



The Polluting Factory Campaign Guide

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Introduction

What is this guide for?

This guide aims to provide individuals and groups with the information they require in order to clean up their local environment. Many people are unaware of the opportunities for them to take action against local pollution, whether it be of a river, the air or land. Modern environmental legislation, whilst not perfect, does provide many opportunities for the public to find out who is polluting, without having to pay for expensive chemical analysis.

This guide provides a brief description of possible sources of pollution, explains how pollution is regulated, and what rights you have to obtain information about pollution. The guide outlines what action you can take and explains how you could run a campaign. It includes some case studies from groups who have campaigned locally against polluting factories. It also includes some examples of prosecutions.

Friends of the Earth intends that this guide will assist people in becoming "active citizens", local watchdogs for the environment, empowered to act. It is not a comprehensive text on pollution - it gives the basics and refers you to other sources of information if you want more.

The legislation described in this guide is that in force in May 1998. Over time, new legislation and procedures will be brought in, so, as parts of this guide become out of date, Friends of the Earth will produce updates when necessary.

It is important to note that environmental regulation varies considerably across the nations of the UK, particularly in Northern Ireland. These variations are dealt with in detail in the relevant sections. The main environmental authority in England and Wales, the Environment Agency (the Agency, or sometimes just the EA), is mentioned widely in the text - the Scottish equivalent, the Scottish Environment Protection Agency (SEPA), has similar powers. In Northern Ireland the Environment and Heritage Service fulfils similar functions, though pollution control legislation in Northern Ireland is a few years behind that in the rest of the UK.

This guide has been produced by Friends of the Earth (England, Wales and Northern Ireland).

Friends of the Earth Scotland is a separate, sister, organisation, and has contributed to the sections on Scottish regulation (they also have their own guide to fighting pollution, "Protecting our Environment", *see Annex 9 for details*)¹.

Nature and effects of pollution

In the early years of the Industrial Revolution pollution was rarely considered; industrial wastes were just discharged into rivers, let into the air and dumped on the ground. Over the last 150 years awareness has gradually grown about the local, national and global effects of pollution. Our awareness of pollution is now higher than it ever has been before, at least partly due to the growing amount of scientific research that is now devoted to studying pollution and its effects. Advances in analytical science have led to us being able to measure much lower levels of chemicals, and consequently we have discovered just how pervasive many synthetic chemicals are. The science of toxicology has also advanced greatly over the years, and is now focusing on the effects that very small doses of chemicals can have on the development and functioning of our bodies, as described in books such as "The Feminisation of Nature" and "Our Stolen Future" (*see Annex 9*).

In 1981, over 100,000 chemicals were on the market in the European Union, whilst around 200 new substances a year have been approved since then. The toxicological and environmental impact of the vast majority of chemicals is not known; only about 2,500 of those chemicals on the market before 1981 have had their toxicology and environmental fate characterised, and even with these there are often large gaps in the data².

In order to protect both the planet and human health, the ultimate aim must be zero emissions of toxic, bioaccumulative or persistent synthetic chemicals - but a lot more research, and public pressure, will be needed before we reach that goal.

¹ Both Friends of the Earth (England, Wales and Northern Ireland) and Friends of the Earth Scotland are part of Friends of the Earth International, which has member organisations in over 55 countries across the world.

² Ahrens, A., 1997. "Section 17 and the EU: A new perspective for the marine environment?". North Sea Monitor, June 1997.

Opportunities for action

This manual describes the many ways in which a member of the public can act against pollution. In some cases this may just involve notifying the Environment Agency of pollution incidents, in others it may involve years of campaigning.

Companies are subject to a fairly complex regime of pollution regulation, with large companies regulated by the Environment Agency, whilst some small companies will have at least some of their pollution regulated by local authorities.

As part of this regulation the Agency and others collect a great deal of information about what pollution is being discharged; much of this information is available to the public.

There are many ways in which you can act against pollution, including through the Agency, the local council and public pressure. The guide explains what options are available in each situation, to enable you to take the most effective action. It also takes you through the basics of campaigning.

What is not covered in this guide

There are specific areas of pollution that are not covered in this guide. It has limited coverage of the problems of landfills and incinerators, as these are both covered by other Friends of the Earth guides (*see Annex 9*). It does not cover radioactive pollution, though much of the advice on the relevant authorities and sources of information will still be useful. It doesn't cover the problems of damage to buildings from pollution, and has only limited coverage of noise pollution, and it doesn't cover pollution from traffic. Friends of the Earth have produced other publications on traffic pollution (*see Annex 9 for more details*).

How much time do you have?

This guide has been written to provide information for people who want to write a few letters, through to those who wish to mount a major campaign. This means that it is quite big! There are things that can be done rapidly, if you only have limited time. Even a simple letter may lead to real improvement. If you only have an hour or two, you could write a letter to the regulator (the Environment Agency or the Local Authority Environmental Health Officer for example) complaining about the pollution. This guide aims to help people whether they have unlimited time or not.

How to use this guide

Look at the overview of each section below. You are unlikely to need to read the whole guide, at least not at first. Which parts are most relevant to you will depend on how much you know already, what stage your campaign is at and what sort of pollution you are considering.

Annex 5 has several campaign flowcharts, explaining how different campaigns could proceed - you may find it useful to look at this at an early stage.

This guide may look intimidating, but remember there are people around who are supposed to help you, including your local authority and the Environment Agency - though the amount of help you can get may depend on the individuals concerned, and local factors such as politics, resources and jobs.

There is a Glossary in Annex 10, to help with any unfamiliar words.

Feedback please

Do give us your thoughts on what was the most useful part of the guide. What was the least useful? What was covered in too much detail or what was covered in too little? What were the most grievous omissions? Has it helped you win a campaign? All constructive criticism will be gratefully received and your experiences might be useful to share with other campaigners in a later edition of the guide.

An overview of each section

This guide is split up into sections, annexes and an appendix. This overview will help you to decide which parts you need to read now, and which you can leave until later, or which aren't relevant to you at all.

Section 1 - Campaigning

This section:

- *helps you decide if you need a public campaign;*
- *highlights the importance of involving large numbers of people in your campaign;*
- *suggests how you may want to plan your campaign;*
- *provides advice on the essential elements of most campaigns.*

Section 2 - Where can pollution come from?

This section:

- *describes the sources of pollution from a typical factory;*
- *explains the difference between planned (permitted) and unplanned emissions;*
- *outlines how factories can reduce planned emissions and prevent unplanned emissions;*
- *briefly describes other sources of pollution, not covered in this manual, including old contamination, sewage treatment works, farms and diffuse sources.*

Section 3 - Examples of factory pollution and waste minimisation

This section:

- *gives examples of prosecutions for factory pollution;*
- *gives examples of audits of IPC regulation;*
- *gives an example of pollution investigation;*
- *gives examples of waste minimisation programs.*

Section 4 - How is pollution regulated?

This section:

- *explains who regulates what;*
- *describes regional variations in regulation;*
- *explains the difference between a process and a factory.*

Section 5 - Integrated Pollution Control (IPC) Processes

This section:

- *describes the regulation, by Integrated Pollution Control, of all the discharges of larger (Part A) processes.*

Section 6 - Non-IPC Air Pollution

This section:

- *outlines the regulation of smaller (Part B) sources of air pollution;*
- *describes Air Quality Management.*

Section 7 - Water discharges from non-IPC processes

This section:

- *describes how water quality is classified;*

- *describes the regulation of smaller discharges to rivers, other watercourses, and sewers.*

Section 8 - Other relevant regulatory systems

This section:

- *explains "statutory nuisance";*
- *outlines the regulation of pollution of land;*
- *outlines the role of the planning system;*
- *discusses the value of environmental management and audit schemes;*
- *outlines future directions in pollution regulation, including Integrated Pollution Prevention and Control, a new European law.*

Section 9 - Regulation in Northern Ireland

This section:

- *describes the existing regulatory system in Northern Ireland;*
- *describes the incoming regulatory system in Northern Ireland;*
- *outlines upcoming chances to make a real difference to factory pollution in Northern Ireland, as the new regulations come into force.*

Section 10 - Collecting information about pollution

This section:

- *provides tips on how to observe pollution yourself;*
- *explains what is available in the public registers, and how to access them;*
- *examines the merits of getting your own analytical data.*

Section 11 - Campaigning against pollution

This section:

- *gives general advice on meetings;*
- *describes how to object to an IPC application or variation, or a LAAPC or discharge consent application;*
- *briefly outlines how to object to a planning proposal;*
- *describes the merits of legal action;*

- *describes Local Environmental Action Plans;*
- *outlines ways of pressurising the company to clean itself up.*

Section 12 - Case studies

This section:

- *gives some case studies of real factory campaigns, so you can see how others have done it.*

Annex 1 - The arguments

This annex:

- *lists some arguments you may get used against you, along with some suggested answers.*

Annex 2 - Pollution and toxicity

This annex includes:

- *an introduction to the science of pollution;*
- *an introduction to toxicology and the problems involved in linking human health problems to pollution;*
- *information on what happens to pollutants once they enter the environment;*
- *a brief explanation of how pollution is measured.*

Annex 3 - Important pollutants

This annex includes:

- *a brief introduction to some of the commoner pollutants in the three media, air, water and land;*
- *an examination of some of the chemicals involved in a bit more detail.*

Annex 4 - Prescribed Substances and Quality Standards

This annex includes:

- *a list of prescribed substances;*
- *water quality standards;*
- *air quality standards.*

Annex 5 - Campaign flowcharts

This annex has flowcharts demonstrating typical campaigns:

- *campaigning against a new factory;*

- *campaigning against pollution from an IPC regulated factory;*
- *campaigning against pollution from a Part B regulated factory;*
- *campaigning against a polluted river.*

Annex 6 - Using the law

This annex includes:

- *a brief introduction to the use of legal action in environmental campaigns.*

Annex 7 - Using your right to know

This annex includes:

- *an introduction to the legislation allowing access to information;*
- *how to use your right to know.*

Annex 8 - Key players and contacts

This annex includes:

- *a description of the main regulators, how they work, how to contact them, and how to complain about their actions;*
- *brief information on other organisations involved in regulating pollution;*
- *contact details for other organisations that you may find useful.*

Annex 9 - Other sources of information

This annex lists:

- *some useful books;*
- *some relevant official publications;*
- *relevant Friends of the Earth publications;*
- *some useful web sites.*

Annex 10 - Abbreviations and definitions

This annex contains:

- *abbreviations;*
- *definitions.*

Appendix

Toxics in Your Backyard

Section 1

Campaigning

This section:

- *helps you decide if you need a public campaign;*
- *highlights the importance of involving large numbers of people in your campaign;*
- *suggests how you may want to plan your campaign;*
- *provides advice on the essential elements of most campaigns.*

The success of a public campaign is likely to depend on two factors:

- *a high level of support within the local community;*
- *solid and well-presented arguments.*

This guide provides a lot of information in later sections describing how the regulatory systems work, and how you can affect their decisions. If you are lucky just writing a letter to a regulator could clear up your problem. However, many factory campaigns do require the mobilisation of public opposition to the pollution. This section describes how to build a campaign, so that through campaigning you can put pressure on the regulator and the factory owner to clean things up.

Do you need a public campaign?

Don't leap into a full public campaign without first considering whether it is necessary. You may find that a letter or two to the regulator, as outlined in Section 11, will be enough to get rid of the problem. If you feel your personal efforts are getting nowhere, or there are events that need a wider response (e.g. you want to oppose an application to run a new industrial process), then you will need to get a public campaign together; this section explains how.

We can't necessarily offer a blue-print for a successful campaign here, but we hope this manual covers the main elements. One campaign can be very different from another, and the strategy that you will need to use will depend very much on the nature of the problem and the surrounding politics. Getting an existing law enforced will be a much simpler campaign than, say, getting a new law into place, particularly if European-wide agreements might be affected.

To give you an idea of the different dynamics, three scenarios are presented below, with the first the

most straightforward, and the last the most complex.

1. Dead fish in a river

You spot dead fish, downstream of a sewage treatment works. One call to the Environment Agency pollution hotline brings in emergency workers, who try to minimise the damage to the fish and the river and take samples from the offending pipe. You call a week later to ask what is happening, and are told that the works exceeded limits in its permit and a prosecution case is being mounted. A month later and nothing seems to be happening - another call to the Agency and you find out that they are considering shelving the case. So you call the press, who run a story about the sewage works being let off the hook. Tracking the case with phone calls to the responsible officers in the Agency ensures that the issue doesn't "disappear", and a prosecution case results.

2. Air pollution from a factory

Local residents believe that a small local factory is polluting the area's air. You complain to the local authority's Environmental Health Department. They say that there's no problem, and the plant is emitting pollution within the authorised limits. You go to the local authority's registers and copy the authorisation and monitoring data, and compare the authorisation with the process guidance note. The note suggests that lower limits should be set. You write to the local authority - they say that these limits have been set because it's an existing plant, and doesn't need to upgrade its pollution control.

At this stage you start to set up a public campaign, calling on the council to reduce the factory's

emissions to those in the guidance notes. The campaign strategy includes making this an issue at local elections, getting residents demonstrating outside the factory calling for a reduction in its emissions, and getting the councillors to promise to install monitoring equipment for some key pollutants in the area. Eventually the council imposes (or the company voluntarily accepts) tighter emission controls.

3. Burning of hazardous waste at a cement kiln

A local cement works applies to burn "secondary liquid fuel (SLF)" instead of coal. Suspicions are aroused, but the authorities imply that it is cleaner than burning coal. A bit of research makes it clear that SLF is hazardous waste that will have to be transported in and may increase emissions. The Agency grants a trial licence for the "alternative fuel" burning. But your campaign and residents see it as "waste disposal" in a facility that was not designed for waste incineration. More research, networking with other campaigners, and mobilising mass opposition to this form of waste disposal are needed to try to persuade the company and the Agency that this form of incineration is not acceptable. The campaign runs over several years and ultimately involves MPs and Ministers (*see Castle Cement case study, Section 12*).

Setting up a campaign

To be effective, you should plan your campaign. A strategy can be structured as follows:

- **objectives:** Clarify what you want the campaign to achieve. Keep it short and specific. For example, to persuade the factory to install better pollution control equipment;
- **targets:** Identify whose policies you are trying to change. For example, the Environment Agency officer, or an Environmental Health Officer;
- **research:** Build up an information base. Be persistent in getting hold of written information;
- **allies:** Find out what other organisations or influential people can support your campaign. For a factory campaign your allies are likely to include local residents, parish councils, the media, other local community groups, councillors, Trade Unions and perhaps your local MP;
- **fundraising:** running a campaign costs money. You should look for opportunities throughout your campaign to raise funds;

- **priorities:** which aspects of your campaign are most important? What steps are you going to take first?

Tactics and opportunities

As soon as you have a strategy, you can work out what you are actually going to do. Make a list of the campaign tactics which will help you to achieve your objectives, such as public meetings, press releases, leaflets and stunts.

Winning the campaign will involve using the right tactics at the right time. For example, you will want to build up local support early on and this may involve leafleting and holding public meetings. At other times you may need to spend time researching and writing a detailed objection to the factory's pollution and the way it is regulated. A good campaign recognises that it can't do everything at once and plans to put its efforts into the right actions at the right time.

Devise a timeline, plan your events, and what needs doing when. This helps ensure that things get done and makes sure that the whole group knows what is happening and coming up.

Organise to win

Many community groups struggle for resources. To compensate as far as possible, keep your campaign well organised. Access to basic office equipment helps. A computer and printer are ideal for your publications and press work. Keeping your paperwork well filed, getting an answer-machine and setting up a bank account for donations are examples of how you can keep things running smoothly.

Get as many people involved as possible.

Try and involve as many people in the campaign as possible. Not only does this allow the work and cost to be spread more evenly, but it also gives the campaign greater credibility if you can claim to be speaking on behalf of the local population.

Organise a list of key contacts with their phone numbers, addresses and any other relevant details. Ideally set up a file of contacts. Identify the skills and resources available through your supporters, perhaps via a questionnaire or cut-out form in a newsletter.

Run effective meetings.

Ensure that the campaign group meets regularly and that you have an agenda to try to make sure that everything that needs to get sorted out does get sorted out - this also gives a good impression of the

group. Also try to make sure that there is a written record with key points raised during the meeting, and any decisions and action points that might have been agreed. The most important outcome of campaign meetings is a clear set of action points, with a person responsible, and an agreed deadline for getting each one done.

Have a clear structure

A structure will help people know what their responsibilities are. Try to spread the workload amongst the group, using the skills and resources that people in the group can contribute. These may range from the highly specific (e.g. legal experience, relevant scientific experience, media experience, previous campaigning experience) to more general (time to write the letters, time to visit the registers during the day, time to be available for media calls during the day).

Remember your campaign may take a long-time

Whilst you should find your campaigning rewarding and satisfying - whatever the outcome - campaigning against factory pollution can take a long time. Even with a group, the campaign may sometimes seem a rather lonely and thankless business. Prepare yourself for the long haul and stick at it.

Research

One of your first steps is to get hold of relevant information, as described in Section 10. You may also want to find out more about the effects of particular chemicals. When writing about the technicalities use direct quotations from referenced sources (which you have read) as much as possible to ensure your case is authoritative.

Dig deep and you will find all sorts of angles to investigate. Put your requests for information in writing, and try to get everything important on paper from reliable sources. Maintain a healthy suspicion of what you are told.

Get familiar with the legal and technical jargon. Scrutinise key documents in detail, and keep them safely filed away - for years if necessary. But don't get bogged down in paperwork.

See Section 11 for some tips on how to deal with meetings with regulators, politicians and the target company.

Ask questions. No-one can be expected to become an expert in pollution law and procedures overnight. Ensure that you talk to the regulator to

be absolutely sure that you understand what is the current position. There will be many points of procedure - including crucial deadlines or meetings, the desirable format and number of copies of any objections - of which you should be aware.

Campaign materials

Printed leaflets and posters are vital communication tools for most campaigns. Make yours as professional and attractive as you can afford.

Basic campaign materials

- **A leaflet or flyer** outlining the local threat and what action you want others to take.
- **A newsletter** to keep campaigners and supporters up to date.
- **Pre-printed postcards and letters** when a massive response is important, (e.g. when replying to official consultations). Make sure you target the correct decision maker.
- **A short briefing sheet** with a summary of the key arguments on just one or two pages, with a clear and simple map. This can be faxed to journalists.
- **Reports** improve your credibility and make good press stories. However, it may not be necessary to publish a major report if a press release containing the findings of a simple survey gets similar levels of coverage. Using an external consultants to write a report may be useful, but such consultant's reports may be expensive or of variable quality. You may decide that the money is better spent elsewhere.
- **Posters** with a simple message can be put up in shop windows, homes, or used on placards.
- **Videos** have been used by some groups to highlight their campaign, for example by demonstrating pollution. You may find *"The Video Activists Handbook"* by Thomas Harding, published by Pluto Press in 1997, useful.

Some points to bear in mind when writing:

- **make the demands of your campaign clear and up front;**
- **target audience:** Identify who you want to read or see the material. If it is the public, keep it simple. You can use more technical language and detailed arguments for government officials;

- **writing:** Avoid jargon, explain acronyms and have the document proof-read;
- **eye-catching:** Use catchy slogans where appropriate (try them out on someone who's not an expert first). Cartoons, symbols, logos and images can stand out;
- **feedback:** Get comments from experienced people, if possible, on factual accuracy and from non-experts on style. You must get your facts correct. If in doubt, leave it out;
- **fundraising pitch:** Ask people to make a donation in the most persuasive way you can. Ask people to fund specific projects, spell out how their money will be used, thank them and tell them how their money was spent. Keeping an accurate list of donors will help you in the long run;
- **contact details:** Wherever possible include a positive introduction to your group. Include a contact name and number;
- **design and production:** Keep your publications uncluttered and easy to read;
- **print and production considerations:** Consider how it will be produced. Different materials warrant different levels of production standards. Allow time in the launch schedule for printing.
- **be honest and stick to the facts:** You don't need to be an expert, but any facts you use must be correct. Don't overplay your hand. Try and see both sides of the debate, and put forward sensible solutions to cope with genuine problems;
- **start with a positive message:** Do you want your campaigning to get results? Research has shown that people respond better when their initial reaction to a message is "yes". So start your leaflets with a question like "Do you value a clean environment?";
- **improve your skills:** Get feedback from friends on your media appearances;
- **be prepared for attacks:** Industry may claim you're trying to destroy jobs by making the company spend too much on the environment. You can respond by saying that companies with good environmental records tend to be better run and more profitable in the long term. Make it clear that your approach offers wider benefits to society, and means putting people first. Having a broad campaign alliance and reasonable demands will help deflect attacks. **Annex 1 gives suggested answers to some common sticky questions;**
- **be careful:** Avoid personal attacks on people. Unsubstantiated allegations about people or companies could land you in court.

Getting the message across

For your campaign to be successful, you need to persuade people to get involved and to take action. Winning campaigns means generating support for your cause. The more people you mobilise, the better your chances of success.

It can be useful to provide easy opportunities for people to object (such as by filling in a pre-paid postcard). Getting lots of people to sign a petition or turn up to a demo is an ideal way of demonstrating public support.

Your message

In today's information society, your message has a lot of competition. Whoever your audience is, a lot of other people are competing for their attention. If you believe your message is important, you need to craft it in ways people can easily understand and accept. You can communicate your message better if you use the following tips:

- **be yourself:** Show that you are passionate about your cause and determined to win;

Leafletting

Leafletting is an important way of communicating your concerns to a large number of people and raising public awareness of the campaign. You could post leaflets through doors at houses in key locations, for example, near the factory.

The leaflet should say what your concerns about the pollution are and should tell people how they can help, for example, by writing to the regulator or getting involved in your campaign.

Public meeting

Hold a public meeting and invite the key players to attend or speak. You will want to ensure a good turn-out to this meeting to ensure that they are aware of the strength of feeling. Use an accessible and well known venue, perhaps a local community centre. Put up posters and distribute leaflets advertising the meeting a few weeks in advance. Try to make sure you get a mention in your local newspaper's events section, or even buy an advert. Write to all the players inviting them to attend and also invite local councillors and MPs. Don't forget

to invite the media. At the public meeting you will want to have a member of your group explaining the problems caused by the pollution, and offer the opportunity for other groups to do the same.

You may also find it useful to hold more informal meetings where the public can meet those running the campaign and exchange views. This should help you to gauge the public's knowledge, opinion, wants and needs. This would be useful information for newsletters and major reports.

Petition or opinion survey

Organise a petition or public opinion survey. This is aimed at convincing the regulators of the level of support for your campaign, and is relatively simple to organise. It can simply ask "Are you concerned about the fumes from x?", "Have you suffered health effects from x?". It is worth carrying out the survey outside shopping areas and other places where plenty of people go. Once you've asked a few hundred people you can then let the regulator and local politicians know the results and also tell the media.

Letter writing campaign

Organise a letter-writing campaign. Regulators and local politicians will be more impressed with the greater personal effort that is required for people to express their views in a letter than simply by signing a petition. You can encourage people to write letters through your leafleting, posters, presswork and public meetings.

Using the Internet

Producing a web site covering the activities of your campaign can be a useful way of keeping local people informed about what is going on. This is particularly true if you know that many local people have access to the web (e.g. students at university, well used internet facilities in the local libraries, etc). The internet also allows other groups working on similar issues to get in touch with each other, and provides you with access to a huge reservoir of information (*see Annex 9 for some useful links*).

If many members of your campaign group have email then it may be a useful way to communicate. Make sure those not connected don't feel left out though!

Media work

Your campaign should be highly visible if you are to communicate your message to sufficient numbers of people. This means that you must use the media to get the best results.

Your job is to create news - not to wait for it to happen! Newspapers are only too happy to be provided with good stories.

Media work can be proactive, where you launch your own initiative. Or it can be reactive, where you comment on some other event. Much of your day to day media work will be based around announcements or decisions. The rule of thumb is that the more powerful the institution making the announcement (or the closer to the establishment it is), the more newsworthy is the story. Government announcements are big news. Local authority or statutory agency announcements are less newsworthy, but still important for local papers. For your campaign to make the news you will have to create a good story yourself.

