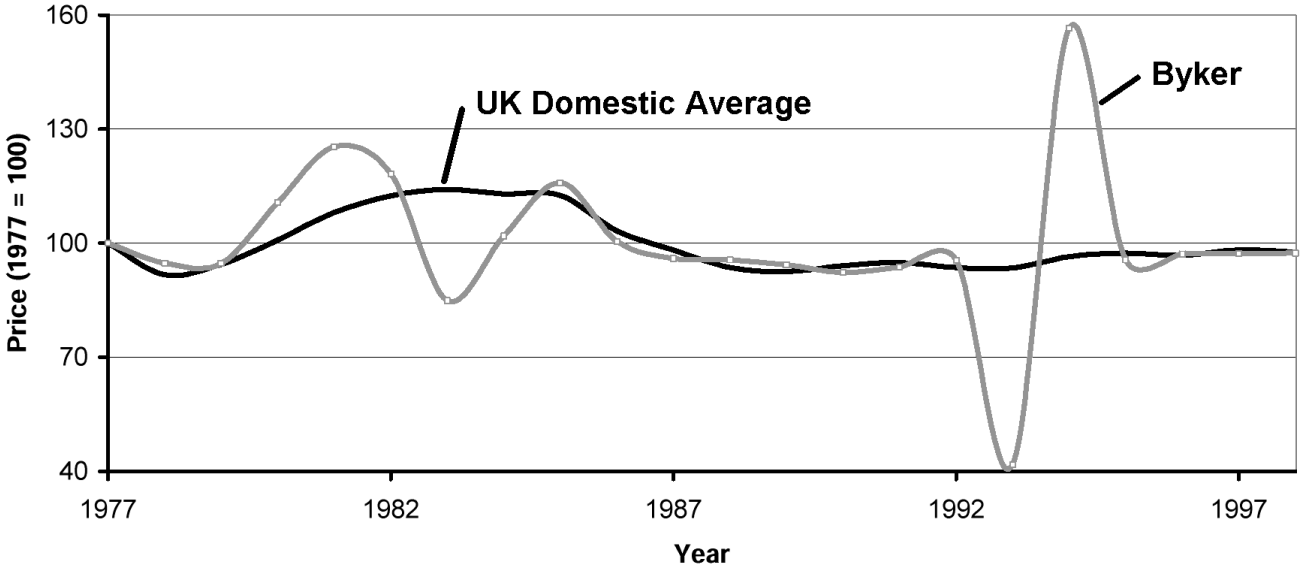
[103] The figures for this analysis were taken from the datasets made available for the indicators presented in the DETR's report, *Quality of life counts: Indicators for a strategy for sustainable development for the United Kingdom*, 1999. Indicators T3, *Prices of Key Resources – Fuel*, and B1, *Rate of Inflation* (note, these figures have been recalculated to provide figures based on the year 1977 rather than 1970).

[104] Principally: *The Energy Report 1999*, Department of Trade and Industry1999; and *Dual Fuel Prices Compared – Northern*, OFGEM, 2000.

The prices of energy from the Byker heat plant have not been significantly inflated over time – they are just excessively high. Taking the charges for heat from 1977 to 1998 and subtracting the RPIX over this period, it is possible to see the variations in fuel costs as opposed to merely economic inflation. This can then be compared to similar figures for the average costs of fuel for the domestic energy sector (this requires recalculating the UK figures from a 1970 to a 1977 base year). This gives pairs of figures, independent of inflation, based on 1977 values. The results of these calculations are shown in figure 2 (see the next page).

As can be seen, apart from one or two fluctuations – such as in the early 1980s when it appeared the cost of heat was subsidised by the City Council – the costs of Byker heat vary quite closely to national trends. It would appear therefore that the City Council have charged a rate that varies according to changes in the UK energy market, but that is just exceptionally expensive.

Figure 5: A comparison of UK average domestic heating costs, and those from Byker Heat plant, corrected to 1977 equivalent prices



Clearly the Byker Reclamation/Heat Plant fails the first objective (a) listed by CHP in their IPC application.

In terms of the disposal of waste as fuel (b), that has likewise failed. Section 5.9 and Appendix 10 of the NIFES appraisal study lists a series of large industrial sites in Newcastle that could utilise heat. Many of these companies closed during the 1980s and early 1990s, the casualties of the first major economic realignment of the UK economy as a result of globalisation. Even if these large energy users did exists today, it is difficult to see how they could utilise the fuel from the Byker plant. Not only have solid fuel boilers gone out of vogue, but also in the modern competitive energy market they could not compete with other fossil fuel sources. Newcastle City Council, through the use of this material to heat Byker, and formerly Cruddas Park, became their own best customer for this out-dated fuel. Clearly, objective (b) outlined in the IPC application has been compromised by the changing economic fortunes of the North East and the UK energy market.

2.2. The impacts and legal liability of ash spreading in Newcastle

There is more than one organisation involved in the complex web of interconnecting actions that has caused the current contamination of the environment from the Byker plant. Each has to be considered separately, since each has varying legal responsibilities with regards to the pollution from Byker. This section therefore considers the role of the incinerator operators, Cityworks and the Byker Reclamation plant management, Newcastle city Council and the Environment Agency separately.

2.2.1. Energy Supplies Ltd and Contract Heat and Power Ltd.

Energy Supplies Ltd (ESL) is a dead company. In terms of where we go from our current position in time, it has no role to play.

Contract Heat and Power (CHP) Ltd. is a live company. It also shares/has shared directors with the former operators of the Byker Heating Plant, ESL. Therefore, as a corporate body, it should have the experience to operate the plant, and the 'corporate memory' to ensure that past mistakes are not played out anew.

The IPC authorisation for the Byker Heating Plant, held by CHP, has very specific requirements of the plant operators. Under the current corporate and regulatory systems operating the Byker Heating Plant:

- CHP receive waste floc 'through a hole in the wall' and burn it.
- Whilst CHP become responsible for the handling of the floc as it passes through the wall, they also have a responsibility under 'duty of care' to ensure that the waste is what they are contractually engaged to handle.
- CHP handle and burn the floc, and then dispose of the residue under the terms of the IPC authorisation.
- CHP operate a removal system to take spent ash and lime from the incinerator, up a conveyor that discharges into a skip that is not within their operational area.
- In passing the ash to another operator they also have responsibilities under both duty of care and their IPC authorisation to dispose of this material appropriately.

The disposal of ash is controlled most clearly under the terms of the IPC authorisations fourth variation[105]:

> *The variation notice permits the combination and deposition of ash and spent lime from boilers 1, 2, and 3 into one skip. The skip will be under permanent cover to prevent fugitive releases into the air, deposition directly onto land or leaching of metals. Ash/spent lime skips will continue to be transported to a local landfill.*

Therefore, in discharging this material, CHP should have ensure that when the skip was removed that the material was appropriately disposed of under the instructions provided in the authorisation – i.e.,

[105] Fourth variation to the Byker IPC authorisation, AF7690/AN2927, 19th December 1995. See Annex A.14, page A-37, to this report.

to a local landfill.

Of course, the introduction to the IPC authorisation does not form part of the actual IPC authorisation (although it should be considered indicative of the operation of the process itself. But the authorisation itself also provides clear guidance on the management of ash as part of disposal:

> *4.1.1. The Company shall undertake appropriate measurement and analysis of all releases from the process which are designated for off-site disposal to ensure that accurate information on the nature, quantity and type of waste may be given to those persons or companies disposing of the waste.*

It is arguable that if CHP had honoured this part of the authorisation on a regular basis, rather than relying on analysis from the early 1980s, then the current situation may not have arisen. Cityworks would have been aware of the toxicity of the material, and unless they had a clear ignorance of the impacts of the pollutants present in the ash would not have used t for the purposes they put it to. This perhaps then represents the one clear failing by CHP, as part of the regulated procedures around the Byker Reclamation Plant, that may have contributed to the contamination of land across Newcastle.