Tips on making a good story:

- **people:** Find out who is suffering from the pollution, for example, children with asthma or anglers having a problem with a polluted river. You can exploit such so-called human interest angles. Having support from a local celebrity can increase your media profile;
- **conflict:** Develop the political conflict. A "local politicians under fire" angle will always attract attention;
- **countryside:** Include descriptions of beautiful landscapes or wildlife under threat; for example, a grassland or river which is a site of special scientific interest being damaged by the pollution;
- **a critical piece of information:** A statement attributable to an important figure (such as a politician) or institution will be newsworthy, especially if you have a leaked memo or new document;
- **a scam:** A scandal or expose goes down well, as does issuing a challenge or threatening legal action (if you have a good case);
- **images:** You could set up a stunt (maybe in a famous local spot) or provide some other image for the paper. Potential photo-opportunities from stunts are unlimited. Humour is popular, especially if you can use it to embarrass politicians.

Selling your story

Papers differ greatly in their sympathies and in what they are looking for. Think how you can tailor your story to a particular paper. For example, some papers want "feel-good" stories - others prefer big

disasters. Your story must have an element of timing, e.g. something that is happening that day.

Think about how you can get maximum media profile. It may not be necessary to get 100 people on a march, if 5 people doing something more photogenic can get the same coverage.

Contact local newspapers in advance to let them know about any important developments in your campaign, for example, if you are planning an event. Closer to the time, deliver, post or fax a comment or a press release, and then phone the news desk to see if they have received it and are going to use it. Don't ignore free papers. They may give good coverage, and often have high circulation figures.

Press releases

Keep your press releases short and punchy. The title should command attention. The full story details should be in the first paragraph, which should be short and attention grabbing. Your objectives and what you are calling for should go in the quote. Collect press cuttings for future leaflets etc.

Don't forget radio

Radio is an excellent and under-used way of getting your story across. Participate in radio phone-ins, and if you hear your story being mentioned, alert other people so that they can join in the phone-in.

Understand the media

After you start using the media, you will realise that journalists are usually looking for a story, rather than taking a side. Maintain a healthy relationship with them, even if they fail to run your story the way you want. Be patient, be polite, and above all, be persistent. If you are working regularly with the media, it helps to have some understanding of how they work. Know what the deadlines are, for example. You could arrange to meet one of the editors or journalists and find out more about their readers or listeners and how to get stories in. Make sure that you have a list of the names, positions, telephone numbers, fax numbers and addresses of all relevant media contacts.

Writing letters

Write a letter to the local paper as an easy way to raise concerns. Ideally, the paper should receive lots of letters from different people in different styles and making new points.

Playing the politics

Although in most cases local politicians will not have any direct decision-making powers over factory pollution, they can be a useful source of pressure on the regulators, whether they are councillors or MPs. Councillors will have some more direct influence on the local Environmental Health Officer. However, avoid party politics. The golden rule is not to endorse or oppose a party or a candidate, but only to comment on specific policies or proposals. Your campaign should be seen to be fair and impartial. In the long run the best tactic is to get everyone on your side - regardless of political colour.

This does not stop you attacking politicians, or drawing attention to local politicians who are going against their own national party policies (a common situation). If one local politician is heavily in favour of lax regulation of the factory, persuade the opposition to come out against this in public. This gives you political allies, and a political voice.

Keep sympathetic politicians informed of the progress of the campaign. Stay polite to all politicians and officials. Politicians want to be popular. So you may find that they join you after you have mobilised public support. Great - as long as they contribute to the cause.

Urge people to write to their local MP, asking them to raise the issue with the relevant Minister, if appropriate.

Unions and workers

It is often useful to try and build bridges with the shop-floor workers at your factory. This will help to diffuse animosity and could turn out to be a useful alliance and source of information. Be aware that workers may well be sympathetic but intimidated from speaking out.

Unions have become increasingly aware of environmental issues, especially where they affect worker health. Try to establish a good relationship with union officials early on, since management in industry may try to represent environmental campaigners as a threat to jobs and the financial well-being of a local employer.

Other allies

You may find that you have allies within industry from whom you can gain a lot of advice and assistance. This may be from companies who market or just champion the use of pollution abatement technology, the higher standards or the clean technology that you think your factory needs.

One source of information about such companies is the Environmental Industries Commission (*see Annex 8*). If your case is backed by such interests it can carry a lot more clout with politicians who are then unable to just dismiss you as nimby environmentalists. However, as with all alliances, you need to be wary. Whilst there is nothing wrong with marriages of convenience you should ensure that you don't lose sight of your agenda for the sake of someone else's.

Getting guidance

Friends of the Earth has a range of resources available to its local campaigners, including a set of Action Briefings which provide guidance on basic campaign issues. They are listed in Annex 9.

If your campaign group is not part of Friends of the Earth then see if your local Friends of the Earth group is interested in your campaign. If you have no local Friends of the Earth group, the FOE national office, and our network of Regional Campaign Co-ordinators can help you set one up. Friends of the Earth local groups can also benefit from regional training days, e.g. on media skills.

You may also find it useful to contact other groups who have been undertaking similar campaigns, to share your knowledge.

Section 2

Where can pollution come from?

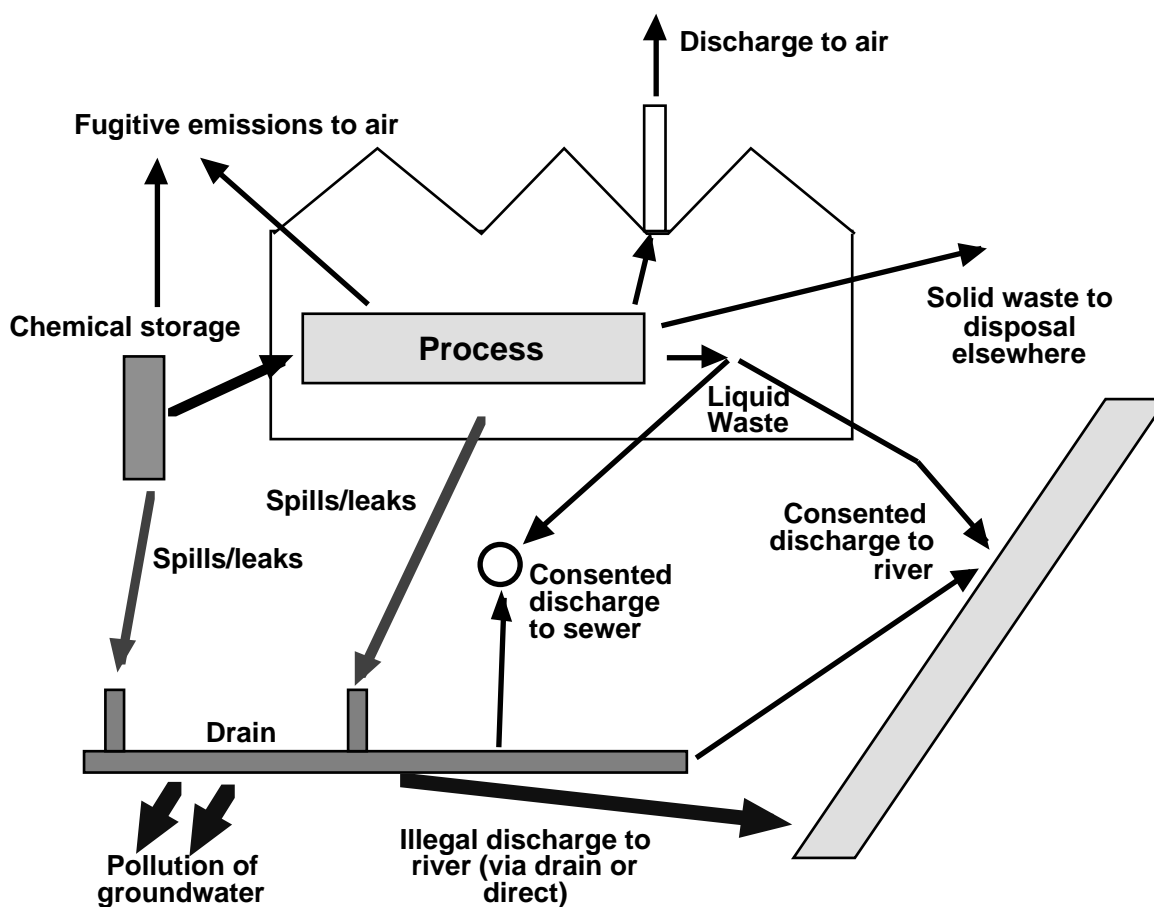
This section:

- describes the sources of pollution from a typical factory;
- explains the difference between planned (permitted) and unplanned emissions;
- outlines how factories can reduce planned emissions and prevent unplanned emissions;
- briefly describes other sources of pollution, not covered in this manual, including old contamination, sewage treatment works, farms and diffuse sources.

Assuming that you are concerned about pollution, say, of a river or air, the first thing you need to work out is where the pollution is coming from. It is vital to determine the source of pollution; this may be very localised, perhaps only arising from one factory, or it may be widespread and diffuse, for example from agricultural pollution. The connection between the source and the target (recipient) of the pollution is called the pathway.

The pathways may, or may not, be obvious. If a river near an industrial estate is polluted, for example, it may be hard to work out which factory is responsible. It is quite possible that several factories are contributing to the pollution of a river or the air. You might not be able to work out everything yourself, in which case you should ask the regulator (*see Section 4*). If the regulator

Figure 1: A diagram showing a typical factory and the fate of its wastes



doesn't know, then try to persuade them to find out.

For more information about pollution itself, look at Annex 2.

Factories

A factory has many different functions, and can potentially pollute in many different ways. It is useful to try to separate out some of the possible routes, as this will help establish which are legal or illegal, and how you can spot different sorts of pollution. Figure 1 shows a typical layout of a factory, with potential sources of emissions. Wastes from factories can be discharged to water, to air or to land, though usually it is only the first two that are relevant at the site. Wastes may enter the environment at the factory, into a river or the air, or may go into a sewer and on to a sewage treatment works, from where the treated material will enter the environment.

Planned releases, e.g. stacks, pipes

Many factories have chimney stacks to discharge to the air from their processes, and pipes to discharge either to a sewer or a river, in some cases after some sort of treatment. This treatment can be very rudimentary, or may be sophisticated. As is described in the Section 4, a factory will generally have been given a permit for its releases, and will not be breaking the law if its emissions do not breach any limits set in the official permits. Depending on the context, these permits may be called "consents" or "authorisations".

Legal

The permits mean that industry can legally discharge wastes to the air or water. Some permits are very old, and some may reflect earlier situations e.g. when a river had more water in it, diluting the discharge. A consented discharge, though legal, might still be responsible for water or air pollution - see Section 11 to see how you can dispute a permit.

Illegal

A permitted discharge which breaches the terms of a permit is illegal (though you need to check the permit carefully - some breaches may be allowed). If, for example, there has been a problem with the production processes in the factory, or a pollution control device has stopped working, then a permit could be breached. It is up to the regulator to do something about this (*see Section 4*).

Long term effects on work force

Even a permitted discharge may have long term (or *chronic*) effects on a workforce who is constantly exposed to it. The health of workers is regulated by

the Health and Safety Executive (*see Annex 8*). There could also be long term effects on the local population - such problems should, in theory, be investigated by the local health authority (*see Section 10*).

Unplanned or unmonitored releases

Fugitive emissions

Fugitive emissions are emissions that don't come from a recognised stack or pipe, for example evaporating petrol during a delivery, or dust. Fugitive emissions are not normally monitored (monitoring them can be difficult) though there are often ways of preventing them.

Leaks

In a badly maintained plant leaks can be a major problem. For example, solvents may leak onto the ground from pipes, resulting in air pollution by evaporation and/or pollution of a nearby watercourse and/or pollution of the soil and groundwater.

Spills

One of the commonest causes of severe pollution incidents are spills, and there is a steady list of companies prosecuted every year for pollution through spills. This can often be aggravated by badly marked drains or poorly trained staff. There are always examples of chemicals being poured down drains and flowing straight into a river, rather than into a sewer as was expected! (*see Section 3 for examples*).

How can factories reduce emissions?

There are almost always things that can be done to reduce emissions from a factory. This is not the place to describe them - after all, the companies themselves should have the best understanding of their processes (in theory!).

Waste minimisation

Waste minimisation is the best thing a company can do to reduce its pollution. This involves redesigning processes to reduce or eliminate waste. It may involve, for example, recycling process water, choosing a water-based process rather than an organic solvent-based one, or finding a new use for an old waste. Many companies have saved millions of pounds a year through the use of waste minimisation, though an investment is often needed at the beginning to investigate the options (*see Section 3 for some examples*). The Government provides free advice to companies on waste minimisation and pollution control - 0800 585 794 in Britain, 0800 262 227 in Northern Ireland. The

Environment Agency also provides free pollution prevention videos and literature. In some areas "Waste Minimisation Clubs" have been set up to help smaller businesses reduce their waste production.

Improved process control

Many pollution problems are caused by poorly operating processes. Good process control can reduce or eliminate these problems at little or no extra cost.

Abatement technology

The least-best option is improved abatement technology, also known as "end-of-pipe" treatment. The waste is still being generated by the process, but improved equipment at the discharge points enables the waste to be collected before it enters the environment. Many abatement technologies exist, they are described in official guidance notes on industrial processes (*see Section 5*) and in text books on pollution.

How can factories stop unplanned emissions?

Unplanned emissions are usually a sign of a poorly managed company. Generally they result from poor equipment, poor training, poor procedures, poor maintenance and poor prevention. Particular areas which should be looked at include the following.

Proper labelling and training about drainage

It is surprising how many companies don't know where all the drains on their site go to. This can be a particular problem with sites that have been in use for many years, as new drainage systems are often put in without removing old ones, resulting in unknown linkages - and then things ending up in the local river which should have been in a sewer.

Companies should ensure they know where every drain goes, and ensure that they are all labelled, and that the workforce knows what the labelling means.

Bunding

One way of preventing pollution is to build a bund (walled containment area) around areas holding liquids. The bund is generally designed so that it can hold more than the total volume of the liquids contained in tanks within the bund (often 150%). This means that if a tank fails the contents will be held so they can be disposed of properly. Unfortunately, sometimes companies don't seem to understand what bunds are for, and build drains in them or in their walls - so any spilt liquid goes straight into the local river (it sounds silly, but it does happen! - see Section 3). It is not compulsory

for companies to bund their chemical tanks; the Government has had the power to set minimum standards for chemical stores since 1974, but hasn't yet used it³.

Industrial estates

On an industrial estate it is often hard to locate specific sources of pollution, as many companies may be producing small amounts. Drains, which may flow directly into a river, may be used for disposing of solvents or oil, and any spillages may get washed into the drains, either deliberately or by rain. The Environment Agency is responsible for improving river quality, but it is quite possible that no individual factory will actually possess a permit for discharging waste to the water course. This sort of pollution can be prevented by remodelling the drainage system, and by educating the factories concerned; it is illegal.

Old contamination

Contaminated land

Old industrial sites have often left a legacy of polluted land, from which toxic chemicals can leak into streams and river. A detailed examination of the issues surrounding contaminated land is beyond the scope of this manual, but it is mentioned because it can be one cause of river pollution. Friends of the Earth have produced a book on the problems of contaminated land, called "Buyer Beware". If you believe that contaminated land is causing problems in your area, contact your local Environmental Health Officer, or the Environment Agency (*contact details in Annex 8*).

Disused mine workings

When mineworkings are abandoned they often fill up with water. At the same time, in many cases, some of the rocks in the mine oxidise, producing an acidic, metal rich minewater. If this minewater flows into a river its acidity and metal content can have a devastating effect. The minewater is usually a bright orange/yellow colour, and the pollution may start very suddenly, as the mine concerned fills with enough water to reach an outflow point. Acidic mine drainage is outside the scope of this manual, but if you think there's a problem, then contact the Environment Agency.

³ The Government has had the power since the Control of Pollution Act 1974, but has not yet used it. A survey by the National Rivers Authority of 70 industrial sites around Tiverton, Devon found that 82% of chemical tanks were poorly protected. ("Pollution from oil and chemical stores: a dismal tale of Government inertia" ENDS Report 256, May 1996).

Contaminated sediments

Some rivers, and more commonly estuaries, have received a great deal of pollution in the past, and in some cases some of this pollution is still present in the sediments under water, from where pollution can continue to leach for many years.

Landfill sites

Landfill sites (rubbish dumps) are not covered in any detail in this manual. Friends of the Earth has produced a "Landfill Campaign Guide"; see Annex 9 for details.

Landfill sites usually generate a highly polluting liquid called leachate, high in Biochemical Oxygen Demand (BOD), and probably metals and organic chemicals (*see Annex 2 for more information about pollutants*). In poorly designed landfills this leachate may pollute local rivers and groundwater, and even the best designed are likely to leak eventually.

Incinerators

Incinerators produce air pollution, and they are also a very inefficient way of disposing of waste. If you are involved in a campaign against an incinerator, Friends of the Earth have produced "The Incineration Campaign Guide"; see Annex 9 for details.

Sewage treatment works

Effluent from sewage treatment works is one of the biggest polluters of rivers. Sewage works are not dealt with in detail in this manual, although their regulation by the Environment Agency is not that different from the regulation of a factory.

There are three levels of sewage treatment, primary, secondary and tertiary, with primary being the most basic, and therefore discharging the most polluting effluent. Sewage effluent damages a river in five main ways:

- the effluent may contain a lot of nutrients (nitrates and phosphates) which can cause nutrient enrichment (eutrophication) in a river, leading to a lot of algal growth and a lack of oxygen;
 - the effluent may contain a wide range of chemicals, particularly if a lot of industrial trade effluent is discharged into the sewers entering the treatment works.
- There are two common reasons why a sewage works would be having a major impact on river pollution:
- the level of treatment is not good enough for example, primary or secondary treatment is being used when only tertiary treatment will protect the river. There may be problems with chemicals from a trade effluent which the works is not able to treat properly;
 - the sewage works is overloaded. This often happens if new housing developments (or factories) have been built in the area, without the sewage works being upgraded to cope with the increased volumes of effluent. Sewage works always have storm overflows, so if a huge volume of water comes through the sewers during a storm, some of the water will not be treated before entering the river; it should be screened to remove large items though. If a sewage works is overloaded, the storm overflow might be used more often, causing considerable pollution problems. Sewers themselves can also get overloaded, before reaching the sewage treatment works. Overloaded sewers will discharge through combined sewer overflows into a river; any trade (factory) effluent in the sewer will then be discharged untreated. Screening of these overflows may be less effective, leading to pollution with sanitary towels and condoms, for example.

Farms

Modern intensive agricultural practices have an immense impact on the quality of some of our most sensitive rural rivers. Farm pollution is outside the scope of this manual; it is regulated by the Environment Agency, with advice to farmers coming from the Ministry of Agriculture, Fisheries and Food (MAFF). Farm pollution falls into two main categories:

High BOD effluents

Cattle slurry (liquid manure) and silage liquor (liquid from fermented grass stored for use as a winter feed on dairy and beef farms) are similar to

sewage effluent, with very high BOD, suspended solids and ammonia (*see Annex 2 for more information about these pollutants*).

Pesticides and fertilisers

Chemicals used on land or animals may run off into streams. Fertilisers lead to eutrophication, whilst pesticides can damage or kill river life. A particular problem in some areas is sheep-dip pesticides. Sheep are dipped in pesticide to prevent and kill "scab", and once the sheep have been dipped the dipping water must be disposed of. Unfortunately this is often done by just discharging it into a "soak away", which can easily contaminate nearby streams. There are two main groups of sheep dip pesticides, the older organophosphates, which are nerve toxins and are consequently being phased out, and the newer synthetic pyrethroids which appear to be less toxic to humans, but which are extremely toxic to river life, particularly invertebrates. A single pyrethroid spill can wipe out a river's invertebrates for several miles downstream.

The construction industry

The construction industry is a major polluter of rivers. Construction operations have the potential to release huge amounts of silt and other solid materials into rivers, which can have a devastating effect on the river. This pollution is regulated by the Environment Agency; contact them if it looks like there's a problem.

Diffuse sources

Diffuse pollution is pollution which comes from a low level of discharge from a myriad smaller sources.

Road runoff

Road surfaces become contaminated with oil, petrol, salt, metals, tyre dust and products of combustion such as polycyclic aromatic hydrocarbons (PAHs). When it rains this pollution can get washed into the nearest stream, if that is where the road's drainage leads. This pollution can be avoided by either ensuring that the road drainage is discharged to a sewer for treatment, or by engineering a small passive treatment system beside the road, consisting of, for example, a sedimentation tank and a reed bed treatment system.

A chemical spill on a road can also run off into a nearby watercourse, particularly if the spill has had to be sprayed with water or foam to prevent fire. If you see anything like this immediately phone the

Environment Agency emergency pollution line (*contact details in Annex 8*).

Domestic sources of air pollution

It is worth remembering that a large percentage of air pollution comes from traffic, and, in areas that are not smoke-free, from coal fires. This manual does not cover these issues, but they may be relevant if you are involved in examining air quality monitoring data.

Where can pollution go?

(*There is more discussion of this issue in Annex 2.*)

Air pollution

Chemicals discharged into the air will add to local air pollution. Some of these chemicals will be similar to those produced by traffic (e.g. NO₂ and particulate matter - *see Annex 2 for more information on pollutants*), so will add to any traffic pollution already present. Other chemicals may be deposited on the ground near the plant (e.g. some dusts, dioxin), whilst others may travel for many miles (e.g. SO₂).

Water pollution

Chemicals discharged into rivers, streams and lakes may be carried downstream, or may accumulate in the sediments and creatures in the watercourse.

Groundwater pollution

Chemicals spilt or spread deliberately on the ground may penetrate deep into the subsurface, depending on the type of soil and rock. This can lead to contamination of groundwater, which may migrate away from the original site of the spill or discharge. This is a particular problem if the groundwater is part of an aquifer which is used for drinking water.

Land pollution

Once land is contaminated it will remain contaminated if the contaminant does not break down and is not transported away into groundwater, for example.

Section 3

Examples of factory pollution and waste minimisation

This section:

- gives examples of prosecutions for factory pollution;
- gives examples of audits of IPC regulation;
- gives an example of pollution investigation;
- gives examples of waste minimisation programs.

In this section we aim to give you an idea of the pollution incidents that occur at factories. We describe results of some audits of pollution authorisations at some factories, to illustrate the problems that may exist under the surface at some plants. Examples of pollution investigation are then given, which demonstrate that pollution is not as simple as it may appear. Finally, we look at some examples of the effectiveness of waste minimisation as a way of both reducing pollution and saving money.

Pollution prosecutions

The following are brief accounts of different pollution incidents that companies have been prosecuted for. Some pollution incidents are not prosecuted, but these examples show the importance of the public in spotting problems, and the amazing incompetence behind some pollution incidents.

ICI's massive chloroform spill

ICI Chemicals and Polymers were fined £300,000 and £51,192 in costs for a spill of 147 tonnes of chloroform at their Runcorn works in April 1997⁴.

The leak occurred from a 700 metre pipeline, and continued for over 4 hours until a contractor smelled chloroform vapour and discovered a three foot high fountain of chloroform gushing from a broken filter. The filter which ruptured had been redundant for six years, the pipe had no pressure relief mechanisms, daily inspections of the area had been stopped, even though they were required by on-site procedures. There were no bunding or containment systems for the pipe, so it is estimated that 1 tonne of chloroform leaked into the Weston Canal, 3 tonnes evaporated and 123 tonnes is still in

the ground, potentially contaminating the groundwater for decades, if not centuries. ICI recovered 3 tonnes of the chloroform.

The prosecution, which started in the Magistrates Court - which has a maximum fine of £20,000 per offence - was moved to the Crown Court because of the seriousness of the offence. Fines at the Crown Court have no limit, this fine of £300,000 is the second highest ever imposed for an environmental offence in the UK.

Incompetence at ICI Runcorn

ICI in Runcorn were fined £34,000 for a spill of vinylidene chloride which polluted a canal⁵.