Supplementary to the terms of the authorisation are the 'duty of care' guidelines. The purpose of paragraph 4.1.1 of the authorisation is to ensure that the receivers of waste from the Heating Plant could be certain of its content and treat/handle and dispose of it appropriately – a basic part of the duty of care principle. 'Duty of care' was introduced under section 34 of *The Environmental Protection Act 1990*. This introduced a legally enforceable 'code of practice'[106] for the management of waste. The code of practice introduces various standards for the receipt, handling, storage and disposal of waste. How precisely the code of practice applies to CHP is a matter for argument, but it certainly has effect in two areas:

- Ensuring the responsible handling of waste by the person who the material is transferred to; and
- Record keeping.

Duty of care would cover the receipt of waste by CHP. However, this transfer of material is also subject to the waste management license[107] held by Cityworks for the Byker Reclamation Plant, and so should also be subject to regular inspection by the Environment Agency. But on the ash disposal side, CHP alone is responsible for ensuring that the requirements of the code of practice are met. In particular, that the ash has been appropriately disposed of[108]:

> *5.2. Most waste transfers require no further action from the person transferring waste after the waste has been transferred. A producer is under no specific duty to audit his waste's final destination. However, undertaking such an audit and subsequent periodic site visits would be a prudent means of protecting his position by being able to demonstrate the steps he had taken to prevent illegal treatment of his waste.*
>
> *5.3. One exception is where a holder makes arrangements with more than one party. For example, a producer arranges two contracts, one for disposal and another for transport to the disposal site. In that case the producer should establish that he not only handed the*

[106] *Waste Management – Duty of Care: A Code of Practice*, Department of the Environment 1996.

[107] Environment Agency Waste Management License No. EAWML64016, 7th September 1999.

[108] Section 5, *Waste Management – Duty of Care: A Code of Practice*, Department of the Environment 1996.

waste to the carrier but that it reached the disposer. Similar considerations apply to a broker who may make arrangements on behalf of a waste producer with several parties (carrier, disposer etc.).

Clear, there is an emphasis under the code of practice that all transfers should be periodically verified. The question therefore arises as to what steps, to satisfy the code of practice and their authorisation, CHP took to ensure appropriate disposal.

Record keeping is an essential part of the new waste management framework that was introduced in 1994. The code of practice reinforces the need for records. All transfers of waste from one organisation to another should be accompanied by the appropriate paperwork – either a transfer note or an arranged 'season ticket'[109]:

C.1. The 1991 Regulations[110] *are made under section 34(5) of the 1990 Act and require all those subject to the duty to make records of waste they receive and consign, to keep the records and to make them available to the Environment Agency or to the Scottish Environment Protection Agency.*

C.2. The 1991 Regulations require each party to any transfer to keep a copy of the description which is transferred. An individual holder might transfer onward the description of the waste that he received unchanged in which case it would be advisable for the sake of clarity to endorse the description for onward transfer to the effect that the waste was sent onwards as received. If a different description of waste is transferred onwards, whether or not this reflects any change in the nature or composition of the waste, then copies of both descriptions must be made. The holder making the copy need not be the author of the description, which will often be written only by the producer or broker and reused unchanged by each subsequent holder.

C.3. The Regulations also require the parties to complete, sign and keep a transfer note. The transfer note contains information about the waste and about the parties to the transfer.

Season ticket provisions

C.4. While all transfers of waste must be documented, the 1991 Regulations do not require each individual transfer to be separately documented. Where a series of transfers of waste of the same description is being made between the same parties, provision is made for the parties to agree a "season ticket" - i.e. one transfer note covering a series of transfers (see paragraph A.4 above). A season ticket might be used, for example, for the weekly or dally collections of waste from shops or commercial premises, or the removal of a large heap of waste by multiple lorry trips. In the Departments' view, however, a season ticket should not extend for a period of more than 12 months from the date on which the first of the transfers subject to the arrangements takes place.

Duty of care: Controlled waste transfer note

C.5. The 1991 Regulations require these records (both the descriptions and the transfer notes) to be kept for at least two years. Holders (which includes where relevant, brokers) must provide copies of these records if requested by the Agencies.

[109] Annex C, ibid.

[110] *The Environmental Protection (Duty of Care) Regulations 1991*, SI. 1991/2839.

> *C.6. One purpose of documentation is to create an information source of use to other holders. It is open to holders (including where relevant, brokers) to ask each other for details from records, especially to check what happened to waste after it was consigned. A holder or broker might draw conclusions and alert the Agencies to any suspected breach of the duty if such a request were refused.*

Therefore, for the periods CHP was responsible for the operation of the Byker Heat Plant, they should have transfer notes or season tickets to cover all the transfers of ash from them to:

- Cityworks – if Cityworks were the sole agent CHP had an agreement with for the removal of ash; or
- the haulage contractor removing the waste on behalf of Cityworks – if Cityworks delegated the removal to another party; or
- the landfill site receiving the ash – if the landfill operator picked the material up themselves for disposal.

The question of liability for CHP rests on what they know of the disposal practices being carried out by Cityworks, or any other parties Cityworks had contracted for ash removal. If CHP never checked how the ash was being disposed of, to satisfy the conditions of their IPC authorisation, and the code of practice, then they are at fault. A prosecution could be brought under either if it were in the public interest. However, it CHP were aware of how Cityworks were disposing of the ash – by landspreading in Newcastle – and did nothing to stop it then that is far more serious. This would be a direct, mindful breach of their IPC authorisation. It would also be a clear offence under the duty of care code of practice.

Finally, there is the issue of the general contamination caused by the plant. As shown in the sampling conducted by the University of Newcastle, and acknowledged in reports before the City Council[111] (see extract earlier in the report), there are high levels of contamination around the Byker plant that are not associated with ash spreading. In terms of who is responsible for this contamination, it will be necessary to undertake some studies of the type and distribution of the contamination to see if the contamination is attributable to the Byker Heating Plant, or the emissions from the RDF manufacturing process.

If the Heating Plant were the source, then there would have to be an investigation to discover how such levels of contamination resulted from the apparently 'normal' operation of the plant (in terms of the regulation evident from the incomplete records kept by HMIP and the Environment Agency). Action may then be brought under air pollution control legislation. However, under the general principle established in a number of cases that 'damaging' levels emissions from a process regulated under air pollution control legislation should not be present outside the process boundary, those affected may be able to seek an action for damages.

[111] Director of Cityworks report to City Council, 7th June 2000 – *Waste Management - Byker Reclamation Plant/Heat Station*

2.2.2. Cityworks and the Byker Reclamation Plant Management

Cityworks received the ash from CHP, and according to the process agreed with HMIP/the Environment Agency, that material should have been sent to a local landfill. If we accept the position of CHP and the Environment Agency, then this is what they believed was happening. However, if we look at the actions of those involved, it is clear that there must have been wider knowledge about the use of the ash on allotments, paths and construction projects in Newcastle.

From the information gathered in interviews with staff at the Byker Reclamation Plant, it was apparently common knowledge that ash was not being taken to landfill, but was being used on sites in Newcastle. The source of the ash was also known to some of those running the allotment sites. It is also clear that the use of this material was acknowledged within Cityworks itself as an acceptable practice, to the extent that they included it in their figures for waste reclamation[112, 113].

The transfer of waste from Cityworks to the person receiving waste for final disposal is covered under the same provision of the duty of care code of practice outlined in relation to CHP above. However, as the organisation involved in the use of this material, Cityworks are bound by far stricter guidelines in relation to duty of care, but also in relation to waste licensing.

In relation to the reuse of waste, the code of practice has a 'grey area'. The assumption generally is that waste disposal is normally carried out under the terms of a waste management license – and hence the duty of care need not have regard to the endpoint in the waste transfer process. Likewise, the reuse of material is often governed by a waste management license, or an air pollution control authorisation. But, whilst a person who has received waste holds that material, the guidelines are clear:

> *2.1. All waste holders must act to keep waste safe against:-*
>
> *(a) corrosion or wear of waste containers;*
>
> *(b) accidental spilling or leaking or inadvertent leaching from waste unprotected from rainfall;*
>
> *(c) accident or weather breaking contained waste open and allowing it to escape;*
>
> *(d) waste blowing away or falling while stored or transported;*
>
> *(e) scavenging of waste by vandals, thieves, children, trespassers or animals.*
>
> *2.2. Holders should protect waste against these risks while it is in their possession. They should also protect it for its future handling requirements. Waste should reach not only its next holder but a licensed facility or other appropriate destination without escape. Where waste is to be mixed immediately, for example in a transfer station, a civic amenity site or a municipal collection vehicle, it only needs to be packed well enough to reach that immediate destination. Preventing its escape after that stage is up to the next holder. However; there are wastes that may need to reach a disposal or treatment site in their original containers. For example, drummed waste. In such cases, holders will need to know through how many subsequent hands; under what conditions; for how long; and to*

[112] Appendix 1, Table 3, *Contract for the Provision of Waste Recovery Services – Tender Document*, Newcastle City Council July 1997

[113] Report to the Newcastle City Council Recycling Working Group, 10th March 1997 – *Waste Management strategy*

> *what ultimate treatment their waste will go in order to satisfy themselves that it is packed securely enough to reach its final destination intact. If an intermediate holder alters waste in any way, by mixing, treating or repacking it, then he will be responsible for observing all this guidance on keeping waste safe.*

The actual process of spreading waste on land, or using it in construction, is also governed by waste licensing. The deposit of any waste material, in terms of the construction of the law under section 33 of *The Environmental Protection Act 1990*, is unlawful at any time, unless the deposit waste it is carried out within the terms of either[114]:

- A waste management license, issued by the Environment Agency; or
- A waste licensing exemption issued by the Environment Agency.

Spreading of waste material is permitted on land as an 'exempt' activity within certain limits. These limits are defined within Schedule 3 of *The Waste Management Licensing Regulations* (WMLR) *1994*[115]. The details of how the regulations are to be implemented and interpreted, together with detailed interpretation of licensing exemptions, are provided in the accompanying DETR circular[116]. Waste license exemptions are controlled under Regulation 17. Irrespective of the requirements of the IPC authorisation for the Byker Heat Plant, there are two possible licensing exemptions that Cityworks could have used as a justification for the spreading of the ash:

- The spreading of waste for the benefit of land – under paragraph 7, schedule 3 of the WMLR, explained in detail in paragraphs 5.66 to 5.86 of Circular 11/94[117]; and
- Waste for construction – paragraph 19, schedule 3 of the WMLR, explained in detail in paragraphs 5.152 to 5.159 of Circular 11/94[118].

The first of these exemptions would only be valid where the ash was being used to improve the spoil. For example, as some allotment holders have reportedly done, digging this material into the soil to improve the soil characteristics. Given that this is not ordinary vegetable matter, the material spread would have to conform to the list of materials in table 2, part 2, of schedule 3 of the WMLR. This table does not list incinerator residues specifically. The table does list 'waste lime'. But this material is not waste lime because it is primarily the ash from an incineration process. In any case, there is an overall condition that the material must be spread for '*benefit to agriculture or ecological improvement*'. Clearly, the nature of this material is such that this condition cannot be met. Finally, the terms of this exemption require that the location of where this material is spread must be communicated to the Environment Agency – clearly, a condition not fulfilled.

The exemption for construction is clearly suited to operation that Cityworks used the ash from Byker

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[114] The purpose/working of section 33, waste licenses and waste license exemption is outlined in Annex 4 of DoE Circular 11/94. Relevant extracts from the circular are provided in Annex A21, page A-51, to this report.

[115] Statutory Instrument 1994/1056.

[116] Department of the Environment Circular 11/94, *Environmental Protection Act 1990: Part II, Waste Management Licensing/The Framework Directive on Waste*. 19th April 1994.

[117] Extracts from DoE Circular 11/94, relating to exemption 9, are provided in Annex A.22, page A-55, to this report.

[118] Extracts from DoE Circular 11/94, relating to exemption 19, are provided in Annex A.23, page A-60, to this report.

for. The description of materials suitable for construction does include the term, 'ash'. The types of operation would fit in with the definition of 'relevant work' used in the circular and the Regulations. But there is a clear restriction on the nature of the material because of an overall condition that the material must be, '*suitable for being used in relevant work*'. This comes down to an issue of whether the highly contaminated nature of this waste makes it suitable or unsuitable for the construction of paths and surfaces on allotments and public open spaces. This could be interpreted in terms of its physical or chemical properties, which are separate issues in such an assessment. But given this material is being used for the construction of paths in public spaces, it is clearly unsuitable to use highly contaminated material for this purpose.

In any case, the use of either of these exemptions must be carried out within all the terms and conditions provided by Regulation 17 of the WMLR. Irrespective of the status of incinerator ash under the exemption provisions of schedule 3, there is a specific prohibition on the deposit of any material under a waste licensing exemption that[119]:

- Is a *special waste* – which arguably the residues from the Byker Heating Plant are; or
- Contravenes the *relevant objectives* of the European Framework Directive on Waste[120], as enacted under Schedule 4, paragraph 4 of the WMLR[121]. The *relevant objectives* of the Directive require the *competent authority* – in this case the Environment Agency – to[122]:

  Ensure that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment and in particular without –

  i. risk to water, air, soil,, plants or animals; or
  ii. causing nuisance through odours; or
  iii. adversely affecting the countryside or places of special interest

the use of ash from the Byker Heating Plant clearly fails the second of these tests. Whether it fails the first of these tests is arguable, but in all likelihood the levels of contamination in the ash, and the presence of high levels of lime, would make this material a special waste. Either way, irrespective of the arguments about whether this material conforms to the criteria for exemption, Regulation 17 would prohibit its use.

Given these facts, who is liable? Cityworks is clearly liable since it was responsible for the deposit of the waste material on land in contravention of section 33 of the Environmental Protection Act and the WMLR. However, if –

- the responsibility for monitoring the filling of the ash skip, and
- the supervision of the Cityworks staff controlling this process, and
- the removal of the ash skip,

…were also part of the function of the managers of the Byker Reclamation Plant – SITA – then they would be liable also if they had knowledge of what the material was being used for. Even if they had no knowledge of the deposit of this material, as managers in charge of waste storage and transfer

[119] Regulation 17, paragraphs 3 and 4, *Waste Management Licensing Regulations 1994*.

[120] Directive 75/442/EEC, as amended by Directive 91/156/EEC.

[121] Relevant extracts from Part 1 of Schedule 4 are provided in Annex A24, page A-62, to this report.

[122] This is just a transposition of Article 5 of the Framework Directive (as amended)

they should have had regard to the duty of care code of practice. As SITA had no part in actually depositing the ash, it is unlikely they would be liable for a breach in relation to section 33. But they would certainly not be acting in accordance with the terms of the duty of care code of practice.