The incident started when a tank was overfilled with a mixture of the chemical with water: the level indicator wasn't working, and the operator ignored an alarm. The tank spilled into a bund. The shift changed, but the new shift were not told about the contaminated liquid in the bund. They worked out what had happened, then decided to pump the liquid back to its storage tank. However, there was a second spill into the bund, and the bund wall started leaking.

The leaking chemical entered surface drains, and passed into an effluent pit, which overflowed because the pump designed to empty it had been set incorrectly. The overflow, including about 50 litres of vinylidene chloride, entered the Weston Canal. This discharge was 180 times above the consent limit.

ICI Chemicals and Polymers was fined £12,000 each for two breaches of conditions relating to operation and maintenance of the process, £10,000 for exceeding consent limits, and costs of £6,000.

⁴“ICI fined £300, 000 for major chloroform spill”, ENDS Report 278, March 1998.

⁵ENDS Report 270, July 1997, p46.

McDonalds' sewage works

McDonalds' Alconbury site was fined £6,000 for 3 offences of polluting a Cambridgeshire brook with sewage⁶.

A member of the public had complained to the Environment Agency, and when an officer visited the site they found that McDonalds' sewage treatment plant was not working, so the brook was filled with foul-smelling silt and sewage fungus. Two more visits over the following 6 months found that the plant still wasn't working.

The company was fined under the Water Resources Act 1991, Section 85(1), for knowingly permitting polluting matter to enter controlled water.

Inveresk's ammonia discharge

Inveresk paper's St Cuthbert's mill plant in Somerset was fined £9,000 for discharging excessive ammonia to an important trout river⁷.

The firm had been failing to achieve its discharge consent of 5 mg/l ammonia for some years. They invested in a new treatment facility, but this didn't work properly, and the Agency finally prosecuted 3 charges of breach of discharge consent, under Section 85(6) of the Water Resources Act 1991.

Since the prosecution, Inveresk have improved the treatment process, reduced the ammonia produced by their process, and are now investing in effluent recirculation, substantially reducing the volume of their discharges.

Flexsys and hydrogen sulphide

Flexsys, a chemicals firm, were fined £15,000 with £22,000 costs for release of hydrogen sulphide gas from their Ruabon works near Wrexham⁸.

A pressure line had become blocked and a pressure release valve released 3-10 kg of hydrogen sulphide into the atmosphere, leading to 17 complaints from the public to Her Majesty's Inspectorate of Pollution (HMIP, now part of the Environment Agency). The release occurred because process operators had not followed instructions from their plant supervisor to steam-clean process lines. The company admitted two breaches of authorisation conditions, and a failure to maintain the plant adequately. The same plant was responsible for a much larger release of 500 kg hydrogen sulphide and over a tonne of carbon disulphide in 1994, following which the company paid undisclosed compensation to 150 local people.

Durham Chemicals - bleached wheat

Durham Chemicals, part of Harcros group, were fined £1,000 for failing to report a significant release of chlorine, which resulted in bleaching of most of a field of wheat near the works⁹.

The leak of up to 50 kg chlorine had occurred on 17th April 1996 due to a faulty connection between a fuel tanker and a storage tank. However, the company did not notify the Environment Agency until 24th April, when the Agency had already been informed of the problem by a farmer. The company was charged under Section 6(1) of the Environmental Protection Act 1990, for failing to report an incident.

Bund (containment) problems

A bund is supposed to contain leaks and spills (*see Section 2 for details*). Sometimes they don't....¹⁰

Bunds in a poor state

GEC Alsthom were fined £40,000 after a tank at their Vulcan Works at Newton-le-Willows sprang a leak in 1995. The bund around the tank filled with oil, then the oil leaked out through holes and cracks in the bund, into a tributary of the Sankey Brook.

Bunds with drains and holes

BP subsidiary Robert McBride were fined £70,000 in 1991 after 900 litres of surfactant leaked through a hole drilled in a bund to accommodate electrical cables.

Rubber manufacturer Euro Compound were fined £18,000 after they installed drains in the base of a bund which was supposed to protect a latex tank. When contractors cleaned out the bund, a 50 metre slick of latex was produced on the Manchester ship canal.

Trade effluent problems

Trade effluent is factory effluent discharged into sewers (*see Section 7*). If a company breaches its discharge consent it may be prosecuted both by the sewerage utility (e.g. a water company in England and Wales) and the Environment Agency.

Double prosecution for one trade effluent pollution incident

A leak of effluent containing nitrotoluene from Hickson & Welch's Castleford plant in 1994 resulted in two prosecutions, one from the water company who was receiving the trade effluent in its sewage works, and one from the National Rivers

⁶ ENDS Report 270, July 1997, p46.

⁷ ENDS Report 268, May 1997, p48.

⁸ ENDS Report 261, October 1996, p48.

⁹ ENDS Report 261, October 1996, p48.

¹⁰ "Pollution from oil and chemical stores: a dismal tale of Government inertia", ENDS Report 256, May 1996.

Authority (NRA, predecessor to the Environment Agency) for polluting the River Aire. Yorkshire Water prosecuted for discharging matter likely to prejudice the treatment and disposal of the sewer's contents, resulting in a fine of £35,000. The NRA prosecution resulted in a £2,500 fine and £5,415 costs¹¹.

Akzo Nobel's white brook

In October 1996, the Environment Agency received public complaints that a seven kilometre stretch of the Hole Brook, a tributary of the River Darwen, had gone white. The Agency traced the discharge to North West Water's Blackburn sewage works, then back to Akzo Nobel Decorative Coating's works. Akzo Nobel admitted that an "overzealous" employee had flushed two tonnes of white paint to sewer. They were fined £2,000, with £1,700 costs; they were also prosecuted by North West Water for the same offence, and fined another £2,000 with £600 costs. Akzo Nobel's Darwen site is certified to BS 7750¹² (see Section 8).

Uneven prosecution record for water companies

A survey by Environmental Data Services of trade effluent prosecutions by water companies in 1996 found wide variation in the number of prosecutions undertaken by different water companies. The highest number of prosecutions were brought by Severn Trent with 29, resulting in £71,500 of fines and Yorkshire Water with 28, resulting in £27,550 of fines. Meanwhile North West Water had not brought any prosecutions, in spite of the large amount of industry in its catchment. Most firms prosecuted were small businesses in the waste, metal plating and chemicals sectors, with several firms prosecuted for multiple offences¹³.

Precedent-setting legal cases

Some pollution cases are particularly important, as they develop important principles of pollution law. UK law has always been dependent on interpretation by the courts, and on "precedent" - what happened in earlier court cases. Here are some cases which led to important development and clarification of the law.

House of Lords ruling on "causing" pollution

On 5th February 1998 the House of Lords gave an important ruling providing more clarity on what is

meant by "causing" water pollution in the Water Resources Act 1991¹⁴.

The case concerned the Empress Car company, which maintained a diesel storage tank on its premises, which drained directly into a river. There was a bund, but the company had put a pipe between the tank outlet and a drum outside the bund. In 1995 someone opened the tap on the tank, allowing the tank to empty into the drum, which overflowed into the yard and drained into the river.

The company was charged with causing the entry of polluting matter into the river, even though it was not clear who had opened the tap; there had been local opposition to the firm's business so it could have been sabotage. The offence is described in Section 85(1) of the 1991 Act as an offence if a person "causes or knowingly permits any poisonous, noxious or polluting matter or any solid waste to enter any controlled waters".

The company was convicted by magistrates, then lost an appeal to the Crown Court. A further appeal to the Divisional Court was also unsuccessful, though the Court agreed the law was confusing, and referred the case to the House of Lords for clarification. The conclusion was that for a charge of "knowingly permitting" pollution the defendant must have some knowledge of the offence, but for "causing an entry" lack of awareness is not a defence. In this case the company had caused the pollution by bringing the diesel onto the site and failing to take adequate measures to prevent pollution, such as fitting a lock on the tap and ensuring the integrity of the bund.

The result of this case is to impose greater duties on companies to guard against the actions of third parties, equipment failure or natural events such as storm damage (see next case). Note that the results of this case do not apply to Integrated Pollution Control offences (see Section 5), as they do not refer to causation or permitting, but rather to operating without, or in breach of, an authorisation.

Failure of seal in landfill leachate case

Brock Plc, the operator of Hooton landfill in Ellesmere Port, Cheshire, was fined £2,000 with £3,526 costs after landfill leachate containing high levels of ammonia, chloride and suspended solids leaked into a ditch tributary of the River Dibben. Brock was charged with causing pollution to enter controlled waters, contrary to Sections 85(1) and (6) of the Water Resources Act 1991. The leak had

¹¹ "Double jeopardy strikes Hickson", ENDS Report 253, February 1996.

¹² "Akzo becomes second BS7750 firm to be fined for pollution", ENDS Report 267, April 1997.

¹³ "Trade effluent prosecutions hit waste and chemical companies", ENDS Report 267, April 1997.

¹⁴ "Major House of Lords ruling on water pollution offences", ENDS Report 277, February 1998, p45-46.

occurred due to a leak in a rubber seal in a hose through which leachate was being pumped¹⁵.

Chester magistrates acquitted the company in September on two grounds: the ditch was not a controlled water, and Brock didn't cause the leak as the failure of the two-month old seal was not in its control or a result of negligence. The Agency appealed to the High Court, and the case was heard on the 16th February 1998, two weeks after the above House of Lords ruling. The magistrates decision was overturned, on the following grounds:

- using the House of Lords ruling, the company had caused the pollution by pumping the leachate, and the failure of the rubber seal was "a normal fact of life" rather than "something extraordinary", so wasn't a defence;
- the water was controlled, even though it was only a man-made ditch, as "it is a ditch through which water flows into another watercourse, lake or river" which is itself a controlled water.

The case was returned to magistrates with a direction to convict.

Clarification of odour nuisance

Saltbrook Foundry, operated by G. Clancey Ltd in Dudley, appealed against a variation of its authorisation which was served by Dudley Metropolitan Borough Council in October 1996. This variation included a condition that "all emissions shall be free from offensive odour outside the process site boundary"¹⁶.

This was one of the first air pollution appeals to be determined by the Planning Inspectorate. An earlier ruling by the DETR had said that a condition specifying freedom from odour beyond the process boundary should be an "aim", but in 1995 issued guidance saying that the condition should only be used in "exceptional cases". In mid-1996 the DETR issued guidance saying that "exceptional" circumstances would occur if a works was "in extremely close proximity to residential or other inhabited premises".

A High Court ruling on another case declared that other factors such as height of emissions, prevailing winds, density and distribution of the affected population and the offensiveness and frequency of the odour could be taken into account.

The Inspector in the Clancey's case agreed with Dudley Council's arguments that circumstances were "exceptional" due to long working hours at the plant, the large number of people living near the plant and the unpleasantness of the odour.

The company claimed that the cost of preventing odour would be excessive - £1.5 million. It used arguments relating to sectoral affordability to compare itself with sectors with profitability of 4.6% and 3.9%. Dudley Council challenged this - the latest profits of the company showed a pre-tax profit of 17%! The Inspector did not accept the company's argument that the cost of treatment would be excessive.

The Inspector therefore rejected the appeal; the company must now stop odours outside the site boundary.

IPC audits

From time to time the Environment Agency audits some or all of the IPC processes on a site (*see Section 5 for an explanation of IPC regulation*). These audits should check that the process is being operated as described in its authorisation, and that good practice is being used in the factory. Friends of the Earth has also audited some processes.

Audits of ICI Runcorn

An Environment Agency audit of three plants at ICI's Runcorn site found a wide range of operational shortcomings, though no common cause between the spate of pollution incidents at the plant (some given above) could be established¹⁷.

The investigation found poor implementation of instructions for alarm and interlock systems, and some poor housekeeping. On older plants standards of control and instrumentation were found to be "just adequate". The Agency noted that ICI places "heavy reliance" on alarms to prevent overfilling of tanks and other spillages, with "very few" tanks having secondary containment. An overflow would pass directly to storm drains in many cases - then into the Weston Canal.

Friends of the Earth published an audit in March 1998 of three of the thirteen processes at the Runcorn Site. The main source of information for the audit was the public registers held by the Environment Agency (*see Section 10*). This audit identified 244 unauthorised pollution incidents from these processes between February 1996 and

¹⁵"Equipment failure no defence in landfill leachate case", ENDS Report 279, April 1998, p47-48.

¹⁶"'Recalcitrant' foundry told to abate odours in milestone appeal", ENDS Report 277, February 1998, p12-13.

¹⁷"ICI Audit leaves questions over Agency's record", ENDS Report 277, February 1998.

August 1997, of which 58 were serious and 8 very serious¹⁸.

Large amounts of pollution are routinely discharged into the Weston Canal, which is almost entirely made up of ICI effluent. The canal flows into the River Weaver, which flows into the Manchester Ship Canal and finally into the Mersey. The lack of bunding on the site means that most leaks and spills end up in the Weston Canal.

Both the Friends of the Earth and Environment Agency audits demonstrated the lack of bunding on the Runcorn site - but at the time of writing the Agency still haven't taken any steps to force ICI to bring its pollution containment up to modern standards.

Albright and Wilson's Oldbury works

An Environment Agency audit of 6 out of the 12 IPC processes carried out at Albright and Wilson's Oldbury works found several deficiencies in both the company's environmental systems, and in the authorisations themselves¹⁹:

- environmental training was poor;
- managers considered that their legal duties were discharged if their emissions were in compliance with their authorisation, whilst in fact they also have a residual duty to use Best Available Techniques Not Entailing Excessive Cost (BATNEEC) (*see Section 5*) to prevent releases;
- manager's salary increases were linked to plant performance, notably to "no pollution incidents or notifiable incidents". This acted to discourage reporting of pollution, notably a release of chlorine;
- the Agency had not set limits on some releases in the original authorisation, because there was insufficient data. The company later provided the data, but the Agency had still not set limits;
- the company was using non-standard methods to measure releases, but the Agency hadn't responded when informed of this;
- the company relied too much on end of pipe treatments, and the drainage system risked overflowing into a canal or groundwater after heavy rain.

Pollution investigation

Only a small number of chemicals are ever monitored in factory discharges. Many other chemicals are in reality being released from most processes. Very little money is spent on investigating what is really entering the environment from factories. Here's one example where there was an investigation.

Elf Atochem and North West Water

A survey of organic pollutants present in the Mersey Estuary found that some organochlorine pollutants were coming from a factory, owned by Elf Atochem, which claimed not to know that it was producing them²⁰.

The survey attempted to identify organic contaminants in the Mersey estuary and its sediments, and demonstrated how little is really known about what most factories discharge:

- 140 complex organic chemicals were identified, with 160 remaining to be identified;
- some of these chemicals were found in fish, so may be entering the human food chain through fishing in Liverpool Bay;
- although the levels of some persistent pollutants that have been regulated, such as PCBs and DDT, were declining, lindane-related chemicals, particularly methyl-hexachlorohexane (methyl-HCH), were widespread;
- the source of methyl-HCH was found to be a chlorination process operated by Elf Atochem, who claimed not to know about the chemicals, but are now discharging their effluent to sewer;
- another unexpected compound found was a pesticide precursor, bis(fluorophenyl) bromoethane, which entered the estuary from the River Alt, into which it had been discharged by North West Water's sewage system. This compound bioaccumulates and has been found in fish 20 km from the discharge point. Although the level found was below the substance's acute toxicity, its chronic toxicity is unknown.

This research highlights a major problem with discharge consents: they never examine every compound a factory discharges, just a very small group. The legal question related to this is whether compounds not mentioned on discharge consents

¹⁸ "Audit of environmental performance and regulation of ICI Chemical Works, Runcorn", March 1998, Friends of the Earth.

¹⁹ ENDS Report 270, July 1997, p8.

²⁰ ENDS Report 260, September 1996, p4.

can legally be discharged; currently it looks like they can in most circumstances.

Waste minimisation

Rather than spending money disposing of wastes and paying for end-of-pipe treatment, some companies are now turning to minimising their wastes (*see also Section 2*). Some examples follow.

Wolstenholme International

A 30-month project by a Darwen, Lancashire-based metal pigment producer, Wolstenholme International, to implement the environmental management scheme BS 7750 (*see Section 8*) has led to substantial savings in cash and environmental impact²¹.

The company spent £29,400 designing and implementing the environmental management scheme, and £41,900 on the first 21 improvement projects. There was an immediate one-off saving of £35,000, mainly due to reduced raw material use, and a net annual saving of £96,100. The plant's emissions to the environment have substantially reduced, with copper discharges down by 60% and volatile organic compound emissions down by 75%.

Leaky valves at BP

A survey by BP Chemicals found that the company was losing 6,970 tonnes of chemicals a year through leaky valves, flanges and other process equipment. One type of valve accounted for 43% of these emissions, with the worst examples losing 3-4 tonnes of chemical a year²².

BP found that leakage could be largely prevented by replacing the packing in the valves, resulting in a net saving of £1 million a year. They also surveyed new valves and found that most of the valves on the market at the time were leaky. Since this discovery manufacturers have been working to improve valves, and other chemical companies have begun investigating their losses. For example, replacement of the packing in the valves in one plant at ICI's Wilton site should have paid for itself within 2-3 months and save up to £250,000 a year²³.

Avoiding solvents at Clarkes shoes

Shoe factories have traditionally used a lot of organic solvents, for example, in adhesives. The solvents evaporate and pollute the air both inside and outside the factory. New regulations on volatile

organic carbon emissions meant that shoe factories would have to reduce their emissions, and many companies viewed the construction of incinerators as the only solution. But Clarkes demonstrated that incinerators weren't necessary, and that it was possible to reduce emissions and save money²⁴.

By ensuring that all its factories followed "best practice" on solvent use, switching to water-based inks on uppers and a few other measures, the company halved its consumption of solvents. This programme immediately saved £225,000 a year. Further changes are planned, for example, the replacement of solvent-based adhesives for sole bonding. Other benefits from the programme will include a healthier workplace environment, energy savings on ventilation, a reduced waste disposal bill, and the avoidance of having to spend £250,000 per factory on an incinerator.

Savings from waste minimisation in the River Dee catchment.

Thirteen companies in the River Dee catchment in North Wales managed to save £4.5 million a year through participating in a waste minimisation project²⁵.

The project, which involved two environmental consultancies and the Centre for the Exploitation of Science and Technology (CEST), lasted for 21 months. More than 80% of the waste minimisation opportunities identified had a pay back of less than a year; 43% were completed at zero cost. CEST's report on the project said that most companies made little progress until they had quantified the real cost of their wastes. Companies benefiting included:

- British Steel, who are saving £784,000 per year, including £537,700 in effluent treatment and landfill costs for ferric chloride wastes, which are now going to two companies that can use the waste in their products;
- Rexam's coating and laminating plant in Wrexham saved £210,000 a year after a "spot the waste" competition amongst the workforce identified 150 waste reduction opportunities, 120 of which were implemented;
- GS Packaging discovered that waste costs from its polypropylene and laminated film plant were £1.1 million per year, almost a fifth of turnover. They've now halved that figure, mainly through reuse of scrap film.

²¹ ENDS Report 263, December 1996, p6-7.

²² "BP Chemicals shows way to curb fugitive emissions", ENDS Report 228, January 1994.

²³ "Firms cash in on BP Chemicals' valve breakthrough", ENDS Report 246, July 1995.

²⁴ "Innovation takes the pain out of VOC controls for the footwear industry", ENDS Report 258, July 1996.

²⁵ "Waste minimisation lessons from Dee project", ENDS Report 273, October 1997, p7-8.

Section 4

How is pollution regulated?

This section:

- *explains who regulates what;*
- *describes regional variations in regulation;*
- *explains the difference between a process and a factory.*

The regulation of pollution is a complex area, though it is getting more straightforward as time goes on. One crucial aspect is understanding the way in which different organisations have different responsibilities. This section explains who is responsible for what, whilst later sections describe how the regulations work.

Pollution regulation is constantly evolving, so keeping up with it can be difficult. One very thorough and reliable source of information is the *Pollution Handbook* published by the National Society for Clean Air and Environmental Protection (NSCA)²⁶. The *Pollution Handbook* describes all relevant pollution control regulations, and, as it's updated yearly, is always pretty up-to-date.

Regional variations and European Directives

The regulation of pollution is different in the countries that make up the UK. However, the whole UK is bound by the same EU Directives. There have been a number of Directives relevant to environmental regulation, covering areas such as protection of groundwater, emissions from power stations and quality standards for rivers. Pollution control within the UK must conform to any limits set in the Directives, though the Directives don't specify any regulatory system in detail. The most important recent Directive on pollution control is the 1996 Integrated Pollution Prevention and Control (IPPC) Directive (*see the end of Section 8*).

England and Wales

The main regulatory body is the Environment Agency ("the Agency"), though air emissions from smaller factories are regulated by local authorities.

Northern Ireland

The main regulatory body in Northern Ireland is the Environment and Heritage Service (EHS). After

many years when pollution control in Northern Ireland had fallen behind the rest of the UK, the introduction of the Integrated Pollution Control (Northern Ireland) Order and the Waste and Contaminated Land (Northern Ireland) Order, has brought regulation more up to date. However, these new regulations will take time to become fully implemented, so expect pollution regulation in Northern Ireland to be in flux for some time. Northern Ireland regulation is covered in Section 9.

Scotland

In Scotland, the Scottish Environment Protection Agency (SEPA) fulfils a similar, though not identical, role to the Environment Agency. Other differences in Scotland include a universal single-tier council system, and the retention of water supply and sewage treatment under public ownership. In addition, there will shortly be a new Scottish Parliament, which will be empowered to alter environmental legislation. Scottish regulation is covered in the same sections as that in England and Wales, with a few notes explaining differences.

Who regulates what?

The old-fashioned approach to regulation was for emissions to water and emissions to air to be regulated by different bodies. Now, in the case of larger, potentially more polluting factories ("Part A" processes), regulation is handled in a more integrated fashion, through integrated pollution control (IPC).

Smaller factories are still regulated by several different authorities: the Agency for discharges to rivers, mainly the Water Companies for discharge to sewers, and Local Authorities for air releases (in Scotland air releases are regulated by SEPA). One factory may have more than one regulator.

The quickest way to find out who is regulating the factory you are concerned with is probably to phone your local authority environmental health department and ask them. If it is regulated by the

²⁶This book is revised every year; the 1997 NSCA Pollution Handbook costs £28.45, and is updated to December 1996

Agency, they may be able to tell you which inspectors regulate the plant.

Other regulatory arrangements exist for obtaining planning permission for new factories or for new plant or (in some cases) processes at existing ones. In some cases the Health and Safety Executive may be relevant, in their role of protecting the health of the workforce.

Processes and factories

One factory site may contain a range of different "processes" (or "prescribed processes"). This is particularly true of chemical plants, which may include ten or more separate IPC processes, and some smaller Part B ones. In general, in this case, each IPC process will be regulated separately by the Agency, and any Part B processes, which would normally be regulated by local authorities, will also be regulated by the Agency.

The definition of a "process" can include a wide range of activities. For example, a cement production authorisation includes all stages of the production process.

A large works can be quite a complex affair, and may also include pollution treatment facilities - which may or may not have a separate authorisation or permit. What comes out of a process according to one permit may in fact enter an on site treatment facility, rather than go straight into the environment. You may need to speak to a regulator or company manager to understand what is going on.

Outline of the following sections describing regulation

Section 5:

- describes the regulation, by Integrated Pollution Control, of all the discharges of larger (Part A) processes.

Section 6:

- outlines the regulation of smaller (Part B) sources of air pollution.

Section 7:

- describes the regulation of smaller discharges to rivers, other watercourses, and sewers.

Section 8:

- explains "statutory nuisance";
- outlines regulation of pollution to land;
- outlines the role of the planning system;

- discusses the value of environmental management and audit schemes;

- outlines future directions in pollution regulation, including Integrated Pollution Prevention and Control, a new European law.

Section 9:

- describes the regulatory system in Northern Ireland.

Section 10:

- provides tips on how to observe pollution yourself;
- explains what is available in the public registers, and how to access them;
- examines the merits of getting your own analytical data.

Section 5

Integrated Pollution Control (IPC) Processes

This section:

- describes the regulation, by Integrated Pollution Control, of all the discharges of larger (Part A) processes.