In conclusion, Cityworks are in breach of the WMLR as a result of the deposit of incinerator ash at various locations in Newcastle. It would appear that the material was not the subject of a specific licensing exemption, but even if it were, its unsuitability for the purposes it was put to would invalidate any exemption that was granted. One of the key parts of the waste management framework is the identification of the nature of the wastes transferred. That clearly has failed in this case. If the nature of the material had been known, then obviously this situation would not have arisen. But this ignorance cannot be used as an excuse in this case – the duty of care code of practice clearly emphasises the need to have regard to the physical and chemical properties of the waste material being handled.

Anyone who understands the nature of incinerator residues would inform you that they are a risk to health if spread on parks, but particularly on allotments where the plants growing in the material will allow significant ingestion of the pollutants it contains. It is clear then that as of the 1st May 1994, when the Waste Management Licensing Regulations came into force, that any spreading of incinerator residue on parks and allotments in Newcastle was unlawful. This is because any exemption, even if the Environment Agency had even issued it, was invalidated by the hazardous nature of the material being spread.

2.2.3. Newcastle City Council

in terms of Cityworks' masters, the elected members of Newcastle City Council, a simple question arises – where they in control? If the answer to this question is unclear, this also creates a further question as to whether they have the procedures in place within the organisation of the City Council to competently manage the clearly onerous responsibilities of managing waste in Newcastle.

In order to discover the exact nature of the City Council's deliberations on the operation of the Byker plant a search would have to be conducted of all relevant council reports dating back over 15 years. Of course, assuming this was possible for an ordinary member of the public, given the restrictive nature of access to Newcastle's filing system.

For the purposes of this study, a search of council reports over the past 18 months was undertaken. From this small-scale review, it is clear from the reports presented to various council committees that the full nature of the operations, costs and impacts of the Byker Reclamation Plant have not been discussed – certainly not in a manner that warranted any information being put in the public record.

Even the discussions on the spreading of incinerator ash have been limited. For example, in a report on the impacts of the new contaminated land regulations[123], no mention of the potential contamination from the spreading of Byker ash is made. In fact, when making enquiries at the City council officers in October, it is clear that the City council do not regard contaminated land as a high priority for the public. I was informed that the contaminated land register, required to be prepared

[123] Environment & Public Protection Select Committee meeting, 10th April 2000 – *Contaminated Land*

under the new regulations, will not be made available to the public until the very last day local authorities have to produce the register – in June 2001.

Three issues arise in relation to the Byker plant:

1. Did the City Council, as a body, in any way authorise the use of material from Byker for the construction of paths and surfaces in Newcastle, or for any other purpose in any other Cityworks construction project?
2. Have the city Council, in approving a new waste contract for the city, had regard to the various legal and technical factors in deciding on the content of that contract; and
3. Has the City Council, in supporting the operation of the Byker Reclamation Plant as a whole, undertaken valid study to support the viability and suitability of the plant for the purposes it is being put to?

1. Sanctioning the use of the Byker ash

In response to the first question, we would have to draw a blank. There is no record in recent committee reports indicating that the City Council was directly aware of ash being reused from the Byker plant. However, indirectly, there are obvious signs that such activities were underway:

- The discussion at a number of points of reusing ash for construction obviously raises the issue of what projects or tests were authorised by the City Council of the ash from Byker for these purposes.
- Recent indication that tests on this material as an aggregate and block-making compound[124] must have required some official sanction because of the expense involved, but were such tests brought before the members of the City Council for approval?
- The inclusion of figures for ash recycling in both committee reports and the tender document for the waste contract indicate that the reuse of Byker ash had some form of official sanction. But were the members of the City Council ever consulted or asked to approve this process, or the inclusion of these figures as part of the City Council's recycling programme?

The elected members of a local authority cannot be expected to have knowledge of every detail of the activities of a local authority. But like company directors, they must have due diligence to the process of evaluation and decision-making that form part of their role.

The indications, from a variety of sources, were there that ash was being reused. What is important is was this policy merely the excesses of a number of council employees, or was it an act approved by the City Council as a body. This distinction is important because it changes the nature of how the matter is dealt with. This issue has already arisen, in part, because of the City Council's wish to conduct its own internal inquiry into how these events took place. But, as pointed out by the Environment Agency, as a body of people jointly responsible for the activities of Cityworks, such an investigation would represent a conflict of roles.

[124] Contract Heat and Power, *Proposed modifications and upgrading of existing RDF fired CHP scheme* – application to the Environment Agency, October 1999.

2. Determining the waste contract

In terms of the waste disposal contract, the question arises as to whether the City Council has appropriately considered the national policy framework – both legal and technical. As noted in the City Council's reports, the new National Waste Strategy creates increasing demands on local authorities to deliver sustainable waste management. The City Council interprets this as meaning new targets to reach. In fact, the implications of the new National Waste Strategy go far wider.

Chapter 3 of the National Waste Strategy[125] sets a 'new decision-making framework' for waste management in the UK. Whilst some of this is familiar, there are some wholly new procedures. The most complex of these is 'best practicable environmental option'. BPEO must form the basis of decision-making, and should be substantiated through the use of lifecycle analysis to ensure that the mix of waste management options selected is indeed the BPEO. As is made clear in the Strategy[126],

> *to international obligations (such as the biodegradable municipal waste diversion targets in the Landfill Directive), the national policy framework as set out in this strategy (including the waste hierarchy), and policy guidance at regional and local level. The concept of BPEO means that local environmental, social and economic preferences will be important in any decision. These may well result in different BPEO's for the same waste in different areas, or different BPEO's for the same waste in the same area but at different times.*

As part of any waste strategy, for each option, there should be a detailed assessment of the relative environmental and human health impacts. This follows on from BPEO, but has a legal imperative also because for the compilation of development plans, and the awarding of planning permissions, local authorities are responsible for implementing the relevant objectives of the EC Framework Directive on Waste[127]. The most significant aspect of the relevant objectives are that the waste should not be managed or disposed in a manner that harms human health, or that uses processes that harm the environment.

Local government in the UK does not have general competency. Therefore, it can only undertake activities where these actions are sanctioned by the law. In making decisions, they must therefore ensure that they remain within the framework defined by law and the various government guidelines on waste management. The power to make waste strategy is not strictly defined by law, but the making of contracts is – in particular the new laws in relation to 'Best Value'. In developing any waste strategy, and especially in relation to contracts, local authorities must adopt the same standards as part of their deliberations as are required within national policy guidelines. That means in practice:

- The decision-making considerations in Chapter 4 of the UK Sustainable Development Strategy;
- The new decision-making framework for waste set in Chapter 3 of the National Waste Strategy;
- The responsibilities for implementing the relevant objectives of the EC Framework Directive on Waste (implemented in UK law by Schedule 4 of the WMLR);
- The 'best value' principles for the contracting of local government services, outlined in Part 1 of

[125] Relevant extracts from Chapter 3, Part 2, of the National Waste Strategy are provided in Annex A25, page A-66, to this report.

[126] Paragraph 3.6, Part 2, National Waste Strategy

[127] Defined in paragraph 4, Part I, Schedule 4 of the *Waste Management Licensing Regulations 1994*, SI. 1994/1056

the Local Government Act 1999 and the White paper on 'modern local government'[128].

In my view, from the contents of report to Cabinet on the waste contract, the strategy within the waste contract for Newcastle does not only detract from the above programme – it is directly antagonistic to it. This is because the report is a simple response to the question, "how can we dispose of waste and meet the government targets". It is not a thorough investigation of:

- the changing regulatory framework, and the responsibilities of the relevant local authorities within this legal and procedural framework;
- the environmental and human health impacts of various waste management options, and therefore of what constitutes BPEO; and
- the 'regulatory risk' of adopting certain disposal options, given the likely future changes to the regulatory framework for waste management (the obvious candidates here are landfill and incineration, given the pressure for more stringent regulation) and the impact this will have on the financial stability of the options chosen.