Integrated Pollution Control (IPC) covers all major solid, liquid and gaseous emissions to air, land and water from larger and more polluting processes. These processes are described as Part A processes (from the Environmental Protection Act 1990), and at January 1996 about 2100 processes were included. Good sources of information on IPC include the NSCA handbook²⁷ and "Integrated Pollution Control: A Practical Guide" issued by the Department of the Environment and the Welsh Office (most recent edition at time of writing is March 1996).

IPC processes are regulated by the Environment Agency in England and Wales and by the Scottish Environmental Protection Agency (SEPA) in Scotland. The main bits of legislation defining IPC regulation are the Environmental Protection Act 1990 and the Environment Act 1995.

What is a Part A process?

Most large factories contain Part A processes. A process is Part A if:

- it was previously regulated for air emissions under the Health and Safety at Work Act 1974;
- they give rise to "significant quantities of special waste";
- they emit prescribed substances to sewers or controlled waters (*see Annex 4*).

A full list of Part A and B processes is in the Environmental Protection (Prescribed Processes and Substances) Regulations 1991 (as amended); the NSCA handbook also prints a list. Part A processes include:

- cement works;
- petrochemical plants;
- pharmaceutical plants;
- power stations.

If you are unsure whether the factory you are concerned with is Part A, contact the Environment Agency or your local council's Environmental Health Department (or equivalent), they should be able to give you an answer quickly.

Principles behind IPC

Pollution control in the UK depended for around 150 years on the "Best Practicable Means" principle to attempt to ensure that emissions were at the lowest level practicable. More recently new principles, described below, have come to be used.

Polluter Pays Principle

A key part of EU environmental policy is that those responsible for pollution should pay for it to be prevented or cleared up. The UK partially implements this principle by charging much of the costs of regulation of IPC to the companies concerned.

Best Practicable Environmental Option (BPEO)

In applying for IPC authorisation, companies must show that they are using the Best Practicable Environmental Option to abate pollution, taking into account:

- the total impact on water, land and air pathways together;
- the ability of the environment to absorb the pollutant;
- the principles of sustainable development.

This does not, however, usually include examining the wider issues of whether the whole process is truly the Best Practicable Environmental Option (for example, by considering whether waste solvents would be better recycled than burnt in a cement kiln).

Best Available Techniques Not Entailing Excessive Cost (BATNEEC)

All IPC processes and Part B air pollution processes (see below) must use Best Available Techniques Not Entailing Excessive Cost to minimise or prevent releases. There is always a tension between

²⁷ NSCA, 1997. 1997 Pollution Handbook: The Essential Guide to UK and European Pollution Control Legislation, published by NSCA, 136 North Street, Brighton BN1 1RG. ISBN 0903474 39 5.

BAT and NEEC, with companies often pleading poverty as a way of avoiding the cost of new pollution control equipment. A cynical reinterpretation of BATNEEC is BATNEEP, Best Available Techniques Not Entailing Excessive Prosecution.

How BATNEEC is applied varies depending on whether it is being used on a new process or an existing one. In the case of a new process:

- the cost of the best available techniques must be weighed against the environmental damage from the process; the greater the environmental damage, the greater the costs of BAT that can be required before costs are considered excessive;
- the objective is to prevent damaging releases or to reduce such releases so far as this can be done without imposing excessive cost; if after applying BATNEEC serious harm would still result, the application can be refused;
- as objective an approach as possible to the consideration of what is BATNEEC is required. The concern is with what costs in general are excessive; the lack of profitability of an individual business should not affect the determination. This means that the NEEC is decided based on the financial state of the whole of the industry in question, rather than just the company applying for an authorisation. This is known as "Sectoral Affordability".

An existing process is allowed rather more leeway, with the aim being to establish a timetable for the plant to be upgraded to new plant standards, or as near as possible to them, or for it to close down. Issues taken into consideration include:

- the plant's technical characteristics;
- its rate of use and length of remaining life;
- the nature and volume of polluting emissions;
- the desirability of not entailing excessive cost (NEEC) for the plant concerned, having regard to the economic situations of undertakings belonging to the category in question.

These considerations often mean that older plants have much laxer regulation.

BATNEEC for specific processes is described in the relevant process guidance notes (below). One example of the NEEC consideration is in the IPC

guidance note for the cement industry²⁸, which states that: "Any further investment in environmental projects could reduce the return on investment to levels further below the rate of return required by shareholders.....The total capital and operating costs of environmental control which the industry as a whole might afford without a significant erosion of the return on investment would be less than £1/tonne [of cement]". Friends of the Earth considers this argument against pollution control to be unacceptable; the operators of these plants have a duty to protect the environment and the health of those living around them.

Process guidance notes

The Environment Agency (or Her Majesty's Inspectorate of Pollution [HMIP] before it) has produced Integrated Pollution Regulation Process Guidance Notes for every IPC process. These notes give a clear description of how the process works, what emissions could be a problem, what abatement technology is available, what the BATNEEC for the process is and what are "achievable release levels". These achievable release levels (ARLs) are not mandatory however, as Inspectors may take account of "site specific issues" to set tighter or laxer limits. Note that SEPA and the Northern Ireland Industrial Pollution Inspectorate (*see Section 9*) also use these guidance notes.

Process Guidance Notes should be updated every 4 years. They are available from The Stationery Office (formerly HMSO) for £10-£25, and are extremely useful. You may also be able to see them at the public register.

Older factories frequently operate to much lower standards to those suggested in the process guidance notes, because of the leeway described above, for example the desirability of not entailing excessive cost for the plant concerned.

The Environment Agency has also produced some guidance notes covering more general issues, such as effluent treatment; Annex 9 has a list of these.

Authorisations and variations

Application process

A company should apply for an IPC authorisation before building a new plant or an addition to an existing process. All existing processes now have an IPC authorisation. However, existing authorisations can be varied, either at the request of

²⁸ IPC Guidance note S2 3.01, "Cement Manufacture, Lime Manufacture and Associated Process".

the company or at the request of the Agency. An application for authorisation will contain a lot of information, including:

- a list of prescribed substances (*see Annex 4*), and any other substance that might cause environmental harm, used in connection with or resulting from the process, with a prediction of releases;
- a description of the techniques to be used to minimise releases, demonstrating BATNEEC;
- monitoring proposals.

An application from a company for a variation (a change in the process or releases from a process) will contain similar information. If the variation is considered by the Agency to be minor (also called "relevant") the Agency will decide on the application itself without a consultation process. If the variation is "substantial", defined as resulting in substantial changes "in the substances released from the process or in the amount or any other characteristic of any substance so released", then the consultation procedure is similar to that for a new authorisation.

The Agency is empowered to serve a variation notice on a company, for example to force a company to use new pollution control technology. The company must then respond with its plans as to how these new conditions will be met. These plans will then be treated as an application for a variation. However, a company can appeal against a variation notice, unless it implements a direction from the Secretary of State.

Authorisations should be reviewed every four years in case of new technological developments, and to take account of new process guidance notes (which should also be revised every four years).

Consultation process

Any application for authorisation, or a substantial variation, must be sent to a number of statutory consultees who have 28 days to comment on the application:

- Health and Safety Executive;
- sewerage undertaker;
- MAFF in England, Secretary of State in Wales or Scotland;
- English Nature, Countryside Council for Wales, Scottish Natural Heritage;
- Harbour Authority (if appropriate);
- local authority;
- local fisheries committee, if relevant.

The public also have a right to be consulted, and the process operator must publish an advertisement in a local newspaper not less than 14 days but not more than 42 days following application for an authorisation or variation. This advertisement should also specify where a copy of the application can be viewed (*see Section 11 for more details about objecting to an IPC application*). Another copy will be placed on the IPC register (*see Section 10*).

The authorisation itself

The Agency will eventually (usually) grant an authorisation, and will set conditions. These usually include emission levels, and it will be an offence for a company to breach them.

The Agency can refuse an authorisation if it considers that the company will not be able to comply with these conditions, or if it considers that a prescribed release might result in failure to achieve a statutory water quality objective (*see Section 7*).

Appeals

If a company wishes to appeal against the conditions of an authorisation or a variation it may do so within 6 months. It also has two months to appeal about enforcement, variation, and prohibition notices (*see below for an explanation of these notices*). Implementation of the authorisation or variation is suspended during the appeal. These appeals are to the Planning Inspectorate in most cases (*see Annex 8 for a description of the Planning Inspectorate*). In exceptional cases the Secretary of State may "recover" the appeal, which means that the Secretary of State, or their civil servants, will decide on the appeal. Guidance from the DETR suggests that this may occur in cases that:

- involve processes or sites of major importance;
- give rise to significant public controversy;
- raise significant legal difficulties;
- can only be decided in conjunction with other cases over which inspectors have no jurisdiction;
- raise major or novel issues of industrial pollution control which could set a major policy precedent, for example, cases involving the use of new techniques²⁹.

²⁹ ENDS Report 271, p38.

Notice of the appeal will be sent to all statutory consultees, and also to anyone who submitted comments on the original application. The appeal can either be by written representation or public hearing. In the latter case details of the hearing must be advertised in the local press not less than 21 days beforehand.

Court can lead to an unlimited fine and/or two years in prison.

Monitoring

Much monitoring is done by the company concerned; this monitoring requirement will be specified in the authorisation. The Agency itself may also carry out some monitoring, though the extent of this will vary greatly. Monitoring results should be placed on the IPC register, unless it is done "voluntarily" by the company (*see Section 10*).

Prosecution

If the Agency believes that the conditions of an authorisation have been breached then it can serve an *enforcement notice* on the company, requiring it to remedy the source of the problem within a specified period.

If the Agency feels that operation of the process involves "an imminent risk of serious pollution of the environment" it may serve a *prohibition notice*, requiring the operator to immediately shut down all or part of the process, and take necessary steps to stop the risk.

If there is no immediate environmental risk, 10 days should elapse from the notice before enforcement action is taken, to enable the process operator to complain to the Inspector's manager if they wish.

It is an offence to operate a prescribed process without an authorisation, or to contravene conditions of an enforcement notice without reasonable excuse. The offence will be tried in the Magistrate's court (Sheriff court in Scotland), unless:

- the defendant asks for the case to be tried in the Crown Court (High Court in Scotland); or,
- the prosecution requests a trial in the Crown/High Court, and the Magistrate/Sheriff agrees; or,
- the Magistrate/Sheriff refers the case to the Crown/High Court.

Conviction in the Magistrates/Sheriff Court can result in a fine of up to £20,000 and/or 3 months in prison per offence. Conviction in the Crown/High

Section 6

Non-IPC Air Pollution

This section:

- *outlines the regulation of smaller (Part B) sources of air pollution;*
- *describes Air Quality Management.*

Air pollution from smaller factories (Part B processes) is regulated in England and Wales by local authorities, through Local Authority Air Pollution Control (LAAPC), which derives from the Environmental Protection Act 1990 and the Environment Act 1995. Regulation is carried out by the Environmental Health Department or the Pollution Control Department.

In Scotland Part B, processes are regulated by SEPA, whilst in Northern Ireland some are regulated by the EHS, whilst others are regulated by Local Authorities (*see Section 9*). If Part B and Part A (IPC) processes are carried out on one site then the Agency/SEPA will usually regulate both.

Principles

Apart from the fact that Part B processes are separately regulated by release to air, the principles and processes involved are similar to those used in IPC. Best Available Techniques Not Entailing Excessive Costs must be used to minimise emissions of all substances, including prescribed substances (*see Annex 4*), to the environment to render them harmless.

Process Guidance Notes have been produced by the Secretary of State covering each of the Part B process sectors. The guidance notes include details on what is BATNEEC for the process, and details of emission limits etc., so are extremely useful. The emission limits given in the guidance are advisory rather than statutory, though the regulator is obliged to "have regard" to the guidance. Initially the emission limits apply only to new plants, however older plants should submit an upgrading plan as part of their authorisation, with the aim of meeting these limits.

Authorisation

Authorisation of Part B processes is similar to IPC: the company makes an application, there is public consultation, then the local authority grants an authorisation with conditions. The company can also apply for a variation, which goes through a process similar to that for IPC.

The authorisation should be reviewed at least every four years, and immediately if complaints occur that are thought to be the result of older standards in operation, or new toxicology data about a pollutant appears. Note that the authorisation imposes a duty on the operator to use BATNEEC on all aspects of the process, including those not covered by specific conditions in the authorisation; this is the so-called "residual" BATNEEC duty³⁰.

As with IPC, the operator of the process may appeal to the planning inspectorate if they dispute an authority's decision on their authorisations. In exceptional cases, as with IPC appeals, the Secretary of State may "recover" the appeal.

Monitoring

All monitoring data (and details of the authorisation) will be available on the public registers (*see Section 10*). There is generally less monitoring of Part B processes than of IPC processes.

Prosecution

It is an offence to operate a process without an authorisation, or in contravention of any of its conditions, even if an appeal against these conditions has been lodged. The local authority can refuse an authorisation if it believes that the operator won't be able to meet the conditions.

Sites should be visited about once every six months to check compliance with the authorisation.

If the enforcing authority believes that the authorisation conditions are being breached it can:

- serve an enforcement notice reinforcing a condition, or requiring the operator to stop the breach of condition by a specified date;
- serve a prohibition notice closing down the process, if the authority considers that there is

³⁰ Briefing from the DETR: "Environmental Protection Act 1990, Part 1: Local Air Pollution Control System", Department of the Environment, Transport and the Regions, April 1997 (Available on the DETR web site).

“an imminent risk of serious pollution of the environment”.

It is an offence to operate, without reasonable excuse, a process without an authorisation, in contravention of a condition attached to an authorisation, or other variation, enforcement or prohibition notice. The penalties and courts are the same as those for IPC (*see Section 5*).

Local air quality plans

Local authorities have a duty to review local air quality under the Environment Act 1995, Part IV. They should evaluate whether the standards defined in the national air quality strategy (*listed in Annex 4*) are going to be met. If they believe these standards are not being met or will not be met in an area they should designate (by Order) an “air quality management area” (AQMA). Within 12 months of this designation the local authority should draw up an action plan with target dates, with the aim of achieving the air quality standards.

The following organisations should be consulted during the air quality review, assessment and in preparing an action plan:

- Secretary of State;
- Environment Agency;
- Highway Authority (in England and Wales);
- any adjacent local authority, and the county council (in England);
- National Parks authority, if relevant;
- if appropriate (in the view of the local authority), business interests or any other bodies or persons.

The public should also have access to the relevant documents free of charge.

Local air quality management is very new, so it is not yet clear how important it will be in fighting individual polluting factories. However, in a situation where a factory contributes to the failure of air quality standards it may be powerful. An emission inventory of 1,3-butadiene releases around Merseyside found that 20% of the emissions came from a Shell oil refinery; this chemical is more commonly associated with traffic pollution, and in London 97% of 1,3-butadiene emissions come from traffic³¹.

³¹ “Emission inventory highlights Shell’s impact on air quality”, ENDS Report 277, February 1998, p13.

Section 7

Water discharges from non-IPC processes

This section:

- describes how water quality is classified;
- describes the regulation of smaller discharges to rivers, other watercourses, and sewers.

If a process is regulated by IPC, then this will include its water discharges (*see Section 5*). If not, then its discharge to rivers will be regulated by the Environment Agency using the discharge consents system. However, many factories discharge into sewers, from where the effluent will pass through the local sewage treatment works before entering the environment. Industrial discharges to sewers are called "trade effluent". Trade effluent discharges to sewer are usually regulated by the sewerage undertaker, unless they are regulated under IPC, contain certain chemicals, or are from certain processes, when the Environment Agency will be involved.

In Scotland, discharges to rivers are regulated by SEPA, and discharges to sewer are regulated by the relevant water board. Legislation in Scotland is slightly different to that in England and Wales, though the resulting system is much the same.

There is no requirement to use BATNEEC or BPEO for discharges to water (unless the discharge is from an IPC regulated process). Regulation is based more on the impact on the watercourse receiving the discharge (river, lake, sea etc.), and is influenced by international agreements on the pollution of the sea.

Under the Environment Act 1995, the Environment Agency is charged with preventing deterioration in water quality and seeking its improvement; it has a duty to promote, as it considers desirable, the conservation and enhancement of the water environment.

Classification of water quality

River and canal water quality is classified using the "General Quality Assessment" (GQA) scheme. The most widely used version of this system only considers chemical parameters: Biochemical Oxygen Demand (BOD), Dissolved Oxygen (DO) and Ammonia; Annex 3 describes the significance of these measurements. It is intended that the GQA will eventually consider more measures of water quality; biological grading (based on the number

and diversity of macro-invertebrates) is now being brought in, and both aesthetics and nutrient levels may also be included in time.

The GQA system produces a classification from A-F. The table below shows the GQA chemical classification of rivers and canals in England and Wales³².

Description	Grade	1990	1996
Good	A	18.0%	27.1%
	B	29.9%	31.5%
Fair	C	23.5%	21.2%
	D	14.4%	10.3%
Poor	E	12.2%	8.8%
Bad	F	2.1%	1.0%

The Agency also defines water quality objectives (target levels of cleanness) for different rivers and parts of rivers. One part of this process is the use of the "River Ecosystem Index" which gives a rating dependent on the levels of a wider range of chemicals than the GQA system. Annex 4 gives more details.

Statutory water quality objectives

The Water Resources Act 1991 introduced the concept of statutory water quality objectives, which involve setting a target water quality for an area of river to achieve by a set date. Legally binding objectives should eventually be set for 40,000 km of rivers and canals. The Agency is responsible for proposing statutory water quality objectives to the DETR, which are then open for consultation for a minimum of 3 months. After this period the

³² "Water Quality. A guide to water protection in England and Wales", DETR. Also on web at <http://www.environment.detr.gov.uk/wqd/guide.htm>

Secretary of State will confirm the objectives and target dates, and the objectives remain binding for 5 years.

Once these objectives are in place they will be taken into account when discharge consents are agreed, however none have been set at the time of writing, and it is not clear when any will be.

Environmental Quality Standards (EQS)

Statutory environmental quality standards (EQS), which define maximum acceptable environmental concentrations, have been set for specific EC "List I"³³ substances (*see Annex 4*). Statutory EQS can be defined for "List II"³⁴ substances by Regulation from the Secretary of State, and several have been set (*see Annex 4*). The Environment Agency also defines operational EQS for other chemicals, which it uses when evaluating the pollution of a watercourse.

Regulation of discharges to watercourse

Discharge to watercourses from non-IPC processes is regulated through discharge consents, which give companies permission to discharge a defined amount of pollution into the watercourse.

In considering whether to grant a consent, the Agency will take into account

- Whether statutory water quality objectives will be met
- If the discharge will result in a deterioration of water quality downstream
- If the discharge will adversely affect other uses of the water downstream

Authorisation

Application for a discharge consent is made to the Agency, which must then publish notice of the application in local newspapers, put a copy on the public register, and send copies to affected local authorities, drinking water undertakers and relevant ministers. A six-week period will normally be allowed for representations, and the Agency should decide on the application within four months. The Secretary of State can recover the application, which would result in a local inquiry or hearing.

If the consent is granted, conditions will be included to ensure statutory water quality objectives (if they exist) are adhered to. Conditions will include:

- absolute limits for discharges;

- the place to which the consent to discharge relates;
- the nature, origin, composition, temperature, volume and rate of discharge, and the periods during which the discharge may be made;
- steps to be taken to minimise the polluting effects of the discharge;
- provision of facilities for sampling and monitoring, and provision, maintenance and testing of meters for measuring and recording discharges;
- keeping of detailed records relating to the discharge and conditions attaching to the consent, and provision of information to the enforcing authority in respect of the discharge.

Consents and conditions are reviewed from "time to time", and after review the Agency may serve a notice changing or revoking the consent, though this does not usually happen in the first four years except to ensure compliance with new legislation.

The holder of the consent can apply for it to be varied.

The applicant may appeal against refusal of consent or variation of consent to the Secretary of State.

Prosecution

Under the Water Resources Act 1991 it is an offence to cause or knowingly permit:

- any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters;
- any matter, other than trade effluent or sewage effluent, to enter controlled waters by being discharged from a drain or sewer in contravention of a relevant prohibition.

Under the Control of Pollution (Consents for Discharges) (Secretary of State Functions) Regulations 1991 the Agency may serve an enforcement notice if it is of the opinion that the conditions of a consent are being, or may be, contravened. This notice will specify the nature of the contravention, the steps that must be taken to remedy it, and the time period in which this must be done. The enforcement notice must be placed on the public register within seven days of it being served on the company.

Failure to comply with a notice can lead to fines and imprisonment (as described in the previous section on IPC). The Agency can also serve

³³"List I" substances are those that are most toxic. This list is also called the "Black List".

³⁴"List II" substances are less toxic than List I; they are sometimes called the "Grey List".

prohibition notices, and has powers to charge the costs of investigation and remedial work to the polluter.

Regulation of discharges to sewer

If a company wishes to discharge effluents into a sewer it must get authorisation from the sewerage undertaker (the company or organisation that operates the sewers and sewage treatment works). The company must provide the following information in its application to discharge: details of the effluent, quantity to be discharged per day and the highest discharge rate required. If the effluent is "special category" as defined below, then the Agency will also be involved in allowing the discharge. Note that if the plant is regulated by IPC, then the IPC authorisation will also cover discharges to sewer, though permission must also be obtained from the sewerage undertaker.

The discharge consent may impose conditions on rate, quantity and composition of the effluent, as well as details of inspection chambers, meters and effluent testing facilities. The company may appeal against conditions to the Director of Water Services.

Note that there is no obligation for public consultation about trade effluent consents. The information on what discharge consents exist is available on a public register, but analytical data from any monitoring of the discharges is not available to the public (unless the factory is IPC regulated).

A few companies have "trade effluent agreements" with sewerage undertakers, which are outside the normal discharge consent system. They have usually been entered into when the company assisted in paying for a sewage works.

Special category effluent

There are two categories of trade effluent for which the sewerage undertaker must obtain authorisation to discharge to sewer from the Agency, and where the Agency may impose conditions:

- effluent which contains concentrations of prescribed substances (*see Annex 4*) above background levels;
- effluent from the following prescribed processes:
 - any process for the production of chlorinated organic chemicals;
 - any process for the manufacture of paper pulp;

- any industrial process in which cooling waters or effluents are chlorinated;
- any process for the manufacture of asbestos cement, or asbestos paper or board;
- any effluent containing more than 30 kg/year of trichloroethylene or perchloroethylene.

Groundwater

Section 84 of the Water Resources Act 1991 gives the Agency a duty to protect the quality of groundwater and conserve its use for water resources. Consents to discharge to groundwater (e.g. an old mine system) are extremely rare, there may only be one in existence in the UK (in Scotland). Groundwater pollution can, however, result from the pollution of land.

Section 8

Other relevant regulatory systems

This section:

- explains “statutory nuisance”;
- outlines the regulation of pollution of land;
- outlines the role of the planning system;
- discusses the value of environmental management and audit schemes;
- outlines future directions in pollution regulation, including *Integrated Pollution Prevention and Control*, a new European law.

Local Authority Statutory Nuisance

One potentially useful anti-pollution law is “Statutory Nuisance”. A statutory nuisance could be caused by smoke, fumes, gases, dust, steam, odour, effluents, flies, rodents, noise, leachate, gas or litter.

Statutory nuisance has been on the statute books since the Public Health Act of 1848, but has been brought up to date in the Environmental Protection Act 1990; these provisions apply to England, Wales and Scotland. In Northern Ireland the nuisance provisions in the Public Health (Ireland) Act 1978 are similar.

A statutory nuisance must be either:

- *prejudicial to health*. The nuisance must either have caused injury or be likely to cause injury; or
- *a nuisance*. Defined as for common law nuisance. There are two basic elements:
 - the person complaining must have a legal interest in a neighbouring property; and
 - the alleged nuisance must constitute an interference with the use or enjoyment of the complainant's property interest.

The local authority is obliged (by Section 79 of the Environmental Protection Act 1990) to investigate complaints from the public alleging a statutory nuisance. A complaint should be in writing, describing the nuisance in detail, including information about the precise location, duration and frequency of the nuisance, and the effects of the nuisance on the surrounding neighbourhood or community.