In my view, the approach taken by the City Council is out-of-date, and out-of-step with current policy changes, and it failed to provide the members of the Cabinet with the information necessary to make decisions in conformity with the current legal and procedural frameworks.

The implementation of the Landfill Directive will perhaps force the biggest change. The segregation of biodegradable waste requires some form or processing plant. This creates three possible scenarios:

- Dirty Materials Recover Facilities (MRF): Mixed waste sorting systems resulting in low recovery rates and a majority of waste being landfilled or incinerated. Low quality of the compost may be produced from the biodegradable fraction – it is only suitable for purposes such as landfill site reclamation, and therefore composting is likely to take place at the landfill site.
- Clean MRF: Materials are collected in segregated lots from the waste producer, resulting in low levels of cross-contamination, and hence high levels of reclamation. Residual waste can be landfilled, with the biodegradable fraction being processed by composting or anaerobic digestion.
- Incineration: Waste is collected as now, and fed directly to an incinerator rather than a landfill site. The need to manage the calorific value of the waste, the variation in waste production over the year, and the need to have alternative capacity when the incineration closes, means that no more than half the waste produced can be incinerated.

In my view the City council has taken the first of these three options. The Byker incineration pant is too small to represent a viable incineration-led policy. In my view the only reason the Byker incinerator still forms part of the strategy is because a historical commitment by rhe officers in Newcastle City Council to keep it operational.

From the information provided in the report to Cabinet in early November, it seems clear that the new framework outlined in the National Waste Strategy has not been applied to the new contract with SITA. There has been no detailed analysis of the various options available to the council because of the commitment to continue the operation Byker. There has been no attempt to model the impacts of the strategy, as advised in the National Waste Strategy, and also the national waste planning

[128] *Modern Local Government: In Touch with the People*, Cm4014, DETR, July 1998.

guidelines in Planning Policy Guidance 10[129]. In agreeing this contract, the question must be put to the City Council as to whether they have carried out the requisite procedures to evaluate the strategy they have chosen, and whether, at some future date, this will result in increased liabilities to the city and people of Newcastle.

3. The future operation of Byker

In agreeing the new waste contract, there appears to be one motive within the officers objectives for the contract that necessitates approval of the contract now[130]:

> *The exact timing of reductions will depend on the completion of each phase, however, on full implementation of phases I and II the £500,000 overspend on the cash limited budget will be eradicated. If the Council chooses at some stage to move to stage 3 further budget savings of up to £1m can be anticipated. The budget saving of £1M at phase 3 is necessary in order to repay an earlier corporate resource pool loan required to stabilise the budget in financial year 1999/2000. If phase 3 is not implemented, this loan cannot be repaid.*

The implication of this statement is that unless the City Council approve phase three – the enlargement of Byker incinerator – then the waste services division will not be able to repay the central council fund for the money loaned to cover their overspend. It would appear then that the motives of the officers in recommending the package that makes up the contract was not wholly decided by the best practicable environmental option (BPEO), but rather to correct previous management decisions that led to an overspend.

From the information I have been able to find, as part of the waste contract review there appears not to have been any clear financial or environmental appraisal of the Byker plant. For example, what would be the financial implications of closing the Byker heat station and converting to natural gas? The potential benefits of natural gas fired CHP have recently been outlined in detail to the Cabinet[131] as part of the City Council's investigation into developing a CHP scheme for the municipal and university buildings in the centre of the city. For example, natural gas would provide heat and power, with lower emissions, and presumably at a lower costs than the current contract with Contract Heat and Power.

Given the recent disclosure that the heating plant itself has been costing the council £300,000 per year because of the losses on the operation, the question must also be raised about the financial management surround waste services, and the operation of the Byker Reclamation Plant[132]:

> *The overall financial position of the Byker District Heating System has been over a long period of time that the income from charges to tenants and other users does not cover the*

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[129] Planning Policy Guidance No.10 – *Planning and Waste Management*, DETR, September 1999

[130] Extracted from the report by the Director of Cityworks to the Council Cabinet meeting on the 15/11/2000 – *Waste Management Contract*. See Annex A.26, page A-76, to this report.

[131] Report by the Director of Cityworks and Director of EEC to the Cabinet meeting on the 15th March 2000 – *Energy Provision*.

[132] Letter from Allen Bertram, Head of Regeneration Resources, Newcastle City Council, November 2000. See Annex A.19, page A-47, to this report.

costs of the provision of the service.

The net costs is effectively borne by all Council tenants across the city.

The full implementation of the contract is also important for the City Council's budget as a means of rectifying past mistakes. But this need to repay past internal loans for waste services also generates an impetus within the Council to approve phase three of the contract – to expand the Byker incinerator:

> *The exact timing of reductions will depend on the completion of each phase, however, on full implementation of phases I and II the £500,000 overspend on the cash limited budget will be eradicated. If the Council chooses at some stage to move to stage 3 further budget savings of up to £1m can be anticipated. The budget saving of £1M at phase 3 is necessary in order to repay an earlier corporate resource pool loan required to stabilise the budget in financial year 1999/2000. <u>If phase 3 is not implemented, this loan cannot be repaid</u>*. [my emphasis]

It would appear from these two sources that there is some form of cross-subsidy between the housing and waste services budget. Those who pay council rents are subsiding the costs of the waste budget through the Byker Heating Plant.

Under the new contract, the Byker Reclamation Plant will charge a gate fee (no gate fee is charged at the present). Therefore, it is difficult to see where the savings will be made to the waste management budget. However, the contractor for the reclamation plant will still have to provide floc to the Heating Plant, at least 60,000 tonnes per year, free of charge. The 'savings' promoted by the City Council at Byker relate to the waste diverted away from landfill. Assuming disposal costs, with transport, of around £15, then the savings on the 35,000 tonnes of floc burnt would be around £525,000. But this figure does not take account of the costs of floc processing, which is an essential component of the process, before the waste floc is handed to CHP free of charge.

Quite how the City Council believe that this will save costs is not clear. The NFFO contract for the heat plant, offered in the very first round of NFFO grants, will expire shortly (the contracts run for 10 years). Given current regulatory changes it unlikely to be renewed. At the same time the emission standards for incinerators will be tightened under the new EC Waste Incineration Directive. Costs for Contract Heat and Powers operation of the plant, even at a higher capacity, will therefore increase.

The figures behind the costs savings promoted by Cityworks do not, on the face of the figures presented, add up. The figures are further complicated further by the relationship between other council budgets, especially the housing budget. There needs to be a clear account made available to demonstrate the distribution of past costs, and to justify the future perceived savings. This would also indicate to what extent regulatory risk has been included in Cityworks future budget, and whether any of the regulatory risk is borne by CHP or SITA.

In conclusion, on the issue of the waste contract, on the past operation of the Byker plant, and on the costs of the Byker plant, there appears to have been little challenge to the information presented by Cityworks. The in-built bias to continue operation of the Byker plant, irrespective of the need to operate waste management services in a more sustainable manner, has skewed the options for

future waste management systems presented by Cityworks. It is arguable that this bias has prevented an open analysis of which waste options would be the best for Newcastle. It is also arguable that the construction of the contract creates a self-fulfilling requirement to approve the operation and expansion of the incinerator in order to pug-up past financial mismanagement within the City Council's budgets.

2.2.4. The Environment Agency

The Environment Agency is the regulator for both the waste and air pollution components of the Byker Reclamation Plant. Whilst not responsible for the actions involved, the Agency itself has certain legal responsibilities in relation to its application of environmental law:

- Under the legal framework that government the actions of the Agency, the Agency have certain statutory obligations that govern the carrying out of their various functions; and
- Under the national and European enabling legislation on waste and air pollution, the Agency have an obligation to implement the legal standards set through the European directives that form the basis of these laws.