If the local authority considers that a statutory nuisance exists or is likely to occur, then they are under a duty to serve an *abatement notice* on the operator. The abatement notice can specify the particular actions which must be undertaken to prevent the nuisance from recurring, and the time within which action must be taken.

If the operator fails to comply with an abatement notice, they are guilty of an offence and liable on conviction to a large fine. In addition, the local authority has the power to abate the nuisance itself and recover the cost from the person responsible for the problem.

To date, these powers have been relatively little used by Local Authorities. This may be due to lack of resources or it may be due to confusion over whether the responsibility for monitoring potential problems lies with them or the Agency.

It is possible to take individual action against a nuisance without going through a local authority; you'll need legal advice before undertaking such a course of action (*see Annex 6*).

More information on statutory nuisance is available from the books (describing legal action) referred to in Annex 9.

Land pollution (non-IPC)

This type of pollution is not covered in this manual; landfill sites are covered by Friends of the Earth's “Landfill Campaign Guide”, whilst contaminated land is discussed in another FOE publication, “Buyer Beware”; see Annex 9 for details of FOE publications. In general the Environment Agency is responsible for regulating landfill sites and larger pieces of contaminated land, whilst smaller pieces of contaminated land are regulated by local

authorities; contact them if you have concerns. New regulations on contaminated land are due to come into force at the end of 1998 or beginning of 1999, finally bringing in the provisions of the 1990 Environmental Protection Act.

Planning

The planning process is complex, and will not be dealt with in detail here. New factories and major modifications ("material change") to existing ones require planning permission from the planning authority. There are several good books covering campaigning on planning matters; see Annex 9 for details.

Planning permission is obtained by the following process:

- the applicant sends their application to the planning authority;
- the planning authority advertises in the local press that an application has been received, and the application is placed on the planning register to allow public comment;
- the public may submit objections during the consultation period; this is usually 21 days following the submission of the application, but can be as few as 10 days;
- the planning authority will consider the application and will accept or reject it. The planning authority is not primarily concerned with potentially polluting emissions (see below), but will take into account the overall effects on the neighbourhood;
- if consent is given, it will usually include some conditions about the use of the new structure. If permission is refused, the applicant may appeal to the Secretary of State. With large or controversial projects there may be a public inquiry.

The Government publishes Planning Policy Guidance Notes (PPGs) which provide useful advice on the planning process. PPG 1 describes general policy and principles, and PPG 23 on "Planning and Pollution Control" provides guidance on the interaction between planning and pollution. PPG 23 states that:

"Planning authorities should work on the assumption that the pollution control regimes will be properly applied and enforced" and that "They should not seek to substitute their own judgement [for that of the regulators]".

This basically means that planning authorities have to assume that the pollution control authorities e.g. The Environment Agency, will do their job, and that emissions from the proposed process will be rendered harmless. In spite of this, a complex legal case regarding planning permission for a clinical waste incinerator in Gateshead in 1993 did provide some support for councils to consider pollution in the planning process (*see Box 1*).

Wales, Scotland and Northern Ireland all have their own planning guidance documents; see Annex 9 for a listing of the relevant ones.

If the applicant is planning to operate a prescribed process, e.g. a process requiring IPC, they must apply separately to the relevant regulator to obtain authorisation. This is not part of the planning process, but will generally proceed simultaneously.

Environmental Assessments

All proposed developments that may have a large impact on the environment should have an environmental impact statement prepared, under European Community Directive 85/337/EEC, amended in March 1997 (97/11/EC).

Projects are described as Appendix I if they must have an environmental assessment. Such projects include:

- crude oil refineries, facilities for gasification and liquefaction of coal or bituminous shale;
- developments for the disposal of special waste, including incinerators, chemical waste treatment and landfill facilities, radioactive waste disposal sites and toxic waste facilities; non-hazardous waste facilities with capacity of more than 100 tonnes a day;
- integrated chemical facilities producing inorganic or organic chemical products, fertilisers, biocides, pharmaceuticals or explosives;
- industrial plant for production of pulp from timber or other similar fibrous materials.

"Appendix II" projects are those that *"shall be made subject to an assessment where Member States consider their characteristics so require"*, subject to the following:

- is the project likely to have "significant" environmental effects?;
- is it likely to have a "significant effect" on an

area designated a special protection zone under other EC legislation?

Appendix II projects cover a wide area including metal processing and leather industries.

The environmental impact statement should include:

Box 1: The Gateshead Judgement

The question of allocating responsibility for pollution issues between the planning authority and the pollution regulators was at the heart of an appeal over the granting of planning permission for a clinical waste incinerator at Gateshead in 1993 (Gateshead Metropolitan Borough Council vs Secretary of State for the Environment and Northumbrian Water Plc).

The original application was refused by the local planning authority (Gateshead MBC). The subsequent public inquiry resulted in the Inspector's recommendation to refuse planning permission on the grounds of concern over the additional pollution impact from the proposed plant where existing levels of pollution were already high. However, the Inspector's recommendation was overruled by the Secretary of State who considered that pollution could be satisfactorily managed (under the Integrated Pollution Control regime).

Gateshead MBC appealed against the Secretary of State's decision by Judicial Review in the High Court, claiming that the pollution control system did not take account of cumulative impacts and health effects. This logic was, however, rejected and the Secretary of State's decision was upheld by the High Court. The final stage was an appeal to the Court of Appeal which also upheld the Secretary of State's decision.

However, the judgement of the Court of Appeal stated that: *"[T]he extent to which discharges from a proposed plant will necessarily or probably pollute the atmosphere and/or create an unacceptable risk of harm to human beings, animals or other organisms, is a material consideration to be taken into account when deciding to grant planning permission."*

This means that the planning authorities must consider the extent to which pollution will be caused, suggesting that a full assessment of the impacts is required.

Furthermore, the judgement stated that HMIP (Her Majesty's Inspectorate of Pollution, now part of the Agency) were empowered to take cumulative pollution and health impacts into account and had a duty to do so (this was despite the fact that HMIP had - to-date - only ever refused an authorisation on these grounds on one previous occasion). The power lies in Section 7 of the EPA1990: *"There shall be included in an Authorisation...such specific conditions as the enforcing authority considers appropriate...for achieving...compliance with any...quality standard or quality objectives prescribed by the Secretary of State"*.

Despite the unfortunate outcome in this case, the judgement of the Courts was something of a double-edged sword. Most significantly, the Court's view was that:

"If it had become clear at the inquiry that some of the discharges were bound to be unacceptable so that a refusal by HMIP to grant an authorisation would be the only proper course, the Secretary of State following his own express policy should have refused planning permission."

"Unacceptable" discharges therefore were taken to be any which would cause a breach of prescribed environmental quality standards, that being the limit of the Agency's authority. The judgement means that, if it can be shown that the impact of the proposed discharges will cause a breach of those quality standards that exist, *then planning permission must be refused*.

The implication here is clearly that the necessary studies must be carried out, before planning permission is granted, through the Environmental Impact Assessment, in order that the implications of the proposal for air quality standards can be made clear to the planning authority or the inquiry. Fortunately, the judgement did stress that the extent to which pollution might occur was a material consideration.

The High Court also stressed that, despite the fact that the Secretary of State's decision was upheld in this particular case, the judgement should not be taken as carte blanche for applicants for planning permission to ignore the pollution implications and leave it all to the IPC regime.

A judgement of the Courts - such as this one - has greater legal standing than PPG 23, which is only guidance.

- a full description of the project;
- measures taken to avoid, reduce or remedy any adverse effects of the development;
- supporting data to enable full assessment by the public and various authorities.

Environmental impact statements vary hugely in quality. Some are so poor that they can make an easy target in your campaigning. They do give you an idea of what answers the developer will give to your arguments.

Waste management licensing

If a factory is involved with processing waste then it must have a waste management license. This licensing procedure is controlled by the Environment Agency; details of all licences are available at the public register.

Industrial major accident hazards

Large factories which produce or use substances which are flammable, toxic or explosive must submit a safety report to the Health and Safety Executive under the Control of Industrial Accident Hazard (CIMAH) Regulations. The local authority must also draw up an emergency plan for the area which could be affected by an accident, and inform local people.

Planning - hazardous Substances

Any storage of hazardous substances over a certain quantity must have a consent from the hazardous substances authority (this may be a county council, National Parks authority or other body - ask your local council planning department to find out who is responsible in your area). The process of applying for a consent is similar to that used when applying for an authorisation for an IPC process, and is described in the Planning (Hazardous Substances) Regulations 1992 (SI 656) for England and Wales, and the Town and Country Planning (Hazardous Substances) (Scotland) Regulations 1993 (SI 323). Note that these regulations do not apply to anything classified as waste.

Environmental management and audit schemes

There are a variety of voluntary processes which companies can go through to help evaluate, and in theory, reduce, their impact on the environment. In some cases companies can use them as "greenwash", an attempt to appear pure and clean. In other cases, the company could really be trying to improve its environmental impact.

An environmental management system involves the investigation and documentation of all the company's routines with reference to the environment. The systems that a company develops are then certified by an external certification body. There are two main certifications available, the European Eco-Management and Audit Standard (EMAS) and the International Standards Organisation (ISO) 14001. An older British Standard, BS 7750, has now been superseded by ISO 14001.

ISO 14001 is weaker than EMAS, and doesn't ensure information is available to the general public. More detail on the two systems is provided below. If your company has incorporated one of these standards, try to find out as much as possible about what they've committed to, which will help you judge how genuine their commitment to the environment really is.

Environmental management systems are likely to become more important as more companies adopt them. They may provide you with useful information about how your company is operating, and may provide a set of commitments that you can compare with their real performance. Persuading a company to adopt EMAS could be part of your campaign, as it would at least force them to think more about their pollution.

A related issue is that of a company or local authority carrying out an environmental audit of their activities. These may or may not be useful to you, depending on the depth of the investigation; more details are provided below.

EMAS

EMAS is the European Union's voluntary system for environmental management and environmental auditing. The key points of EMAS are:

- EMAS makes no absolute demands on environmental performance;
- companies with EMAS should comply with environmental legislation and regulations;
- EMAS requires the creation of an environmental management system geared towards a constant improvement in a company's environmental efforts, including action plans describing how and when higher environmental standards will be achieved;
- a company's environmental policy and environmental goals should be available to the public in an environmental audit, which will be

validated by a third party (the certification body);

- where a company has identified a "significant environmental effect" this should be entered on a register;
- all participating companies should carry out an environmental audit at least every three years or annually if there is "particular potential to cause environmental harm".

The EU has a web site for EMAS:

- <http://www.emas.lu/>

ISO 14001

ISO 14001 also requires an environmental management system to be created. As with EMAS, there are no actual performance targets set as part of the standards; the standard is about the process itself, rather than measuring results. The key differences between ISO 14001 and EMAS are:

- EMAS requires compliance with environmental legislation, ISO 14001 doesn't;
- EMAS requires that emission levels be reduced using the "economically viable application of best available technology", ISO 14001 doesn't;
- EMAS requires that a public, verified, environmental statement should be produced, ISO 14001 doesn't³⁵.

Environmental auditing

Some companies now carry out environmental audits of their operations, examining the environmental impacts of what they do, and companies certified to EMAS will be doing audits as part of their environmental management system. The ISO is preparing several eco-audit standards as part of the ISO 14000 series. The quality of audits varies greatly, some are done in-house, but most will be done by external consultants. Always look at an environmental audit if one has been done, as it may have useful information in it. If it is poorly done then you may be able to use it as an example of how little the company knows about the environment.

Central Government Departments and Agencies

Several other Government departments and Agencies are relevant to pollution regulation. These are listed in Annex 8.

Future directions in environmental regulation

Environmental policy is constantly developing, with the vast bulk of progress in recent years having come from a European level. European directives usually only provide a framework and define objectives or requirements. It is left to the member states themselves to take the action needed to achieve the required result.

The most significant new development in environmental regulation is Integrated Pollution Prevention and Control (IPPC).

Integrated Pollution Prevention and Control (IPPC)

A new EU Directive on Integrated Pollution Prevention and Control (IPPC, directive 96/61/EC) was adopted in September 1996. Member states such as the UK have until October 1999 to transpose its provisions into domestic law. It is possible the UK will do this through a short Bill in 1998/99, with new regulations. Because the UK implementation of the directive has not happened yet, this section cannot give a detailed account of IPPC, just a brief introduction.

The aim of IPPC is to minimise pollution "so as to achieve a high level of protection for the environment as a whole". It is similar to IPC, but will cover about 7000 processes, rather than the 3000 or so IPC processes, with the additional processes coming from:

- some Part B, local authority regulated, processes will become regulated by IPPC, and regulation will probably be transferred to the Agency;
- some processes that are not regulated under the Environmental Protection Act 1990, such as intensive livestock farming, will be regulated by IPPC.

IPPC has similar principles to IPC, however its scope is wider, including:

- energy consumption;
- noise and vibration;
- light.

All new plants (those built or authorised after 1 July 1995) must apply for a permit as soon as the Directive comes into force. Existing plants must be brought into the permit system by the end of 2006, unless they are breaching an existing EC or WHO

³⁵ ENDS Report 271, p 6-7.

Environmental Quality Standard, when they must be brought into the system as soon as possible.

Plants undergoing substantial change, defined as a change in operation (characteristics, nature or method of operation), or extension to an installation which could affect the permit requirements or have adverse environmental or human effects, will also have to immediately enter the IPPC system.

Section 9

Regulation in Northern Ireland

This section:

- describes the existing regulatory system in Northern Ireland;
- describes the incoming regulatory system in Northern Ireland;
- outlines upcoming chances to make a real difference to factory pollution in Northern Ireland, as the new regulations come into force.

A time of change

Environmental regulation in Northern Ireland has tended to lag behind that in the rest of the UK. As a result the principles of Integrated Pollution Control are only now (in 1998) being introduced. There will, however, be a considerable transition period whilst these new regulations (*see below*) become fully enforced.

This section first describes the existing “old” regulatory system, then the new one. It then discusses the significance of the transition period.

The regulators

Most environmental functions in Northern Ireland are the responsibility of the Environment and Heritage Service (EHS), which is an Executive Agency within the Department of the Environment for Northern Ireland (*contact details are in Annex 8*). The relevant sections of the EHS are described below.

Right to know

Public access to information, ‘right to know’, regulations differ slightly in Northern Ireland in comparison to England and Wales. FOE have produced a briefing, “Using your right to know in Northern Ireland”, which is available from FOE’s Northern Ireland office (*see Annex 8 for contact details*).

Free environmental information

The Industrial Research and Technology Unit of the Department of Economic Development for Northern Ireland will provide up to 2 hours advice on environmental matters free to members of the public. The telephone number for this Environmental Enquiry Point is 0800 262227.

Existing regulatory structure

Air pollution

Until the new regulations are fully in place, air pollution in Northern Ireland will still be regulated by the Alkali Act 1906 (!). The regulator is the Alkali and Radiochemical Inspectorate within the EHS.

Those industries with the greatest potential for air pollution are required to register with the inspectorate, and are obliged to use “Best Practicable Means” (BPM) for controlling emissions. The Chief Inspector specifies BPM for any process.

These regulations have no provision for public access to authorisations or monitoring information. This makes it hard for the public to get the information to campaign against pollution; however campaigns are still possible.

This regulatory system will cease to exist once the new regulations are fully in place.

Water pollution

Water pollution and water quality are the responsibility of the Environment and Heritage Service, and currently the main relevant legislation is the Water Act (Northern Ireland) 1972. A consent must be obtained for discharge of any trade or sewage effluent or any other poisonous or noxious substance.

Currently the public registers only include consents and their conditions; there is no sampling or analysis data. The EHS is also publishing some Water Quality Management Strategies, describing the problems within specific river catchments, and strategies to deal with these problems.

Water supply, sewerage treatment and the regulation of discharges to sewer are the responsibility of the Water Service of the Northern

Ireland Department of Environment. Crown Immunity makes it impossible for the EHS to prosecute a poorly performing sewage works.

Note that discharges to water or sewer by any plants regulated by the new Integrated Central Control (ICC) system will be regulated by ICC (*see below*).

Conservation Agency

The Environment and Heritage Service is the conservation agency in Northern Ireland. It has the role of protecting important wildlife sites.

Planning

In Northern Ireland all planning functions are carried out by the Planning Service in the Department of the Environment, which has six divisional offices around the country which handle most planning applications. District Councils have no planning powers, though the Planning Service must consult them. For more information, get a copy of the briefing sheet "Using the planning system in Northern Ireland", available from Friends of the Earth's Northern Ireland office (*see Annex 8 for contact details*).

New regulations

The new regulatory system came into force on the 2nd March 1998, following the publication of several regulations³⁶. It will take four years, ending in December 2002, before all existing processes are incorporated into the new system. For more details on the transition, see below.

Large processes (described as Part A) will be regulated by Integrated Central Control, which is equivalent to IPC, smaller processes (described as Part B) will be regulated for air emissions by Restricted Central Control, whilst the least significant air polluting processes (described as Part C) will be regulated for air emissions by Local Control. A full list of processes and their designations is available in Schedule 1 of Statutory Rule 1998 No. 278. The Industrial Pollution Control (Prescribed Processes and Substances) Regulations (Northern Ireland) 1998³⁷.

³⁶ Statutory Rule 1998 No. 28, The Industrial Pollution Control (Prescribed Processes and Substances) Regulations (Northern Ireland) 1998; Statutory Rule 1998 No. 29, The Industrial Pollution Control (Applications, Appeals and Registers) Regulations (Northern Ireland) 1998; Statutory Rule 1998 No. 30, The Industrial Pollution Control (Determination Periods) Regulations (Northern Ireland) 1998; Statutory Instrument 1997 No. 2777 (NI 18), The Industrial Pollution Control (Northern Ireland) Order 1997.

³⁷ Available from HMSO, and on the web at <http://www.hmsso.gov.uk/sr/sr1998/19980028.htm>

The regulatory systems are described below.

Integrated Central Control (ICC)

ICC will be regulated by an Industrial Pollution Inspectorate (IPI) within the EHS. ICC is basically identical to IPC, with the same process for authorisations, variations, monitoring, prosecution etc. The only real difference is that the regulations allow 6 months to determine applications for authorisation, rather than four months in Britain.

As ICC is effectively the same as IPC, you can use the sections of this guide which describe IPC (Sections 5, 10 and 11), substituting IPI for the Environment Agency. The EHS will be using the same process guidance notes as the Agency for ICC processes.

Restricted Central Control (RCC)

Processes with the potential to cause serious air pollution, "Part B Processes", will be regulated by the IPI using RCC. This system is effectively the same as Part B air pollution control in England and Wales, except that the pollution is regulated centrally by the IPI rather than by local authorities. Section 6 describes how this type of regulation works, Sections 10 and 11 describe how to gather information on and campaign about these processes. The EHS will be producing its own guidance notes for RCC processes. These notes will not be published through The Stationery Office, but will be available free of charge from the EHS. The guidance notes should be similar to those in use in England and Wales.

Local Control (LC)

Processes with significant but less potential for air pollution, "Part C Processes", will be regulated by district councils, through local control. This system is effectively the same as Part B air pollution control in England and Wales. Sections 6, 10 and 11 describe how to work with this type of regulation. The Department of the Environment NI will be producing guidance notes for these processes; these guidance notes are statutory, and the councils must "have regard" to them. These guidance notes should be similar to those produced by the DETR in England and Wales.

Registers

A new register of ICC processes will be set up at the EHS headquarters in Calvert House; Calvert House will also house a register of RCC processes. These registers will consist of essentially the same information as the IPC and Part B registers in

England and Wales (*Section 10*), for example authorisations and monitoring data.

Local councils will hold a copy of the register entries for ICC and RCC processes within their area, and will additionally have a register of the Part C processes that they are regulating.

Land pollution

The new regulations will make land pollution and waste regulation similar to that in England and Wales, regulated by a Waste and Contaminated Land Inspectorate (WCLI) within the EHS.

The transition

The new regulations will be phased in between 1998 and 2002. Any new processes, or any processes undergoing a "substantial change" (*see Section 5*) will have to apply immediately for an authorisation. All other processes will have to apply for authorisation in a phased timetable.

The upgrading timetable is contained in Schedule 3 of Statutory Rule 1998, No. 278, the Industrial Pollution Control (Prescribed Processes and Substances) Regulations (Northern Ireland) 1998³⁸.

A brief summary of the upgrading timetable is given in Box 2. For more detailed information refer either to the original regulations, or ask the EHS, or local council if it's a Part C process.

How the authorisation process works

The operator of the new or existing process will have to submit an application for authorisation at the appropriate time. This application will be open for public consultation, which creates a perfect opportunity for local people to put on pressure to clean up the factory. Some ideas on how to do this are given in the part of Section 11 devoted to new applications.

Note that the IPI has up to 9 months to decide *initial* applications for existing processes under ICC and RCC, rather than the up to 6 months allowed for other applications.

The future

More change in the regulation of pollution in Northern Ireland is on the horizon. Some pointers follow.

IPPC

As in the rest of Europe, the IPPC directive must be brought into force - see Section 8. The DoE NI will be going through a consultation process on how to implement IPPC; the detail of implementation is not clear at the time of writing. It is likely to involve new regulations, rather than new legislation.

Regulation of water pollution

Water pollution control in Northern Ireland should soon be modified, through a new Water Order, which may be published in late 1998 or early 1999. A consultation document on new proposals was published in 1994. Some of the changes expected include:

- charging companies for discharge consents;
- extension of the registers to include sampling data;
- provision of more types of notices for prosecution and enforcement.

Currently the Water Service Authority is part of the NI Department of the Environment but this may change following consultation (in England and Wales, water services are performed by privatised water companies, in Scotland by water boards).

Chemical Release Inventory (CRI)

Northern Ireland currently has no CRI (*see Section 10*), partly because it depends on ICC/IPC to generate its data. As ICC comes in, it would be possible to set up a CRI, though it is not yet clear whether one will be set up. Why not write to the NI Department of the Environment and the EHS asking for one to be set up!

³⁸ Available from HMSO, and on the web at <http://www.hmso.gov.uk/sr/sr1998/1998002804.htm>

Box 2: Timetable for applications for authorisations in Northern Ireland***Part A processes:***

Process	Not earlier than	Not later than
Fuel production processes, combustion processes (including power generation) and associated processes	1/10/1998	31/12/1998
Cement and lime manufacture and associated processes; tar and bitumen processes	1/10/1999	31/12/1999
Processes involving asbestos; other mineral fibres; glass manufacture and production; timber treatment; treatment and processing of animal or vegetable matter; the chemical industry	1/10/2000	31/12/2000
Metal production and processing; waste disposal and recycling; processes involving uranium; coating processes and printing	1/10/2001	31/12/2001
Paper and pulp manufacturing processes; di-isocyanate processes; manufacture of dyestuffs, printing ink and coating materials	1/10/2002	31/12/2002

Part B processes:

Process	Not earlier than	Not later than
Fuel production processes, combustion processes (including power generation) and associated processes	1/10/1998	31/12/1998
Cement and lime manufacture and associated processes; Other mineral processes; tar and bitumen processes	1/10/1999	31/12/1999
Processes involving asbestos; glass manufacture and production; ceramic production; treatment and processing of animal or vegetable matter; the chemical industry	1/10/2000	31/12/2000
Metal production and processing; waste disposal and recycling; coating processes and printing; processes involving rubber	1/10/2001	31/12/2001
Di-isocyanate processes; manufacture of dyestuffs, printing ink and coating materials	1/10/2002	31/12/2002

Part C processes:

Process	Not earlier than	Not later than
Fuel production processes, combustion processes (including power generation) and associated processes; other mineral processes; treatment and processing of animal or vegetable matter;	1/10/1998	31/12/1998
Cement and lime manufacture and associated processes	1/10/1999	31/12/1999
Ceramic production; timber processes	1/10/2000	31/12/2000
Metal production and processing; waste disposal and recycling; coating processes and printing; processes involving rubber	1/10/2001	31/12/2001
Manufacture of dyestuffs, printing ink and coating materials	1/10/2002	31/12/2002

Section 10

Collecting information about pollution

This section:

- *provides tips on how to observe pollution yourself;*
- *explains what is available in the public registers, and how to access them;*
- *examines the merits of getting your own analytical data.*

To campaign against a polluting factory you will need to gather information about the pollution involved. This information can range from observing dead fish or a foamy river yourself, to examining the Environment Agency's records on a factory, to, in exceptional circumstances, getting your own sampling done. This section takes you through the different options; whether you need a lot or a little information for your campaign will depend on what you are working on, and how easy it is to get hold of the information.