Byker has represented a challenge to the Agency because of the pollution created from the Byker plant whilst they are in charge of it's regulation. It has also exposure some serious flaws in the Agency's interpretation and application of the pollution law. This was highlighted at a recent meeting of the North East Regional Environmental Protection Advisory Committee (REPAC)[133]:

> *The Regional EP Manager updated Members on the Agency's investigations following the disposal (and subsequent removal) by Newcastle City Council of incinerator ash in parks and allotments in the Newcastle area. Soil samples had been taken by Newcastle University and the results were awaited.*
>
> *In the case of the proposal to increase the throughput of waste at Byker Combined Heat and Power Plant, further information was awaited from the applicant. A health impact assessment was being carried out by Newcastle City Council.*
>
> *In reply to a comment on the Agency's apparent lack of experience in relation to public health issues, the Chairman said that the Agency intended to work with Health Authorities more closely in the future, in the light of the revised statutory consultation procedures to be introduced under the IPPC regulations. In addition, a meeting had been arranged with Health Authorities on 19th July to discuss relevant issues e.g. impacts on human health associated with Environment Agency regulated activities and also the increasing tendency for human health issues being included in regulations and legislation.*

It is arguable, from the analysis provided in this report to this point, suggests a rather different analysis of the problem. Her Majesty's Inspectorate of Pollution (HMIP) granted the Byker plant IPC authorisation for both the RDF making process operated by Cityworks, and the incinerator operated by ESL and CHP. HMIP was then absorbed into what became the Environment Agency in April 1996. The Environment Agency has also granted waste licenses for the waste processing part of the plant. What requires investigation is whether, at any point, the Environment Agency audited those

[133] Taken from the minutes of the North East REPAC meeting, 18th July 2000.

authorisations in order to ensure that all aspects of those authorisations were complied with.

The Environment Act 1995 set up the Agency, and gives it, along with a whole range of other pollution law, its powers. As part of the Act, under sections 4 to 10, the Agency is given certain obligations. These are stated in detail under statutory guidance given to the Agency by the Minister of State for the Environment under section 4 of the Act[134]. The observance of this statutory guidance by the Agency is held by many, by the companies regulated as well as those critical of the Agency's regulatory record, as being inconsistent and incomprehensible.

Paragraph 2.8 of the Agency's statutory objectives gives clear guidance on the legal responsibilities of the Environment Agency, and the role of the statutory guidance issued by the Minister:

> *2.8 These objectives, which relate primarily to the Agency's conduct, are complemented by a statutory framework for the Agency of existing environmental objectives, purposes and duties through:*
>
> *i) the principal aim in section 4 (1) of the 1995 Act (see paragraphs 2.4 to 2.6 above)*
>
> *ii) the statement in chapter 4 of this document as to the appropriate contribution which Ministers consider it appropriate for the Agency to make to sustainable development, and*
>
> *iii) the legislation under which the Agency is given functions by the 1995 Act, including any conferred by regulations made under section 2(2) of the European Communities Act 1972.*

In terms of the Agency's responsibility for the implementation of European law, this is clearly delegated through:

- Section 3 of the Environmental Act 1990 in relation to air pollution issues for those plants subject to integrated pollution control – specifically the *Directive on Air Pollution from Industrial Plants*[135] and the *Directive on the Reduction of Air Pollution from Existing Municipal Waste Incineration Plants*[136]; and
- Schedule 4 of the Waste Management Licensing Regulations 1994 – specifically the Framework Directive on Waste[137].

As noted earlier, tracing the series of events from the public registers held by the Environment Agency is very difficult because of the gaps in the files, and the failure of the Agency to included certain classes on information. Even their own correspondence with the companies involved is curiously missing from the register at certain points. But it would appear that throughout the regulatory history of this plant, the inspectors visiting the plant have made visual inspection, and studied the monitoring data provided by the plant operator.

I can find no evidence that the terms of the authorisation were ever inspected, point by point, as part of each or any visit. Unless there is a clear point-by-point audit of the authorisations conditions there

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[134] *The Environment Agency and Sustainable Development*, Department of the Environment, November 1996.

[135] Directive 84/360/EEC, as amended by Directive 91/692/EEC.

[136] Directive 89/429/EEC.

[137] Directive 75/442/EEC, as amended by Directive 91/156/EEC.

can be no certainty that all conditions are complied with. In this case one of the key failures was to audit the disposal of ash from the process. A though audit of the authorisation for the Heating Plant should have picked up the reuse of the ash by Cityworks, and CHP's failure to provide regular monitoring and analysis of the ash.

Whilst Byker may be considered one of the worst failures by the Agency in recent times, it is in no way unique. There have been many other failures by the Agency in other locations because of the same generic faults in their application of the law. It just happens that in this case those generic faults led to pollution on a massive scale. The specific breaches of European law that the Agency in Byker, and at other locations, would appear to be practising are:

- The EC Framework Directive on Waste (Directive 75/442/EEC as amended by Directive 91/156/EEC):
  - Article 4, *Member states shall take the necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment…* Although the UK has implemented measures to protect human health and the environment, in relation to Byker, and other sites I have been involved with in the UK, these measures are not string enough to enact Article 4. In Byker, there was a complete failure of the regulatory system leading to serious environmental pollution that may, in the longer term, cause health impacts to the residents of Newcastle.
  - Article 9(1), *For the purposes of implementing Articles 4, 5 and 7, any establishment or undertaking which carries out the operations specified in Annex IIA* [in this case, tipping on land] *must obtain a permit from the competent authority referred to in Article 6.* In this case, although an exempt activity, no permit was granted for the spreading of ash for 'agricultural benefit' from the Byker incinerator, or its use in construction by Cityworks. Waste licensing exemptions generally are severely abused by developers, and I have worked on many other cases across the country where the Environment Agency have failed to protect the public and the environment by policing waste license exemptions.
  - Article 10, *For the purposes of implementing Article 4, any establishment or undertaking which carries out the operations referred to in Annex IIB* [in this case R10, spreading for agricultural benefit] *must obtain a permit.* The ash from Byker was used on some allotments, because of its lime content, for soil conditioning.
  - Article 14, *All establishments or undertakings referred to in Article 9 and 10 shall: – keep a record of the quantity, nature, origin and, where relevant, the destination, frequency of collection, mode of transport and treatment method in respect of the waste referred to in Annex I and the operations referred to in Annex II A or B, – make this information available, on request, to the competent authorities in Article 6.* One of the problems in identifying the locations of the ash taken by Cityworks has been the lack of any proper recording for system for when, where and how much ash was taken for reuse. This should have been policed by the Agency as part of a periodic inspection of the heating plant's waste disposal procedures.
- The Directive on Air Pollution from Industrial Plants (Directive 84/360/EEC, as amended by Directive 91/692/EEC):
  - Article 9(1), *Member states shall take the necessary measures to ensure that applications for authorisation and the decisions of the competent authorities are made available to the public concerned in accordance with the procedures provided for in national law.* It is arguable that the access to information requirements of the Environmental Protection (Applications, Appeals

and registers) Regulations 1991[138] have not been met because of the state of the public register for both the incinerator and the RDF plants.

- The Directive on the Reduction of Air Pollution from Existing Municipal Waste Incineration Plants (Directive 89/429/EEC):
  - Article 8, *In accordance with appropriate procedures and in the form decided upon by the competent authorities, information on the obligations imposed in respect of existing incineration plants pursuant to this Directive and on the results of the controls provided for in Article 5 and 6 shall be made available to the public subject to the provisions applicable in respect of commercial secrecy.* This again is a complaint relating to the standard of the public register for the Byker incinerator.

The breach of UK law, permitted by the Agency by poor regulatory practice, is a matter investigation and potential legal action against those who carried it out. But the failures by the Agency to discharge their legal obligations in relation to waste and pollution law must also be actions at the national and European level. A serious issue here is the information made available t

The breaches of law in relation to ash spreading are only one aspect of the Environment Agency's regulation of the site. It is difficult to determine precisely how the Agency's inspectors regulated the IPC processes because of the poor standards of the public register, the failure to include relevant correspondence, and the failure to provide inspection reports. The waste management side is a different matter. Inspection reports do exist. But these reports show that consistent faults have been found during every inspection of the plant since the new license was granted, and to date the Agency have taken no enforcement action to rectify these problems (see Table 5 earlier in the report). The question arises as to whether the air pollution control inspectors found similar problems, and whether there was the same reticence to tackle these faults.

The breaches of these Directives, as a result of systematic failures by the Environment Agency, have results in serious pollution of the environment. At the moment knowledge of that pollution is restricted to the contamination from ash spreading. But as indicated in the results from the Walker Road allotments, there may also be serious environmental contamination with dioxins and heavy metals due to direct deposition from the plant. Such pollution has been discovered recently at other locations.

The failures by the Environment Agency are systematic, not random. The actions of the Agency in relation to Byker have happened at other locations in the Black Country, Merseyside, South Wales, and many other locations. The difference with Byker is that the polluting matter involved is far more toxic than usual. The Agency have failed to meet the standards set by Government in their statutory objectives. At the same time, they have failed to discharge the legal responsibilities of UK and European legislation delegated to them from the Government. If there is a detailed investigation of Byker, and what events contributed to it, the actions of the Agency here and elsewhere must for an intrinsic part of the investigating agency's remit.

[138] SI. 1991/507.

Conclusion: The Next Steps in Resolving the Contamination from the Byker Reclamation Plant

This investigation has detailed the development of incineration policy from the first development of the 'refuse destructors' in 1886 to the decision in November 2000 to proceed with a waste contract that, despite the assurances of Newcastle City Council, is highly likely to include further incineration capacity in Newcastle. The development of the Byker Reclamation Plant itself and the process of poorly research judgements that led to the development of a number of incinerators across Tyneside is being replicated today. The same failures, due to lack of appropriate assessment and consideration of environmental implications, is taking place as part of the City Council's approval of the new waste contract.

The spreading of incinerator ash represents a failure of both the external regulatory and the internal audit procedures of CHP, Cityworks, the officers and members of Newcastle City Council, and the Environment Agency. But for the contamination suspected by local people, and later confirmed by the University of Newcastle, the debate surrounding the redevelopment of Byker incinerator, the use of incinerator ash across the UK, and the ability of the Environment Agency to regulate these processes, would not be taking place. Newcastle City council would, as they had intended, pressed ahead and approved the waste contract in full earlier this year.

The issue is now where should further investigations take place to resolve this complex web of interrelated issues. After considering the information produced by the investigation of incineration in Byker, it is my view that the following should be a matter of urgent review by the people of Newcastle, the UK Government and the European Commission. These issues, as pointed out by the Environment Agency, are not appropriate for Newcastle City Council to investigate because they are potentially one of the culpable parties in the events that have led to the contamination of the environment. But by the same logic, neither are the Environment Agency a suitable organisation to investigate and pass judgement upon these issues because they too are implicated in permitting these events to take place, but also in a failure to discharge their own legal obligations under national and European law.

The need for further research and investigation breaks down into the following categories:

1. Contamination from the Byker ash:

It is still not clear to what extent contamination has taken place from the reuse of ash from the Byker incinerator. There are some figures for ash disposals to local allotments, and a few other sites. But other sites, not on the original list produced by the City Council, have been discovered. The total level of ash reuse is also in doubt given that the figures available for the reuse of ash from Byker incinerator do not tally with the figures available for allotments. It is a matter of the greatest urgency to discover how much of the Byker as was diverted from landfill, and to what uses it was put. This requires a detailed investigation as to whether those involved kept the requisite transfer notes required by waste law/duty of care, or any other form of documentation to verify whether ash was used on other sites. But in addition to this, there needs to be a through investigation, with appropriate environmental analysis, to determine –

a) The general levels of pollution from the Byker ash on know disposal site.

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Preliminary work is expected imminently from Newcastle City Council but more detailed follow up studies are required to characterise and quantify the level of contamination across the community.

b) Investigations must be made to discover whether any ash was used as an aggregate or sub-base material as part of any Newcastle City Council/Cityworks development or construction works elsewhere in the city. The particular concern is that large quantities of this material may be buried under pavements or streets, and that excavation works, or even leaking sewers or water mains, may wash this material out into the environment.

c) The City Council/City works or CHP should disclose immediately any and all information they have relating to the use of ash in block making trials, where these took place, and what was done with this material during and after the trials.

d) Steps should be taken to sample volunteers from the community to determine the uptake of contamination within the group of allotment holders, and the community as a whole who live near the plant.

2. Contamination from/within the Byker Reclamation Plant:

The sampling by the University has indicated raised level of heavy metals and dioxins in land near to the Byker plant, and this contamination cannot be attributed to ash spreading. In order to characterise and quantify the nature and extent of contamination around the plant –

a) There should be sampling carried out in the vicinity around the incinerator to identify the distribution of direct deposition from the incinerator and the RDF making plant. Such a proposal has been developed by the University of Newcastle, and a decision is currently awaited as to whether the City Council will fund this work.

b) There should be sampling of the land immediately around the plant, and especially within the plant (both Heating Plant and the RDF/waste processing side) to discover the levels of contamination within the immediate process area. This is not only to determine environmental contamination, but also to ensure the health and safety of those working on the site.

c) There should be sampling of the workforce in both parts of the Byker Reclamation plant to determine the uptake of contaminants by the workforce, past and present. Those who were, or are currently involved in the maintenance of the boilers and pollution control systems should be a priority.

3. The operation of the plant by CHP:

There needs to be an investigation of Contract Heat and Power to determine how they managed to operate the plant without, it would appear, any understanding of the toxicity of the ash they were producing. In particular –

a) There needs to be an evaluation of CHP's internal audit systems to discover why the requirements under the IPC authorisation, and under duty of care, to analyse and communicate information on the content of the ash stream were not carried out on a regular basis.

b) There needs to be an investigation to determine if CHP were aware that ash from Byker was not being sent to landfill, and if so, why this information was never

communicated to the Environment Agency (representing as it did a departure from the original basis of their IPC authorisation).

c) If CHP took part in the block making trials they describe in their recent IPC application, then CHP should make this information public to aid the investigation of the contamination created by the reuse of ash.

d) There should be enquiries to determine whether CHP completed the required transfer notes for the ash, and whether at any time they properly audited/investigated the disposal procedures in order to carry out their obligations under the duty of care code of practice.

4. The operation and management of the waste reclamation plant by Cityworks and SITA, and the collection and disposal of incinerator ash:

Investigations need to be carried out to determine how ash, meant for disposal to landfill, was used for construction projects and landspreading. There also needs to be an investigation of –

a) When the decision was made to divert ash to other location rather than being sent for landfill.

b) How that decision was made, and whether it was based on any information or analysis of the ash and whether steps were taken to ensure it was fit for the purposes it was being used for.

c) Whether, as managers of the site in recent years, SITA were aware that ash from the incinerator was being used by Cityworks in construction projects.

d) Whether Cityworks completed and kept the required transfer notes under the duty of care code of practice, and whether they sought to ensure that the quality of the material they were disposing of to allotments and other public spaces was suitable for the purpose.

e) Whether Cityworks, at any point, sought external advice on the suitability of incinerator ash for use in public spaces.

f) Whether Cityworks approached the Environment Agency for a waste licensing exemption for the use of the ash in construction projects, and for spreading on allotments.