Simple observation

Observation is a very powerful way of gathering information about pollution. Although you will not be able to say precisely how much of any pollutant is present, you can describe its effects, its timing and its possible source. Keep good records of what you are doing, and be as specific as possible. Obviously, some pollution is invisible, though even then you may be able to see some effects from it.

General points

Timing

Pollution often varies over time, either because of variations in the rate of polluting emissions, or because of external changes, such as faster flowing rivers after rain. Many industrial processes are not continuous, so different things will be being done at different times. The Environment Agency could be missing pollution episodes because they are happening only for brief periods. Keeping a diary of what you observe can be very useful. For example, you may later get access to a copy of the factory's log book (*see Section 11*), and find links between events in the log book and pollution you observed.

Mapping

Particularly in the case of rivers, it may be useful to map out where you see pollution or the effects of pollution. With the information that is available from the Environment Agency on the water quality

of the rivers you can build up a good picture of where your river is being polluted.

Photography and video

Photographing pollution can be a very good way of backing up your complaints. If there's been a big fish kill, or a pipe into a stream is discharging a foamy blue mess, then photographing it will provide solid evidence to convince the regulator that there is a problem. However, in most circumstances, a photo cannot be used to prosecute a company and some reliable sampling will be needed (generally done by the regulator). Remember to keep a record of exactly where and when each photo was taken.

Videotaping pollution can also be very useful, particularly if it varies over time. A video of pollution coming from a chimney could be useful to prove that there are times when the factory puts out more pollution, or to show how poorly the pollution disperses. Videos can be shown at public meetings to gather support, and may be screened by the local TV news if they are good enough.

Describing river pollution

Primary indicators of pollution (the pollution itself) include suspended solids (cloudy water and floating particles), colour, smell, iridescence (an oily film) and foam. Note that foam is not always an indicator of pollution, as there are natural causes, particularly in rivers which flow through woodland and bog areas. If the foam is present in excessive quantities then pollution may be responsible.

Secondary indicators of pollution (produced due to the effects of pollution) include excessive sediment on the river bed, dead fish, changes in the wildlife in the rivers and the presence of algae and sewage fungus. Sewage fungus is caused by a few species of micro organisms which form massive colonies in organically polluted water. It is visible as slimy growths or ragged white, yellow pink and brown masses on solid objects. The colonies may break off

and float down the river, and they may grow up to 300 metres downstream of a discharge.

Examining changes in the wildlife in the river can be very useful, particularly invertebrates such as mayfly and chironomid larvae. However this will require some practice!

When you are describing the river pollution you should also look out for any pipes flowing into the river, and note down if you see anything coming out of them. There are cases where pipes are found to be discharging pollution when the Environment Agency didn't even know they existed!

Describing air pollution

If possible, describe what you see coming from the source of the pollution, e.g. the colour and density and extent of any plumes. Also record any smells, and any health effects that you experience. Note how well any plume is dispersing, and whether there is an inversion (when pollutants get trapped in the lower atmosphere). You may also see material deposited on the ground (or on cars), for example, a white powder from a cement works.

Health effects

If you or someone you know is experiencing health effects from pollution, try to document them as much as possible. Record when they occur, with their severity. Keep records of any visits to the doctor and diagnoses. This may allow a comparison later on between emissions on certain days and health effects.

Asking around

Ask other people to record the pollution as above, and record any health effects. Several people recording health effects will have more impact. You can also survey the people living in the affected area, to see how many people are affected. There's more information about surveys in Section 1. However, it is usually very difficult to "prove" a causal link.

Health professionals

It is often useful when examining the possible effects of pollutants on human health to obtain medical information. However, General Practitioners frequently have very little knowledge of the health effects caused by pollution, and both GPs and health authorities are generally reluctant to speak out about pollution. Having said this, many GPs and public health authorities are increasingly aware and concerned about environment issues.

Your local health authority may have useful information, for example, on asthma rates in your local area. However, they may not compile this data, and they may not give you the data if they have. Health authorities may claim that the data is not "environmental information", and therefore not subject to the Environmental Information Regulations (*see Annex 7*).

If your GP is interested in the pollution in your area then he or she can be a very useful ally. If a GP is convinced that a patient is suffering health effects from pollution then they are more likely to refer them on to a specialist, such as for example, the National Poisons Unit, which is part funded by the Department of Health.

Asking the regulators

Often the fastest way of finding out about what a factory is doing, or who is polluting a river, is to ask the regulator. Section 4 describes in detail how regulation works, and tells you who you should contact. The easiest start you can make is to phone your local authority Environmental Health Department, and ask them who regulates the factory - themselves or the Agency. If it's a river you're concerned with, it'll be the Agency's responsibility.

Write a letter, expressing your concerns, and ask what is being done about the pollution. The reply should provide you with useful information for focusing your investigations; it might even show that the problem is about to be dealt with (but check that it is!).

Using information from the registers

As mentioned in Sections 4-9 describing regulation, a lot of sampling and other information is publicly available in registers. This information can be very useful, though sometimes you may find that the information you want is not there. Different registers are stored in different locations; details are given below. It is almost always a good idea to telephone the place you are visiting beforehand to arrange to see the registers.

Registers that are likely to be relevant to a factory campaign are described below. If you want a comprehensive list of all environmental registers, get a copy of "Environmental Facts: A guide to using public registers of environmental information" from the Department of the Environment, Transport and the Regions (*see Annex 8 for contact information*).

Dealing with the data in the registers

If you start examining the public registers you may be faced with an immense amount of information, most of it of limited use to you. It might be a good idea to work out the sort of data you need, and how you are going to use it, before you start. It is also worth visiting the registers several times, which will enable you to build up a picture of what information is there, what isn't there, and what is useful. You may find that data or letters that should be in the register aren't there. If this is the case, ask whoever runs the register for the data, and for an explanation of why it isn't there. It is also possible that there will be very limited data on the factory you're interested in, just because little sampling has actually been done.

Charges for photocopying vary depending on which organisation holds the registers; see below for details. It is probably a bad idea to photocopy huge amounts on your first visit, as you may find that you waste a lot of money when you realise that most of it isn't relevant!

Try to keep the information you gather well organised. This will ensure that you know where everything is, and will also mean that you are always able to say where you got any of your data, if you are challenged.

Understanding the registers

Sections 4-9 describe how factories are regulated; you will need to read the relevant sections before looking at the registers. Annex 2 explains how pollution is measured, so may be useful when looking at analytical data. That Annex also discusses the use of pollution models, which are often used to predict pollution levels.

When you are collecting data, try to distinguish between facts and interpretation. You will sometimes find that interpretation or "spin" has been used to conceal the real nature of pollution. Usually it will be the company that is putting on the spin, but it is sometimes the regulator. One example of this is a £500,000 study that the Environment Agency commissioned in Autumn 1996, examining air pollution around a cement works in Clitheroe. This was published as an 8 volume report, and the summary volume said that air quality was good. It was only by looking at the other 7 volumes of data that Friends of the Earth was able to show that the

summary volume had been written in a misleading way³⁹.

Your right to know

If you have difficulty getting information, you can use the Environmental Information Regulations. These implement the European Union Directive 90/313/EEC on the freedom of access to information on the environment in England, Wales, Scotland and Northern Ireland. The Regulations basically say that all environmental information should be publicly available (though there are some exemptions). Government departments and agencies, local authorities and other bodies which carry out functions of public administration are subject to the regulations. Anyone can request information under the Regulations, and there is no need to give a reason for wanting the information. State that your request is being made under the Regulations (*see Annex 7 for a model letter*).

Responses must be forthcoming as soon as possible, or within two months at the latest. A fee may be charged for the information - however, this must be reasonable and relate only to the supply of the information requested. More detail on how to use your right to know is in Annex 7.

Checking your information is up to date

Once you have visited the registers you will hopefully have a good idea of what is happening with the factory (or factories) that you are concerned with. However, before you use the information it might be a good idea to check that it is up to date; there can be delays in putting information on the registers, and some may get lost.

The best way to check information is to write to the person regulating the factory, asking about anything you are uncertain about. For example:

"The register includes a request by Bloggs Plc for them to provide a report on reducing hexane emissions. The report was due to be completed in June 1997; has it been received, and if so can I have a copy? Is the Agency going to take any action as a result of this report?"

"The register includes an authorisation dated June 1992 for Bloggs PLC to discharge 100 mg/l methanol into the river. Is this authorisation still current, or has it been superseded?; if it has, could you please send me a copy of the new authorisation".

³⁹ "Misleading the Minister? The Environment Agency, The Cement Industry and £500, 000", Friends of the Earth, July 1997.

Once you have the reply you can be sure of the accuracy of your information.

Environment Agency

The Environment Agency holds most of the registers which will be of use to you. They produce their own guide to them, "A guide to information available to the public", which is available free from your local Agency office. There is also a copy on their web site, along with a detailed list of the information held on the registers⁴⁰. For an example of what information is available on the registers, and what are the problems you may encounter, see the attached "Toxics in your backyard" briefing, in the Appendix.

How to view Environment Agency registers

Contact your regional office (*contact details in Annex 8*) to find out exactly which office the register you require is stored in. You can also book your first visit, which will probably enable you to be shown how things work by one of the staff. The office should be open from 9.30 am to 4.30 pm Monday to Friday, except Bank Holidays.

Viewing the registers is free, and you can also ask staff for information. According to Environment Agency policy you should not have to pay for:

- all reasonable information requests made by the public, including students in full time education;
- all requests requiring less than two hours of staff time to process, and all simple telephone requests;
- all request for which the total charge, including staff time, is less than £50.

Photocopying is charged at 10p per side, but the first £50 or 500 pages will be free. Transferring data onto floppy disks will cost £25 per hour of staff time.

Confidential information

The Environment Agency is allowed to withhold some information from the public registers; in some cases it is legally obliged not to provide the information. They must provide you with a written confirmation of any refusal. Information which can be withheld includes:

- confidential information which is part of a legal case, or to do with national security;
- personal or commercially confidential information;

- incomplete or draft reports;
- information where disclosure may lead to environmental damage (e.g. the position of the nest of a rare bird).

If you consider that they are withholding information without good reason, write and dispute their interpretation (*see Annex 7*).

Integrated pollution control register

If the factory you're looking at is subject to IPC then you should find the following information available about the process in this register:

- a copy of the application made by the factory for the authorisation of their process. This will contain the factory's own description of their process and any environmental statement or study they have carried out in support of it;
- copies of correspondence from all consultees;
- a copy of the authorisation issued by the Agency. This contains the actual legal emission limits as well as details of those reports and improvement that the factory must carry out;
- copies of all reports required by the authorisation such as air monitoring data. The factory will be obliged to send at least quarterly and annual figures to the Agency;
- any documents relating to trials of new processes;
- enforcement notices and correspondence, including details about accidents, unauthorised releases of pollutants, enforcement action taken by the Agency. Also information on what steps the company are to take to prevent such accidents in the future;
- copies of reports requested by the Agency from the company. The Agency will often request that the company provides a report describing how emissions of a substance can be reduced. These reports should have been placed on the register since April 1996.

Remember that your factory may have several authorisations, each for a different process. Each authorisation will have an identification number. However, any variation on the process may have a different identification number, and documents placed in the register after this variation may be identified by either (or both) numbers. If the register is well organised there should be a page

⁴⁰<http://www.environment-agency.gov.uk:80/info/registers.html>

listing authorisation and variation numbers. The system is not particularly simple or sensible.

Water quality and pollution control register

This register contains three main sets of information:

- information about discharge consents - applications, decisions, appeals, changes of holder, revocations;
- water quality objectives and monitoring data, including for bathing waters. This information can be used to produce a map of water pollution in your local rivers;
- maps of freshwater limits and controlled coastal waters.

Water abstraction and impounding register

This register contains documents related to the abstraction of water from rivers (which could tell you, for example, whether a river you are interested in is used for drinking water), and related to the damming of rivers.

Maps of main rivers

Maps of main rivers in areas covered by Regional Flood Defence Committees.

Chemical release inventory

The IPC register contains annual release figures for chemicals from IPC regulated processes. A collation of this data set, the chemical release inventory (CRI), is available on the Friends of the Earth web site; at the time of writing the most recent data on this site is from 1994, but more recent data will be on the site soon. Note that the CRI currently only exists in England and Wales.

Aquifer maps

Aquifer maps show where aquifers (reservoirs of groundwater) exist underground. Aquifers may be used to provide drinking water, so any pollution from a factory situated above one is of great concern.

Local environment action plans (LEAPs)

Local Environment Action Plans are plans produced by the Agency describing the state of the local environment, including rivers and air quality, and how the Agency intends to use its resources to deal with the problems. Section 11 discusses LEAPs.

The former National Rivers Authority produced Catchment Management Plans, which fulfilled a similar function, but only covered river quality.

Other information

A range of other reports are also available to be viewed, including legislation and Ministerial Guidance, the Environment Agency Corporate Strategy, details of membership of the Statutory Regional Committees and Research and Development Reports.

Local Authority

Local Authorities hold public registers of the functions for which they are the enforcing authority, such as Part B air pollution regulation and planning. The enforcing authority is generally the lowest local authority tier if you live in an area with a two-tier system. Local authorities also hold copies of some of the Environment Agency registers for their local area. Note that in coastline areas some registers may be held by Port Health Authorities rather than District Councils.

To find out how to view your local authority registers you should contact your council. All access will be free and copies should cost a "reasonable" amount. Sometimes councils try to charge large amounts for copying; dispute the charges, claim they are not reasonable.

Local authorities may also have produced other environmental documents themselves, for example as part of an Environmental Charter or Local Agenda 21 process.

Local authority air pollution control register

This register contains details of air pollution control for Part B processes:

- applications for authorisation;
- the authorisation issued, with amendments;
- monitoring information for assessing compliance;
- enforcement, variation and prohibition notices.

A copy of the IPC Register for local "Part A" processes

Note that this register may be less well organised than the copy held by the Environment Agency; see attached "*Toxics in your backyard*" briefing for an example.

Register of hazardous substances consents

If a site contains more than a certain quantity of certain hazardous substances then a consent should be obtained from the Hazardous Substances Authority, which in some cases may be the County

Council, National Parks Authority or an Urban Development Corporation. This register contains:

- a copy of the application for consent, with the decision made by the authority;
- copies of orders revoking or modifying consents.

The Planning Register and the Register of enforcement notices, stop notices and breach of conditions notices

The planning register contains:

- applications for planning permission, along with relevant plans and drawings, plus decisions on planning applications;
- environmental statements associated with planning applications.

The register of enforcement notices contains formal notices of proposed enforcement action when planning rules are broken.

The Health and Safety Executive

The Health and Safety Executive (HSE) hold a range of registers relating to potentially hazardous sites. These registers are available at HSE area offices, which are open Monday to Friday 9.00 am to 5.00 pm. The registers may not be as accessible as those held by the Agency and Local Authorities.

- register of Notifications; this contains details of HSE consents from firms intending to use genetically modified organisms which could be hazardous to people or the environment;
- register of details of manufacturers/sites subject to the Control of Industrial Major Accident Hazards (CIMAH) Regulations. This is a register of manufacturers who have control of an industrial activity which could give rise to a major accident;
- register of particulars of large scale hazardous installations;
- register of sites holding 25 tonnes or more of dangerous substances;
- register of all sites where explosives are manufactured or handled;
- register of enforcement notices;
- register of improvement and prohibition notices having environmental implications.

Water companies/ sewerage undertaker

Your local sewerage undertaker holds details of discharges to sewer. These should be available during office hours, and are free to look at, though a charge may be made for copies. You should phone the local sewerage undertaker first to make an appointment if possible; you should be able to find their phone number under Water in the telephone directory.

The Trade Effluent Register contains some information about discharges to sewers:

- copies of discharge consents and agreements;
- **no information** on actual discharge monitoring is publicly available (unless the factory is regulated by IPC, when discharges will be on the IPC register).

NB: Don't assume that the details of the consent/agreement reflect the actual discharge.

Registers in Scotland

These are similar to England and Wales, except all air pollution control is carried out by SEPA, rather than the councils. The Friends of the Earth Scotland publication "Protecting our Environment" explains how to use public registers in Scotland (*see Annex 9*).

SEPA's registers are similar to those held by the Environment Agency. The main differences are:

- the charging system is different from the Agency's;
- there is no Chemical Release Inventory (CRI) in Scotland, even though the IPC regulatory system is basically identical to that in England and Wales (why not write and ask why!);
- SEPA doesn't have LEAPs (*see Section 11 for more details*);
- SEPA's registers include Part B processes;
- documents presented at Board meetings are publicly available (though not necessarily at the registers). The Board meetings themselves are also open to the public. Documents presented to Environment Agency board meetings are not all available to the public, and the meetings themselves are also in secret.

Registers in Northern Ireland

See Section 9.

Getting your own analytical data

It is often tempting for a campaign group to think that all their problems will be solved if they get hold of a sample of the pollution being discharged and get it analysed. Unfortunately life is seldom this simple. Some of the problems with getting analysis done yourself are:

- it can be very expensive. Getting a single sample analysed for just one or two chemicals can easily cost over £50, with thorough analysis costing a lot more;
- results can easily be affected by how a sample is taken, what it is stored in and for how long it is stored. You will need advice from whoever is analysing it to find out how best to take and treat the sample;
- a single sample may not tell you much about what is going on, especially if the pollution is very variable;
- the sampling is unlikely to be sufficient for legal action against a company, due to requirements for sampling to be done in particular ways. Anything will probably have to be confirmed by the Environment Agency.

Ideally you should aim to persuade either the Environment Agency or the Local Authority to do the sampling and analysis for you. This is where the law of statutory nuisance can be useful (*see Section 8*); if you report a statutory nuisance to a local authority they are obliged to investigate it, and you can try to ensure that their investigation involves sampling.

Even if you have taken a sample yourself, e.g. a strange white powder on your car, you may be able to get the Agency or local authority to analyse it.

If you decide that you do need to get some analysis done yourself, then it is best if you get some technical advice from an expert. See Annex 2 for more information about pollution.

Gathering information about the company concerned.

You will require some information about a company in order to campaign against it. How much you require will depend on your individual circumstances.

Information that might be useful

- Where is this company's headquarters? Where does it operate other factories? Are they polluting?

- Does the company operate an Environmental Management system? (*see Section 8*).
- Has the company produced an environmental annual report, or made any environmental commitments? Is it committed to "Responsible Care", or a member of the World Business Council for Sustainable Development?
- Who are the key players in this company? Who have they worked for before? What's the track record of these other companies?
- What is the financial condition of the company? What kind of insurance coverage do they have? What kinds of litigation are they involved in elsewhere?
- Who stands to profit? Who is going to make money?
- Where will the money come from to develop the site? Are there any Government subsidies?

Sources of information

- The company itself - they should at least be able to provide you with their last annual report. Ask some of the above questions in a letter - if they refuse to tell you some information you may be able to publicise this.
- Local newspapers. A few local newspapers or libraries will have indexed archives, otherwise you'll have to search by hand.
- Business libraries will have directories containing information about the activities of a company.
- Magazines such as Corporate Watch and Ethical Consumer have articles about many companies.

Section 11

Campaigning against pollution

This section:

- *gives general advice on meetings;*
- *describes how to object to an IPC application or variation, or a LAAPC or discharge consent application;*
- *briefly outlines how to object to a planning proposal;*
- *describes the merits of legal action;*
- *describes Local Environmental Action Plans;*
- *outlines ways of pressurising the company to clean itself up.*

Once you have established what the problem is, you will want to get some action to clear it up. This action could include asking those responsible for regulating the process to act, or in extreme circumstances, might even involve taking legal action yourself. Much of this action may require campaigning, to bring a ground swell of opinion behind your case; campaigning is described in Section 1.

Annex 5 includes some flowcharts describing different sorts of campaigns; you may find this helps you get started.

General advice on meeting and talking to regulators and industry

Meetings and “chats” can be very useful, but can also be used against you as public relations tools to demonstrate the Agency/company is listening to local concerns. It is therefore important that you know what you want out of a meeting, and that, if possible, you confirm any information you receive verbally in writing.

Before the meeting

Decide what you are intending to find out at the meeting, and do any background research. Work out some questions that you want answered. Think about what the other party may wish to get out of the meeting.

During the meeting

Try to make sure your questions are answered. In the case of a regulator you may find them very co-operative and helpful; they may find your campaigning useful to pressurise a company to clean up its act. The representatives of the factory are also likely to be friendly. They may try and

dazzle you with technical detail; try to keep the conversation on your concerns. Make sure that you do not make any statements that you might later regret.

After the meeting

If you feel that important things have been said at the meeting, which you would like to have confirmed in writing, then write a letter to the other parties in the meeting. List the important things that were said, and ask that the other parties confirm that this is what they said. Alternatively, you could take a transcript or record the meeting, but this might inhibit discussion.

It is important to get as much information written down as possible, as this enables you to prove its veracity.

Dealing with difficult questions

Annex 1 provides some tips on how to deal with difficult questions.

The regulatory agencies

As explained in Section 4, different factories will be regulated by different regulators. For more details on how each of the regulators work, and how to contact them, refer to Annex 8; this annex also includes some analysis of why the regulators don't always protect the environment as much as they should. You may find this information useful if you're trying to get them to regulate a factory more aggressively. The annex also describes the complaints procedures for the different regulators. If you feel the regulators are not doing their job then complain.

Illegal, unregulated pollution

If you believe that illegal pollution is occurring, e.g. someone is pouring drums of chemical into a river, immediately phone the Environment Agency's emergency number. If you leave a contact number the officer concerned is obliged, by their standard of service, to call you back and tell you what they found. If they don't call back, call again and ask for an update. Ideally in this sort of case the Agency should prosecute; if it doesn't you should ask why, though they're not obliged to explain. The Agency has a written prosecution policy (available from your local Agency office); you may find this useful.

IPC and local authority regulated processes

IPC processes and local authority Part B processes are regulated in a very similar way, except Part B processes only cover air emissions. Therefore the following Section covers both; for Part B replace IPC with Part B, and the Environment Agency with your local authority Environmental Health Department (or equivalent).

There are two different approaches you can take to getting action on pollution from an IPC process. If the process doesn't exist yet, and there is an application for authorisation, or if there is an application for a variation, then you can use the IPC consultation system to register your objection. If an IPC authorisation already exists, then you'll need to look at this and establish how you can get it tightened up or more vigorously enforced.

Objecting to a new application or variation

According to the DETR's booklet "Integrated Pollution Control: A practical guide", published in March 1996 "*The IPC system was designed to encourage a significant degree of public involvement in the decision-making process*". The timetable for an application allows a certain period for consultation, and you should try to follow this. Your comments may still be considered if they are late, but it's best to follow the timetable.

Note that a new factory will also have to get planning permission (*see Section 8*). This process will also give you campaigning opportunities. The flowchart in Annex 5 outlines the opportunities available.

IPC application timetable

The person operating the process must publish an advertisement in a local newspaper and the London Gazette (or Edinburgh Gazette in Scotland) not less than 14 days, but not more than 42 days, after

applying for an authorisation or a variation. A copy of the application must be placed, by the Environment Agency, on the public register within 14 days of receipt.

The statutory consultees will be sent copies of the application within 14 days of receipt by the Agency, and will then have 28 days in which to comment on it.

An application must be determined within 4 months of the day of receipt by the Agency, unless agreed with the applicants.

One exception to the above is when the applicant claims that some information should not go on to the register for reasons of commercial confidentiality or national security. In this case the Agency has 14 days to consider the confidentiality request, and if it agrees the information will be withheld, except that the HSE will receive it. If the Agency disagrees the applicant may appeal to the Secretary of State within 21 days. Once the confidentiality situation has been decided a further 7 days will pass before the application is put on the register.

Information useful for an objection

A copy of the application

Information from the application which will be useful for your objection includes:

- the main pollutants emitted, and any description of the environmental effects of these pollutants;
- what pollution control technology the plant intends to use;
- how emissions are to be monitored;
- if there is to be any monitoring of existing background levels of the pollutants that are to be emitted. Will the pollutants add to an existing local problem?;
- what mention is made of pollutants that contribute to wider environmental problems, for example climate change or acid rain.

The name of the Environment Agency officer who will be making the decision

If parts of the application are unclear you could request clarification from the officer concerned. The officer should also be able to tell you who has been consulted.

The views of other interested bodies

Ask the Agency for a full list of those consulted with regard to the application, and read any comments that have already been submitted; they

should be on the public register (complain if they're not). You can also contact the consultees directly and ask if they are submitting a response. Express your own concerns to them, and ask for their opinions. Ask them for clarification about their response if necessary, for example if it is not clear if they support or object to the application.

The process guidance note for the process in question

You should be able to see a copy of this in the Agency's library, or buy it from The Stationery Office. This will help you understand the process concerned, the treatment technologies available and the normal emission levels.

The record of the company concerned

If the company is already operating at this site, has it caused pollution? Has it been prosecuted or breached emission limits? This information should be on the register. Does the company have other sites? Are they polluting? Ways of finding out this sort of information are described in Section 10. This information can be used to suggest that the company is unreliable, and may be useful in the campaign.

Keep an eye on the registers

It is worth keeping an eye on the registers during the application process, as the Agency may have asked the company for more information. Phone the Agency officer dealing with the application just before you send in your representation to check that no new information has been received.

Compiling your representation

Your representation can be in the form of a letter, or a report with a cover letter, setting out clearly your concerns about the pollution to be produced by the process. Remember that your objection will be part of the public register, along with all the other submissions. Your submission may be either in your own name, or, if relevant, in the name of your group. A suggested structure for the letter is in described in Box 3.

The result of your representation

In some cases you may wish to ensure that a factory is never built, in others you may just wish to ensure that it is less polluting. Your submission can help achieve either of these outcomes. If you highlight any flaws in the application then there is more chance that the Agency will want substantial modifications or even refuse it. If the application is approved then the authorisation may be much more thorough and exacting than it would have been without your objection.

If the application is modified and resubmitted, you should comment on the new one. It is also possible that the applicant may appeal to the Secretary of State.

Objecting to an existing authorisation

If a process is already authorised then the above procedure has already happened. Your aim will be to show that either the current authorisation is not adequate, or that the Agency is not enforcing the current authorisation properly. You could start by writing to the Agency outlining your concerns.

If your initial letter doesn't solve the problem, you'll need to go into the authorisation of the factory's emissions more deeply. You'll need a copy of the authorisation (with any variations) and you should also look in the registers for any records of inspection and reviews of the authorisation (*see Section 10*). Pointers to information you may find useful are given below.

Once you have more detailed information, outline your more detailed concerns in a letter to the Agency. If this doesn't achieve the desired result, then you can mobilise public pressure (*see Section 1*). Annex 5 has a campaign flowchart for a large, IPC regulated, factory and for a smaller, part B regulated one.

Stronger enforcement

Look at the registers to see what emissions are being recorded from the plant. Compare each emission with the authorisation - you may well find that the plant is exceeding its authorisations. Also check in the register for any sign that the Agency has prosecuted the company for these breaches. If they haven't, you can write to them to ask why, and if their response is inadequate you can use this information in a publicity campaign.

Stricter emission limits and/or better working practices

Go through the same process that is described above for objecting to an application or variation: check the emission limits against the process guidance notes, and if they are less strict then complain to the Agency.

Check that all the different emissions described in the guidance notes are regulated and monitored. If you consider that more emissions should be being monitored then say so in a letter, with a justification of why you consider the emission to be a problem. For example, the authorisation might include limit values for volatile organic carbons, and you might consider that an individual chemical, benzene say, should be regulated and monitored.

Upgrading timetables

The register may contain an ongoing dialogue between the Agency and the company on an issue for example, when an improved treatment facility will be installed. This may give you an opportunity to exert public pressure. For example, the Agency may have requested an improvement by a certain date, but the company didn't do it by that date. The Agency may at this point have allowed them more time - you could dispute this decision. As suggested in Section 10, it is worth clarifying with the Inspector exactly what the latest situation is.

Other useful information in the register

Other information from the register may be useful to you:

- inspection reports;
- the Chemical Release Inventory will give you information on annual emissions (in England and Wales only);

- written accounts of accidents and spills may provide evidence of inadequate maintenance, poor procedures and generally incompetent working.

Other information you might be able to get hold of **Incident Log Book**

The factory should keep a log book of all incidents at the plant. This book is not put on the registers, but you may be able to get a copy by asking the local authority Environmental Health Department whether they can get it for you.

General background

Talking to Agency officers may give you useful information, particularly if they are sympathetic; Annex 8 includes some general background information on the Agency.

Use your own information

You may have already gathered your own information about the plant (*see Section 10*). For

Box 3: Suggested letter of objection

Introductory paragraph

State that you are making a representation under the Environmental Protection Act. Name the company and factory site, and quote any reference number which was given on the advert or the application. State that you have a number of concerns about the application.

Pollution concerns

Describe where the factory is, outline your concerns over the effects of emissions on the local, regional and global environment and public health. If some of the substances to be discharged do not have well defined toxicology then state that substances should be assumed to be dangerous until proven safe (*see Annex 2 for more information about pollution*). State that the authorisation should take into account the cumulative and synergistic impact of all polluting emissions from the plant and existing sources of pollution in the area, as required by Section 7 of the EPA 1990. State that this involves monitoring of existing ambient pollution levels, and regular monitoring of levels if the process is approved.

Concerns about treatment technologies

Check that the treatment technology proposed is at least that in the process guidance note. If not, state that it should be. Insist that cost estimates should be supplied to justify any claims that the technology is the best available not entailing excessive cost. Insist that the application provide an assessment of the alternatives that have been considered for plant specification and pollution control technology. Remember, in the case of new plants BATNEEC for individual plants is not important, it is based on the entire industrial sector.

Concerns about lack of information

Check that the monitoring proposed will really show what pollution is happening. If the plant is producing air pollutants such as particulate matter or SO₂ then request monitoring of air pollution levels outside the factory. Ensure that all pollutants are being monitored. Ask for regular testing with no prior notification.

Summary and recommendations

Summarise your key objections and recommendations, reflecting the points you have made in your earlier paragraphs.

Remember to keep a copy of your letter, and ask for acknowledgement of receipt of your complaint. You can also send a copy with a covering letter to your local authority and your MP.

example:

- you believe that the plant is emitting pollution from places that are not being monitored e.g. auxiliary stacks or drainage pipes into the river. Ask the Agency if these emissions are being monitored, and if not, why not;
- you have evidence that the plant is emitting pollution at particular times to avoid monitoring e.g. at night. Ask the Agency if they know anything about this.

All this information, with the Agency's responses, can then be used in your campaign.

Other useful information

As your campaign gets more involved, you may find you need more information, for example:

- the text of the original legislation;
- the text of any relevant EU Directives;
- statements made by Government Ministers about particular aspects of environmental policy;
- other Environment Agency publications discussing regulation, for example, defining Best Practicable Environmental Option (*see Annex 9 for a list*).

Review of authorisation

Every authorisation is supposed to be reviewed every 4 years. Ask the Agency if this has happened yet, and ask to be involved if it is to happen soon. The review should consider any advances in technology since the process was first authorised, along with any pollution problems that are being created by the plant.

Local authority air pollution control (or Part B processes)

As the Local Authority Air Pollution control process is virtually identical to IPC regulation, then refer to the above IPC Section for detailed advice. Remember, instead of an Environment Agency officer, you will be dealing with a local authority Environmental Health (or Pollution Control) Officer, and the registers you require will be available at a local authority office. Annex 5 includes a campaign flowchart for campaigning against air pollution from a part B process.

A copy of the relevant process guidance note will be very useful for your work. In particular, look for any improvement timetable, outlining when

existing plants should be brought up to better pollution control standards.

Authorisations for LAAPC are of very variable quality, with sometimes very limited monitoring of emissions. There is therefore often considerable potential for public pressure to improve the quality of regulation.

Processes regulated by a water discharge consent

As described in Section 7, non-IPC water discharges do not need to conform to BATNEEC and do not have any sort of process guidance notes system. However, you may find it useful to read the above IPC section too, as this may give you some ideas for action. There is a campaign flowchart in Annex 5 for a campaign to clean up a river.

The main aim of the regulatory system is to protect river quality, so the best way to fight pollution from a consented discharge is to show that water quality is affected. If you think there is a problem, write to the Agency. If you're not satisfied with the response, consider a public campaign.

Objecting to an application for consent to discharge

As outlined in Section 7, applications for new discharge consent will be advertised by the Agency, with 6 weeks for representations from the public. If you are concerned about pollution from the proposed discharge, then use this opportunity to outline your concerns. For example:

- if you believe river quality will be affected;
- if you believe there is a risk to a drinking water intake downstream. Information on drinking water abstraction is available in the registers;
- if you believe there is a particular risk to a wildlife site downstream, for example a Site of Special Scientific Interest (SSSI). You can find out about SSSIs from English Nature, Countryside Commission for Wales, Scottish Natural Heritage or the NI Environment and Heritage Service. In addition, Friends of the Earth has produced an easy to use database of SSSIs on our web site - follow the links to "Wild Places".

Stronger enforcement of an existing consent

A Friends of the Earth study, "Slippery Customers", published in September 1997, found that only one in a hundred breaches of discharge consents were being prosecuted.

If you look at the register and find that breaches are being recorded but there has been no prosecution, then write to the Agency asking why there has been no prosecution. The information about breaches, and the Agency's response, will be useful in any public campaign.

Stricter emission limits on an existing consent

If you believe, either from your own observations or from information in the water quality Register, that a discharge is affecting water quality in the river, then write and tell the Agency, and see what their response is.

One effective method of evaluating the impact of discharges on a river is to get a map of the river from the Agency, then plot on it all the consented discharges, and all the measurements of river quality that the Agency has made at different points. This will often clearly indicate which discharges are causing problems. You may find that the Agency has already produced a Local Environmental Action Plan with this information in it (*see below*).

Regulation of more emissions and better monitoring

As with IPC processes, you may suspect that monitoring is not frequent enough to show up all the emissions, or it may be that insufficient pollutants are being monitored. It can be hard to discover what sort of chemicals a plant will emit, as there are no process guidance notes available. You might find that the process guidance note for a similar, IPC regulated process, might give you some hints.

Discharges may only be regulated for "bulk" measures such as BOD (Biochemical Oxygen Demand) or Total Surfactant. In some cases this may be adequate, for example, if all the BOD is coming from vegetable processing. However, BOD tells you nothing about chemicals present in the discharge. For example, a food processing factory might also be discharging pesticides, released during the washing of fruit and vegetables.

Trade effluent processes discharging to sewer

There is no obligation for public consultation about trade effluent consents (unless the process is regulated by IPC), nor is there any publicly available monitoring data. This makes campaigning against such discharges difficult. However, as far as local pollution is concerned the most important factor is how well the trade effluent is treated at the sewage treatment works. Therefore the focus of

concern will be on what pollution remains in the discharge from the treatment works, which is monitored by the Agency, and is the responsibility of the sewage treatment company. If you are concerned that pollution is being caused, complain to the Agency, and look in the register at the monitoring they carry out on the sewage treatment works.

When pollution incidents occur as a result of trade effluent discharges to sewer it is quite possible that the trade effluent discharger will be prosecuted by both the sewage treatment company and the Agency (*see Section 3 for examples*).

Planning

The planning process will only be of use to you if a new factory is being built, or an existing one is being extended or modified sufficiently to be a "change of use". However, the planning process is, in theory, more democratic than the authorisation processes relating to IPC and other emissions. The planning process is outlined in Section 8.

Any proposal requiring planning permission will be advertised in a local paper, and the application will be available for viewing at your local planning office. You will then have a set period to make your representation, which you must follow if possible. Planning decisions are ultimately decided by elected councillors, though council officials also have a lot of influence. This means that campaigns to influence the council (*see Section 1*) are particularly important when it comes to planning.

Although the planning process can only consider pollution in a limited way (*see Section 8*), convincing councillors and officers of the threat of pollution may encourage them to look for other ways of objecting. So whilst your main concerns may be the pollution that might arise from a new process or development, your planning case should involve good arguments that will appeal to councillors and officers, for example, traffic generation due to the factory.

If you want to know more about how to influence the planning process, then useful guides include "How To Stop and Influence Planning Permission" by Roy Speer and Michael Dade (published by Dent, ISBN 0-460-86194-8) and "Environmental Action: A Citizens Guide", edited by Martyn Day (1998, published by Pluto Press). In Scotland unbiased, free information on planning is available from Planning Aid Scotland⁴¹.

⁴¹ Planning Aid Scotland, Bonnington Mill, 72 Newhaven Road, Edinburgh EH6 5QG. Tel 0131 555 1565, Fax 0131 467 7830.

Planning in Northern Ireland

As mentioned in Section 9, planning in Northern Ireland is dealt with by the Planning Service, which is part of the Department of the Environment. For more information, get a copy of the briefing sheet "Using the planning system in Northern Ireland", available from Friends of the Earth's Northern Ireland office.

Using the law

Being familiar with the law and how it applies to your campaign is very important. For example, knowing the regulatory framework, the duties of the public authority and rights to information and participation is not difficult, and is described in this manual. Knowing the legal background enables you to frame your positions in ways in which force the decision makers to think, and allows you to understand the key questions they face.

Statutory nuisance is described in Section 8. It can be a very effective way of forcing local authority action against polluters, particularly if it is not covered by other legislation.

Taking your own legal action can be extremely expensive, and should be considered with caution. However, in some circumstances it may be the best way of progressing your campaign. Legal action is discussed in Annex 6.

Local Environment Action Plans (LEAPs)

LEAPs are non-statutory plans drawn up by the Environment Agency which identify local environmental issues, how these can be addressed and how the Agency and partner organisations can take these issues forward. The Environment Agency has drawn up, and is still drawing up, LEAPs around the country; contact your local Agency office (*contact details in Annex 8*) to find out what is happening in your area.

Through the LEAP process the Agency aims to

*"achieve significant and continuous improvement in the quality of air, land and water, actively encouraging the conservation of natural resources, flora and fauna"*⁴²

The LEAP process works as follows:

- the Agency publishes a "consultation report", which provides a broad view of the locality, natural resources and activities. It includes a

draft vision for the plan area, and outlines what needs to be done. This report is open to public consultation (probably including public meetings);

- the Agency publishes a "statement on public consultation", summarising the comments received;
- the Agency produces an Action Plan forming a basis for actions within the area over the next five years, detailing the nature of the actions, costs, timescale and responsible organisations. The Agency tries to get commitments from other organisations (e.g. local authorities) where possible;
- progress is monitored through annual reviews, which compare progress against the plans, identification of any additional actions and consideration of need to update the LEAP. All those that commented on the LEAP will receive a copy of the annual review (there may also be public meetings presenting the results);
- a full review and update of the LEAP is usually done every 5 years, starting the consultation process again.

Actions resulting from LEAPs include establishment of waste minimisation projects, more detailed evaluation of cumulative emissions from all the factories in an area, evaluation and improvement of conditions for particular fisheries (including issues of flood defence) and creation of new nature reserves.

Getting involved in the LEAP process may assist you in getting things done as regards the factory or river you are particularly concerned about. The inclusion of other organisations, such as the local authorities, within the process, may also help your campaign. At the very least, the LEAP process will provide you with more information about what is going on in your area.

The former National Rivers Authority produced Catchment Management Plans, similar to LEAPs, but which only covered river quality. You may find that one of these exists for the river you are interested in; these also have an annual review process that you may find useful.

Environmental action plans in Scotland

SEPA does not currently have an equivalent to the LEAPs system. They are still using Catchment Management Plans, and they are also drawing up a National Strategy and National Business Plan,

⁴²"Roding, Beam & Ingrebourne Action Plan", September 1997, Environment Agency.

which will eventually work done into Regional Business Plans. It's not yet clear how much public consultation will be involved in the formulation of these policies. Contact SEPA to see what's happening in your area.

Getting the company to change

Embarrassing a company into action, or forcing action by public opinion, can be an effective campaign tactic. However, you should be aware that a classic defence of any company is that "We are conforming to all the limits set by the regulator, so we are protecting the environment". This is why it is important to take any opportunity to affect the regulator's view of the company's discharges.

Gather information about the company

Section 10 gives some ideas on what information might be useful, and how you can get hold of it.

Identify how the company could improve

What do you want the company to do? This will depend on the situation, but possibilities include:

- installing proper end of pipe treatment onto a process;
- redesigning or upgrading a process to prevent emissions (or waste minimisation);
- stopping a process altogether. Be careful about job-related arguments if you are proposing this;
- committing to the EMAS environmental management scheme (*see Section 8*). This could lead to an improvement in the company's emissions and environmental problems. An EMAS scheme would also give an ongoing opportunity for local people to comment on the performance of the plant.

Pressurise the company to improve

Here are a few ideas of how you can attempt to persuade a company around to your point of view; also look at Section 1 describing basic campaigning.

Letter writing

Try writing to the company to outline your concerns. You may find the reply useful, at the least to find out what arguments they use. This may help you establish their weak spots.

Visits, tours and meetings

Companies with slick public relations operations can be very keen on inviting people on tours of the plant and meetings with the management. Such

things can be useful, but should be undertaken warily. They can be time consuming and, at worst they can be highly misleading and based on selective presentations, where the main aim is not so much to inform you, rather to find out how much you already know and what your resources and plans are for further action. It is also easy to unwittingly participate in what is really just a public relations exercise designed to give the illusion of public consultation. Many "liaison committee" meetings are just a way for the company to claim that there is full community involvement in decision making. See Section 11 for more guidance on meetings.

Lobby Shareholders

Shareholders may respond to your concerns and pressurise the company's management themselves. You can obtain lists of the shareholders from Companies House; these are cheap if on microfiche. Particularly focus on those shareholders that are open to influence or embarrassment such as local authority pension funds.

Lobby the AGM

Yourself and members of your group could become shareholders in the company and attend their Annual General Meeting (AGM). A group of shareholders could propose a formal motion to the AGM which will be circulated to all shareholders with a formal response from the company. A company may be a PLC (public limited company) and therefore listed on the stock market, it may be a private company or it may be subsidiary of a PLC or a private company. If it is privately or foreign owned it will be more difficult to get information.

Insurance

Find out the name of a factory's insurance company and advise them of the pollution risk. Information can be difficult to get hold of and it may be difficult to get any feedback. However, insurance companies have been known to exert a lot of leverage and they are certainly becoming more aware of the potential liabilities and threats of legal action.

Generate public awareness

To generate public and media awareness of the pollution caused by your company, with the aim of shaming them into action, look at Section 1.

Section 12

Case studies

This section:

- gives some case studies of real factory campaigns, so you can see how others have done it.

Chemix Disposal Services

by Chris Maile, Leigh Green Party, May 1998

On a recent Sunday I was informed of an application by Chemix Disposal Services at Standish (Wigan) to extend their operations and to apply for a Special Waste Licence. This was the start of a short and very effective campaign.

On the Friday of this short story, letters were delivered by the local planning authority to a small number of local residents at Standish, part of Wigan MBC. By Sunday, several members of the public had contacted me, as the local contact for Leigh Green Party, which started a week of frenzied action.

The problem they were all concerned was the proposed extension of a chemical waste company's activities on an industrial estate close to residential homes and schools. It seems that the local community were unaware of the activities on the industrial estate, or the fact that the company dealt with relatively small quantities of low risk special waste, mainly hospital surgical spirits. The new licence would enable them to process a very long list of some of the most toxic and worrying waste, including animal carcasses, hospital limbs and wastes containing heavy metals.

On the Sunday, I visited the site, printed leaflets and started delivering them early Monday morning, with the local community then taking over the distribution of the bulk of leaflets. The leaflet, along with posters, alerted the whole community to the dangers. I sent out press releases to over 150 local and national press contacts during the Sunday night, and backed this up with direct phone calls to local media contacts during Monday, gaining major local publicity.

A public meeting was booked for the earliest date that could be booked, on the following Friday. Then Tuesday was taken up with telephoning the Environment Agency, delivering quantities of pre-printed letters of objection to several locations around the village, and generally putting pressure on the planning office, and just about everyone else

that we could think of. By Wednesday morning at 10 am the strain had become too much for the chemical company, and they formally withdrew their planning application by fax.

A great win - but the campaign has not stopped. The public meeting went ahead, with over a hundred members of the public turning up, even though every one of them knew the campaign had been won. From the public meeting a group has been formed to monitor Chemix and other environmental issues in the village.

Stage two

At the meeting we presented the public with report sheets and detailed briefings, with instructions to be vigilant. As a result of this, about a week later, I was tipped off by a member of the public who had discovered an old store shed outside of the main factory complex, with its door wide open. It was full of mainly empty 45 gallon chemical containers, and also a number of half gallon containers of what was described as 'embalming fluid', with the warning that if ingested it could be fatal. There were about 45 of these containers.

The area was not fenced, and was in sight of housing, and only 600 yards from a local school, and was a regular playground for children. It later transpired that the shed had been forgotten about for around 5 years, and had no apparent method of being locked. It would appear, on the face of it, that the shed had been left open for a very long time.

The Green Party inspected the site, then later informed the Environment Agency, Health and Safety Executive and Environmental Health Officer. Of course, we also told the press. Credit must go to the Environment Agency, who forced Chemix not only to remove the chemicals, but also to thoroughly cleanse the land that surrounded the building, including removing the soil. The Agency also stood over them while it was done.

We are now awaiting the outcome of the incident to see if any prosecution takes place. We are also continuing to monitor the company to ensure no further incidents take place.

Lothian Chemical Company Ltd

by Dr Richard Dixon, Friends of the Earth Scotland, May 1998

Lothian Chemical Company Ltd, situated on the Forth estuary in Granton, North Edinburgh, has been a persistent and flagrant flouter of pollution controls for years. The company produces and recycles a variety of chemicals, especially solvents, and sends waste solvents to be burnt at a cement kiln outside Edinburgh.

There has been a catalogue of incidents and conflicts around the plant over the years. In April 1986 an Interim Interdict was granted in the Court of Session to Lothian Regional Council against the firm for discharges creating a harmful and explosive atmosphere in the sewer. The firm frequently breached the discharge consent conditions imposed by the Forth River Purification Board (FRPB, forerunner of SEPA, equivalent to the NRA in England and Wales). One sample of effluent taken on the 29th October 1992 recorded chloroform more than 1,000 times higher than that which the FRPB considers "significant". No consent to discharge chloroform had even been granted!

A fire at the plant in 1992 sent clouds of acrid smoke across residential areas. On the 1st of March 1993, the courts awarded an Interim Interdict against the company, forbidding them from using drains until they have been properly repaired. In October 1993 a leaked report from consultants to Edinburgh District Council stated that methane build up beside the factory could present the risk of an explosion.

Controversy has surrounded the company over the years with the central problem being the "rotten egg" smell which emanates from the foreshore. Hydrogen sulphide gas is being produced by the interaction of bacteria with chemicals under the ground surface, widely believed to have leached from the plant. Local campaigners formed the Pilton Environment Group (PEG) in 1993 after a public meeting about the famous "Granton Smell" coming from the site. A survey by PEG of 160 local residents in October 1993 found that over 80% thought the smell a "nuisance", with many people complaining of nausea, headaches, sore throats and runny eyes.

Despite FRPB reporting the company to the courts, no legal action was taken. In January 1994, the company wrote to the River Board asking for a review of consent levels as "we are having difficulty as you know complying with some of the

parameters of the consent". The consent review was granted, and new, more lenient levels were permitted. Since the reviewed consent has been imposed, levels of contaminants have been recorded on several occasions which would have exceeded the previous limits. Worse still, samples have indicated a violation of the new, relaxed consent limits.

Since its formation, PEG has been instrumental in keeping the issues surrounding Lothian Chemicals in the public eye. Working with local health projects and a local video project they have produced reports, briefings, a photographic exhibition, petitions, articles and even a campaign video. Working with FOE Scotland they had samples of effluent from the site analysed and discovered chemicals that the company denied even handling!