5. The role of the Environment Agency in 1 to 4 above:

There should be an external investigation of the role of the Environment Agency, not only in Byker, but at many other sites across the country where pollution and waste laws have been breached (it would be possible to specify a long list of sites and particular problems, but it would detract from the focus of this report). This should aim to resolve:

a) How the failures that led to contamination of the environment in Newcastle, and to consider whether, when considering other sites around the UK, these failures are random or systematic within the Agency's application of the law.

b) What knowledge HMIP/the Environment Agency had of ash being diverted away from landfill to other uses.

c) Whether, at any time, CHP or Cityworks sought clearance for the use of the ash for these other uses, either formally or informally.

d) What steps HMIP/the Environment Agency took to conduct regular, point-by-point

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audits of the various authorisation and licenses for the Byker Reclamation plant to ensure compliance with all terms and conditions.

e) If the Agency were aware that ash was being diverted from landfill, what steps the Agency took in relation to their obligations to protect the environment and human health.

f) At a general level, there needs to be an investigation to determine whether the poor state of the public registers is a problem with the local office, or whether recent instructions to officers on the maintenance of registers conflicts or encourages with the maintenance of public registers in accordance with the relevant regulations.

g) There needs to be an investigation of the inability of the waste officers to seek improvements in the standards at the Byker Reclamation Plant.

h) There needs to be a review of the past monitoring of releases from both the incineration and RDF processes to determine how high levels of contamination have been produced near to the plant.

i) There needs to be a through, national review of the Environment Agency's inspection and audit practices to see if the faults at Byker are being replicated at other plants. Such a review needs to be carried out urgently. The recent information that Edmonton incinerator, and perhaps also the Dudley/Tyseley incinerators also, may have been releases a mixture of bottom and fly ash for reclamation raises serious questions about the Agency's management of some of the largest sources of pollution in the UK. If the faults in Byker are common place, what has appeared until to be a local problem could become characteristic of a national problem.

6. The actions of Newcastle City Council in developing it new waste strategy and waste contract:

There are many flaws in the arguments presented to the Cabinet of the City Council in the report on the waste management contract. But beyond this, there are a whole series of statements and policies that need further investigation to determine whether there has been any malpractice by the City Council officer and member. In particular:

a) There should be a detailed investigation of the financing of the Byker Reclamation Plant to determine whether the plant represents best value for the people of Newcastle, and whether the monopoly supply of heat to the Byker community represents an unfair imposition of costs on the community.

b) There needs to be an investigation of the internal loans that have supported the operations of the Byker plant, and other waste services, and whether these loans were properly investigated, and that the internal finance systems of the City Council have the necessary safeguards and oversight to prevent the misuse of funds, or irresponsible spending.

c) There needs to be an investigation into the historic support for the Byker Reclamation Plant, and whether this support was based on open and objective assessment of the options for district heating and waste management, or whether the continual funding problems locked the city Council into viscous circle to continue the plant's operation.

d) There must be an investigation into the projected finance of the new waste

contract, and in particular whether the commitment to the operation of Byker has skewed the selection of sustainable waste manage options for the City. In particular, the projected savings communicated to the committee are valid or, in the longer term, whether alternative strategies would prove more cost effective.

e) There must be an open investigation into what knowledge officers and members of the City Council had about the operation of the Byker plant, and whether directly or indirectly the diversion of ash from landfill was sanctioned as a council policy.

f) In terms of the work of the community working group in Byker, they have an urgent need to decide if the recent decisions of the City Council are duplicitous, agreeing the most important parts of the waste strategy via the back door route of a 15 year waste contract. It is also clear that the terms on which that contract is predicated, together with the choice of contractor, leave little doubt that incineration is the intended means of meeting the longer-term government targets.

In conclusion, the last facet of the 'Byker problem' can be seen as cultural.

I have investigated many breaches of environmental control, but the case in Byker is potentially the worst. Whilst the impacts seem minimal and contained at the moment, only time will reveal what the longer-term health effects will be. The most recent sampling from the University of Newcastle will, I believe, confirm the high and widespread nature of the dioxin contamination from the spreading of incinerator ash. If sampling has also been carried out near to the Byker plant, it may also better characterise the historic emissions from the plant. But there are many other Byker-like situations around the country – I have particularly extensive experience of such problems around the Black Country, between Birmingham and Wolverhampton. The only reason why these problems have not degenerated to the Byker level is that the substances or actions involved did not create the type of public health crisis that is characteristic of spreading highly contaminated ash and lime from an incinerator's pollution control plant onto public open spaces. And that in Newcastle, through a combination of blind bias, self-interest, misunderstand, bad judgement or plain ignorance, the implications of these actions went undetected for at least six years.

The greatest insult presented by the events in Byker is to environmental justice. The North East, and especially Newcastle, has a strong tradition of allotment holding[139]. The allotments around Newcastle are not an idle recreation. For many they are an essential part of the family budget. This entire tradition and culture, central to the wellbeing of many families, and representative of the sort of local sustainability called for by the government in the new UK Sustainable Development Strategy, has been thrown into chaos by the discovery of the ash contamination. If long-lasting damage is the result of this, both to the culture of allotment holding in Newcastle and to those people involved, then there should be appropriate restitution made by those responsible for permitting ash spreading to take place.

At the wider level, what allowed these events to take place is the ignorance by 'the system' of public concern and the restriction of access to information. In relation to the city Council's deliberations on the waste contract in particular, my observations after attending a number of meeting in Newcastle is that the public's concern about Byker incinerator and the proposals to enlarge it are seen as a threat. An insult to the ability of the officers of the Council to carry out what they think is best for the

[139] There is an excellent oral history study available of allotments in Newcastle entitled *Peaceable Kingdoms*.

community.

There is an essential cornerstone in environmental regulation that involves the distribution of information to the public. This is not for idle interest – it is a back-up procedure to the regulatory bodies to ensure that they, and those they regulate, perform their legal duty. The state of the public register for the Byker Reclamation Plant is a clear breach of the relevant regulations. The new public inquiry system at Newcastle City council is, in my view, far worse because by limiting capacity for access they obfuscate the public's efforts to access information about the council's activities.

To resolve the Byker problem will require a series of investigations to establish the fact, and to ensure that this terrible incident produces, at least, the value of a better understanding of why the regulatory systems failed. At the same time, the contamination of the environment, much like the reaction to the contamination caused by Chernobyl, is an opportunity to better understand the impact of incinerator pollutants on the environment, and thus ensure that the same policy and operational mistakes are not made again.

In my view neither Newcastle City Council nor the Environment Agency are responsible enough to carry out these investigations. Both bodies have far too many vested interests in avoiding a detailed critique of their failures to ensure an open and honest appraisal of the events that led to this catastrophe for the people of Newcastle. There should be external investigations by those who have the legal authority to do so – in this case:

- The Local Government Ombudsman/The Parliamentary Ombudsman;
- The Department of the Environment, Transport and the Regions;
- The Food Standards Agency/Ministry of Agriculture, Fisheries and Foods; and
- The European Commission.

In my view what we ultimately need, given the nature of the mistakes made by both the City Council and the Environment Agency in this case, is an investigation by Parliament, or some other person appointed by the Minister for the Environment. Only a body with a wide remit to consider the events in Newcastle across the many different remits the Byker situation has created, can provide the necessary insight into how such breakdown in regulatory systems cannot happen again.

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