When the company claimed to be too poor to carry out required remedial work, PEG even used data from Companies House to trace back through the holding companies to reveal massive hidden assets which could have been used.

When Lothian Chemicals joined the Forth Estuary Forum, a body aiming to improve the environment of the Firth of Forth, PEG pointed out the firm's hypocrisy.

Pressure from PEG has helped force both the local authority and the pollution control agencies to keep a close eye on Lothian Chemicals. In early 1998 the company was taken over by the infamous Rechem, now a division of Shanks and McEwan. PEG continues to keep an eye on the site but has also broadened its agenda to look at sustainable development for the vacant land in the Granton area, including opposing a proposed new road in the area, and developing a community wildlife site on disused land.

Castle Cement campaign, Clitheroe

by Judy Yacoub, Pendle Friends of the Earth, May 1998.

Introduction

Castle Cement began burning Cemfuel in 1993, which it described in the statutory press advertisement as a new light fuel oil. There was no mention of its source or any indication that it might cause the problems Ribbles Valley residents have since experienced.

Local residents were first alerted to its use by Castle Cement by an article posted anonymously through a campaigner's door. Concerns were

increased by the inordinate lack of communication on the part of the company, HMIP as it was then, and the local authority. Far from being convinced by bland assurances that Cemfuel was a harmless substitute fuel, local people took it upon themselves to research the subject as widely as possible. What they found has kept them going for over five years. Cemfuel is in fact a blend of hazardous industrial waste; other cement kilns have called this material "Secondary Liquid Fuel" or SLF.

Pendle Friends of the Earth became involved after being approached by Mary Horner, of Residents Against Toxic Substances (RATS), in January 1995 for assistance with campaigning and publicity; the group was managing with minimum office equipment. RATS were hoping to secure a Rural Action grant to help fund a community health questionnaire and survey, and were recommended to approach Pendle FOE for advice.

Rural Action chose not to fund this project, but FOE has continued to work with RATS and, subsequently, Air Watch, an alliance of many groups, including Pendle FOE. These Ribble Valley-based groups, and particularly Mary Horner, are owed a huge debt of thanks for sharing their expertise, time and ideas with us.

The campaign

One of the most striking aspects of the early campaign against Cemfuel was the lack of newspaper coverage. What little there was appeared largely in the local newspaper, the Clitheroe Advertiser and Times, but its three sister papers, all part of the Leader Times Series, never carried any hint of the story.

This was in marked contrast to the press reaction to an earlier threat raised by an application to introduce Orimulsion (a bitumen-based, high sulphur fuel) in a cost-cutting exercise to keep a local power station in operation. As soon as the news was out a campaign was launched to link the East Lancashire local authorities of Burnley, Pendle, Blackburn, Hyndburn, Rossendale and Ribble Valley in a concerted media attack, citing dangers to human and environmental health caused by high levels of metals and particulate. Local authorities joined forces. The result was a speedy public inquiry which ruled out Orimulsion and closed the power plant down.

Given that precedent, the prognosis should have been favourable. It was easy to prove that the plume from Castle Cement grounded in Pendle: the plume frequently grounds over Weets, a Pendle beauty spot (hang gliders were warned by their association

not to fly over Weets because of the danger of oily deposits affecting their airworthiness), and outlying areas such as West Craven. Cemfuel has a higher sulphur content than Orimulsion, and test results showed dangerously high levels of nickel, lead and other metals.

The wider issue was that the Ribblesdale Works was being used as an unauthorised waste disposal facility, and that the conclusion that this could, and would, happen elsewhere, unless firm action was taken, seemed straightforward.

From February 1995, Pendle FOE placed agenda items and represented the case to Pendle Council at committee meetings, asking for the Council's support in calling for a full investigation of Castle Cement's use of Cemfuel. We also asked the council to liaise and co-operate with Ribble Valley Borough Council. We suggested that Pendle's chief Environmental Health Officer (EHO) loaned air monitoring equipment for use in the area affected by the plume; Pendle had recently spent nearly £100,000 on equipment. The request to share the monitoring equipment was turned down: not sensitive enough, too expensive, too difficult to use, no EHO spare.

It would be fair to say that councillors were more ready to listen than officers, and that the emphatic opposition of the officers to any involvement affected the councillors decisions. It took over two years before there was any direct approach to Ribble Valley or Castle Cement.

At the same time, although Pendle FOE had previously maintained a reasonably high profile in the local press (Leader Times Series), press releases on the subject of Castle Cement tended not to be printed unless they were routed via our MP, Gordon Prentice MP.

Of all the contacts the group has made, Gordon Prentice MP has proved by far the most helpful. Pendle FOE provided a link between him and Ribble Valley residents (whose MP is Nigel Evans), and this resulted in a complaint made to the House by Nigel Evans! Monthly surgeries, followed by Parliamentary Questions (a method for MPs to get answers from Government about particular issues) too numerous to count, have helped to keep the issue alive despite a concerted effort by the Health Authority, MAFF, HMIP and subsequently the Environment Agency, the local authority, county council and now, finally, the High Court, to persuade the public that Cemfuel is no worse than coal.

A public meeting, entitled "Castles in the Air" was held in Colne (Pendle) in November 1995 and attended by thirty people, half of whom were RATS members. Despite letters to each of the political parties, not one councillor turned up. A subsequent meeting, at which FOE's Industry and Pollution campaigner was present, held in the Town Hall, was attended by a single councillor.

In December 1995, a formal complaint was sent to the Environmental Protection Group of the DETR, regarding the Agency's failure to act promptly and responsibly in the matter of a pollution incident and illegal stockpiling of clinker in the open (a video and photographs taken during a surreptitious site visit were vital evidence, as Castle claimed there had never been any ponds of leachate at the site of the clinker mountain). The reply was not helpful: changes in the legislation meant that the Environmental Protection Group no longer had locus to investigate the allegations, and we were once again advised to contact our MP.

Pendle councillors visited the Ribblesdale Works with Pendle FOE in May and June 1997, on one occasion during "jetting" operations at Kiln 7 (one of the three cement kilns at Castle Cement's Clitheroe plant). We saw a huge release of fine red dust over the site. Luckily a camera was on hand and photographs were taken over the course of half an hour. The incident was claimed by the manager to be "the first time in ten or more years," although the Agency's own monitoring and a resident's evidence showed that this was a common event. The Health and Safety Executive failed to take action over the photographic evidence.

Pendle FOE has sent in evidence to the House of Commons Environment Select Committee. There have been two Parliamentary Select Committee enquiries into the burning of hazardous wastes at cement kilns, both of which were very critical of HMIP and the Agency and a Public Inquiry (cancelled at the last minute). We have helped to publicise and have attended meetings in the Ribble Valley, lobbied all of the East Lancashire local authorities and the county council. We have worked with the Weardale campaigners, who are campaigning against pollution from Blue Circle's cement kiln in Weardale through Air Watch and have consistently worked to raise awareness of air pollution issues generally.

More recently Pendle FOE's work has led to an upsurge of interest from Pendle residents, concerned at the activities of bad neighbour industries in their area. A public meeting in February 1998 was called by Pendle councillors to

discuss the polluting activities of a large PVC products manufacturer, to which the group was invited. It fell to Pendle FOE to tell the audience about the existence and significance of the public register, the local authority's role in controlling the company's operation, and where to take their complaints further. None of which went down well at all with the company or, for that matter, the chief EHO, who began by telling those present that phthalates (plasticisers used in PVC, some of which are hormone disrupters) were perfectly safe! At the close of the meeting a list of key contacts for further help and information was circulated by Pendle FOE. The councillors promised another meeting soon and took names and contact details. However, we're still waiting for this second meeting.

Results of the campaign - so far

Unlike in the Orimulsion case, the same pattern of encouraging extensive media coverage focusing on available evidence, organising public presentations and lobbying local authorities, MPs and the MEP has not achieved the same results.

Although it has seemed that we should have been able to be more effective, it has become clear that this is not just a fight against one cement kiln, but a challenge to accepted, if not overtly stated, national and international intent. Rather than radically alter our patterns of manufacture and consumption of products, the easy and profitable way out is to send it all up in smoke. Pursuing the company and the Agency has not been particularly successful; small, slap-on-the-wrist fines are an easy way out for both of them.

Castle, having done its best to remove the visible and odorous part of the plume (though we believe its danger to human and environmental health is unchanged), looks like it may get away with pollution once again. What you can't see or smell won't hurt you - or will it? [the Agency has introduced a variation barring Castle from producing any "persistent haze or odour" outside the boundaries of the plant after 1st April 1998].

Curiously, after ignoring the meticulously crafted scientific arguments of Mary Horner, the media, Nigel Evans MP and the local authority have been stirred to rage over a series of postcards produced by Air Watch. These show the plume in all its poisonous glory against the Ribble Valley landscape. The MP was moved to say that the postcard would be the ruination of the local economy and the death of tourism; the regional newspaper regretted the nimbyish approach of the

campaigners and said "if only they'd stuck to the scientific facts".

The fact is that in five years scientific facts have been presented, ignored, derided and twisted and in the end all it takes to produce maximum publicity is a well aimed postcard! If we'd known perhaps we could have saved ourselves some trouble. Now watch this space!

[The Castle Cement Campaign has made considerable progress in raising awareness about the problems -

- They have been involved in obtaining two House of Commons Environment Select Committee reports on the burning of waste in cement kilns.
- They have helped force the Agency to spend more on air pollution monitoring.
- They have embarrassed the Agency.
- They have contributed to the development of a tougher Substitute Fuels Protocol (an Agency protocol for dealing with applications for trials to burn substitute fuels such as tyres and waste in cement and lime kilns), even though this has not helped them much.

As to what the future holds for Castle's pollution - that is not clear yet.....]

Pollution in the Eastwood area of Calderdale

by Brian Jackson, Pendle FOE, November 1997

The problem in this area was brought to my attention by Mr. Elliot Rashman (manager of the "Simply Red" band!) who complained that his family and other residents who live in the Eastwood area of Calderdale were regularly assailed by fumes and smells apparently from local factories. Several friends and neighbours suffered a variety of symptoms of illness such as asthmatic attacks and breathlessness, sore eyes, sore throats, intermittent coughs without any colds attached, headaches, and nausea and lack of appetite. They described the smells as chemical with more than a hint of hydrogen sulphide. They had contacted the local council, but little or no action was taken and the problem continued unabated.

I contacted the co-ordinator of Calderdale Friends of the Earth local group, Mel James, a resident of Eastwood herself, who not only confirmed the regular problems of smells and fumes, but also backed up residents' remarks about the distinct lack

of action from the council. Mel advised me that some of the Environmental Health team were quite helpful, but not all. I decided to contact the EHO in Calderdale, and I wrote immediately following my first discussion with Mel James. I relayed the complaints from the Eastwood residents, and added criticism of my own concerning the situation and the lack of response by the local authority asking them what action they proposed to take.

In the meantime, Mel James took me on a guided tour of the locality.

The Calder Valley is very steep sided, and in places dramatic and beautiful. The majority of settlements and the industry are squeezed into the narrow valley bottom, along with the road, railway and the canal. When wind conditions are very light from any direction the valleys of the two towns become well-documented fog and frost traps, and inversion layers trap and concentrate the pollution very considerably. The chimneys stacks of these companies are well below the level of the narrow valley tops, with the result that the more posh residences higher up the hillsides receive regular plume grounding even when conditions lower down are quite good.

The river Calder, which is normally a fairly docile rock-bottomed stream, can rise with great rapidity and force and it recently over-topped its banks and joined the canal to form a lake. Moss Brothers, which processes textiles, has primary treatment tanks for its waste at the rear of the plant on the banks of the Calder, where they are vulnerable to flooding. Much of the smell of hydrogen sulphide seems to come from this location but a sewage treatment works is also very close by.

This "reccy" also helped us to identify additional problems and dangers, such as improper storage of chemicals, lack of bunding adjoining the river and canal and lack of security. We saw drums of acetone, propylene etc stored on pallets in a yard which was un-gated, unlit, and open to the main road. These looked very vulnerable to weather extremes and vandalism, and we could not see much evidence of secondary bunding or containment of this storage area and river or canal pollution is more than likely in the future if more remedial work is not carried out. We passed on this information to the Environment Agency who were quick to carry out sudden inspections.

A week after my letter, an EHO visited Mr. Rashman's home. His partner, who was in at the time, is a smart cookie and put the EHO at his ease - and was then told that "It is only a smell" and "we

don't need or want Friends of the Earth to become involved, do we?" At this point the smell deepened in a political sense and I contacted the council again. I managed to learn (off the record) that they had received other complaints about a particular company before.

I next arranged for a reporter from the local rag (the Halifax Evening Courier) to meet Mr. Rashman, other neighbours and Mel James. Photographs were arranged for later that week and a story was prepared. Word had got out and the local paper ran a piece about "Friends of the Earth targeting the area", and in these parts, this is a story in its own right! Rumours began circulating that a heavyweight FOE pollution "hit man" was in town and that prisoners would not be taken. (I thoroughly recommend the purchase of a Homburg hat and a pair of dark glasses to reinforce the image!)

At the meeting with the press a number of issues were raised by the residents and backed up by Mel James and myself.

Parents mentioned that half the children in the local primary school have asthma inhalers, but lack of information or action from the Local Council was of almost as much concern as the health problems. Some residents raised fears for their health and especially the health of their children and I advised them to seek their doctors' opinions, but I also reminded residents that GPs can be notoriously reticent and unwilling to stand up and be counted on issues such as environmentally induced illnesses. I was concerned that a number of irritant or toxic chemicals could be present in the local atmosphere and recalled the campaign against Castle Cement's hazardous waste incineration (*see case study by Judy Yacoub*).

Residents pointed out that the Moss Brothers plant and others in the vicinity are making unpleasant and potentially toxic smells and fumes and are not very good neighbours. Several other establishments in the area which also require closer scrutiny including a metal reclaimer and fabricator, a plastic foam manufacturer, and a fireproofing and waterproofing coating process. Special mention should go to the Waste Transfer Station at Eastwood, which is the smelliest I have ever encountered. Commuter and tourist traffic is also heavy at times adding considerably to the air pollution. We emphasised that we were not attempting to damage or close down the offending industries but rather to help and encourage them to become both sustainable employers and good neighbours.

Difficulties with the complaints "procedures" were also described - both residents and Calderdale FOE feel that phone calls and letters to the council or companies did not get responses. Lack of information and delay in responding contributes to an atmosphere of suspicion which makes co-operation difficult.

We recommended a meeting involving the companies, neighbours and the Environmental Health Department, so that the true nature of the problem could be explained and discussed. An EHO should be closely involved to inject both a political presence (since council officers have to answer to elected councillors) and technical expertise. It might also be appropriate to involve the Environment Agency.

We also suggested that the residents make a note of any further incidents, including the time, date and weather conditions and to pass the report to the EHO as soon as possible. Photographs and videos could also be taken for purposes of evidence.

Even during the course of the interview, plume grounding from the local stacks was clearly visible, as was the tendency for the fumes and haze to drift about rather than clear. A blue grey haze was forming over the lower parts of the valley which thickened as the day wore on.

The reporter left the meeting with a good local story set to run and run and to add weight I faxed another letter to the EHO asking them if they ever bothered to reply to written complaints and once again asking them what they proposed to do about the problem. I also requested information on the location of the public registers so that they could be checked. It is difficult to say whether it was the rather council-bashing tone of the newspaper story or the second letter which caused it but within days Council officers were crawling all over the area.

I called Mel to ask about progress and she told me that she had had a rather unfriendly visit from the chief EHO. He seemed to regard Friends of the Earth as unscientific meddlers. I decided it was time to fix his bacon! First I contacted his supreme boss - the head of the Council's ruling Labour group and coincidentally Chair of Environmental Services. He was already aware of the situation, much more helpful, and clearly understood where FOE was coming from. I passed on the numerous complaints about the pollution incidents and especially about his EHO. He said that he would guarantee that all that could be done would be done and that if it needed more monitoring and investigation then it would be done immediately.

subject only to the usual financial constraints. This seemed BATNEEC enough to be going on with and I relayed the info to both the residents and the local press. The following day I finally received a testy reply from the EHO. His letter advised that some information was available in Hebden Bridge Town Hall and that the public registers were kept in Halifax 10 miles distant. It also listed one Schedule A and 5 Schedule B processes which were active in the Eastwood area. At last we seemed to be getting somewhere. I finally managed to get the EHO on the phone. He seemed unwilling to be of further help until I told him that his boss had pledged his full support and assistance only the previous day. I recommended that he meet personally with the affected residents and assured him that on the day in question I could not be there. I did not mention that at the time of the meeting I would actually be talking to BBC Radio Leeds about the pollution problems!

The BBC recorded an interview and ran the story all the weekend. They covered the issue well and prompted by my faxes asked all the right questions. The following Monday the story spread to other local papers and the regional Evening Post. Meanwhile back at the meeting with the residents the EHO launched into what one resident described as the usual waffle. The tone ran from patronising to a scientific blitz. But the residents were not about to be fobbed off. Mr Rashman actually dared to ask the EHO about his qualifications, and on receipt of this intelligence was able to assure him that several there had much better degrees and experience. This had the desired effect and took him down a peg or two. He became much more modest and forthright and explained that as usual the principle constraints on round the clock and detailed monitoring were lack of resources and funding, the blame for much of which rested on the shoulders of the Government. He clearly thought he was off the hook but Mr. Rashman still had a surprise ready for him. He asked the EHO what sort of costs were involved in order to thoroughly audit an area like Calderdale. The EHO replied in serious tones suggesting that it could run to hundreds of thousands and from his demeanour appeared to believe that this would rapidly make them lose interest. He was therefore rather astonished when Mr. Rashman produced his Chequebook and Gold Card and enquired to whom he should make the cheque payable! According to reports the EHO's mouth moved wordlessly for some moments and the meeting ended amidst laughter. Even when a war is not yet over, a battle won is very good for morale, and the effect of actually forcing the

authorities to do something about a problem is very therapeutic.

Conclusions

At the end of April I was told that the smells and fumes had not recurred and that the residents were much happier and thanked Friends of the Earth for all their help. I reminded residents to continue to make a note of any further incidents or relapses. Until the time of writing I am only aware of one further report of smell in the locality, which was short lived and apparently emanated from the sewage treatment works. Calderdale council has written to all the industries in their area requesting full and up to date data and plans for improvements. On the whole I would say the exercise was a success.

I have also advised Mr. Rashman that if he was serious about investing large sums into monitoring, it was essential that it was well targeted. I suggested that he should ensure that the LA and the Agency did the base line monitoring before he injects cash into more sophisticated processes and technologies, and that if this proved necessary it might be more useful to all concerned if it went into a reputable University research programme or tied up with a Government programme. He agreed that this was the best course of action.

Campaign observations

This campaign was interesting in a number of ways. Some aspects were very typical of campaigns anywhere, the phone calls, the meetings, the confrontations, the excuses, the compromises. If a letter of complaint achieves nothing, a follow-up phone call helps. If this achieves nothing a petition or a letter campaign involving the local media often forces the door open. If it is still firmly closed the directed use of the wider media almost invariably batters it open, and even more "right wing" press can't ignore a good local story. When dealing with officers from the Council or the Environment Agency one should never be afraid to go over their heads if you have the facts and know your position and are reasonably confident of victory. Senior executives and politicians may be elusive but once contacted (and with a little diplomacy,) they often prove much more relaxed and helpful than middle management, and are actually in a position to make a decision which might normally take the system weeks to enact. Other things of course were not so text book - most campaigns can't wave a magic chequebook to make excuses about the costs vanish!

There are alas still quite a few people in positions of authority who seem to regard themselves as above criticism or censure, but they are not an insuperable obstacle. The best service FOE provides is the empowerment that our experience and sometimes knowledge gives to people. We cannot overcome pollution or waste without the help of the public and in most cases can only show the public how to do it themselves. Using the media affords valuable educational and consensus raising opportunities. For our own purposes it once again demonstrated how valuable networking and the linking of groups can be, not of course forgetting the enormous repository of data and help which is Underwood Street. Great pleasure and environmental profit comes through sharing expertise from group to group. In addition importing a temporary campaigner from another group can sometimes help to inspire and reinvigorate a local group. And getting the message across to the wider public about FOE's aims also has to be a good thing.

Petcoke at Drax

by Lesley James, Glossop Friends of the Earth, March 1998

In October 1996, National Power applied for permission to carry out trials burning petroleum coke (petcoke) at their Drax power station in Yorkshire. Petcoke is a heavy oil residue imported from the US Gulf Coast states, and it contains high levels of sulphur, nickel and vanadium. This makes it a cheaper fuel, and National Power claim that they need to burn a petcoke/coal blend in order to offset the additional costs of generating electricity with the flue gas desulphurisation (FGD) equipment that is fitted to Drax.

Although burning petcoke will inevitably result in greater levels of pollution at Drax, they argue that the FGD equipment will remove much of it. National Power claim that there will be a net environmental gain because the savings from burning Petcoke will balance out the extra costs of operating FGD, so enabling Drax to better compete with dirtier coal power stations which do not have FGD. The trials tested up to a 20% petcoke blend, and are intended to inform a future application to burn petcoke on a full commercial basis. From the outset, we regarded the authorisation of the trials as inevitable, with the application for full commercial burn being the real battle. Therefore we have spent the last 21 months laying the foundations for fighting that battle.

We first heard about the proposed trials in July 1996 from a journalist at the Yorkshire Post, and within days I was inside the power station filming with the BBC for a news item that went out on both the regional and national news bulletins. It was as a result of this visit that we launched a campaign to ensure that the issue received a full public debate. Drax's engineering manager told me that they would be consulting with Selby Council, the representatives of the people, so what more could we want? We therefore wrote to Ed Gallagher, Chief Executive of the Environment Agency, insisting that not only councils but also individuals be able to make representations, and that this must include areas like our own local peak district, that lie some distance from the station but are being damaged by its emissions. In the event, although the application for the trials was deemed to be non-substantial and therefore not liable to full public consultation, the Agency invited representations from any interested party throughout the period of its determination.

We submitted a representation expressing concern about emissions of nickel and vanadium, sulphur trioxide formation, ultrafine dust emissions, the validity of the economic case, the inadequacy of the ALMANAC model used for short term predictions and the use of publicly-funded FGD equipment to justify the burning of dirty fuel. We also used the 1990 Environmental Protection Act to argue that the application should have been deemed to be substantial, but we were unsuccessful in this. However, a number of our concerns were submitted to National Power in the form of requests for additional information, and we made a supplementary submission in response to their provision of this information.

At all stages, the application received massive publicity, both in Yorkshire and nationally. We played our part in this, both proactively and reactively, and we co-operated with other local groups and individuals in opposing the trials, speaking publicly at rallies and responding to requests for information.

The trials received their (expected) consent in February 1997, but immediately before that, we found cause to contact Ed Gallagher again to ensure the proper determining of the authorisation. An enquiry to the Environment Agency's area IPC manager told us that they had another week's work sifting through all the representations before they moved towards a decision. However, within 24 hours, a Radio 5 journalist was telling me that the application had already been determined, having

been told by an Agency press officer that they were very much in favour because it would ensure the economic future of Drax. The journalist told me that little had been said about the opponents' case - just that people were claiming that petcoke had been banned in the USA, but the Agency could find no evidence to support this.

Whilst I could not lodge a formal complaint on the basis of hearsay from a journalist, I had no doubt that this had indeed happened: off her own bat, the non-specialist journalist could not have accurately identified the underlying economic issue that was confusing so many non-specialists at the time. We therefore decided to fire warning shots across the Agency's bows by outlining the incident to Ed Gallagher, and asking for his personal guarantee that the authorisation would be properly determined, without the prejudgement that appeared to have occurred. Two months later, we had still received no reply.

We did not release the matter to the press, because given the fever pitch in Yorkshire at the time, it would have been sensationalised out of all recognition, to the discredit of all involved, including ourselves - it was, after all, only hearsay. However, when we wrote our second letter, requesting a reply to the first, we allowed one month, after which we would lodge a complaint with the Secretary of State via our MP, on the altogether stronger grounds of the Agency's failure to fulfil its duty with regards to the public. These stronger grounds would also be used to release the issue to the press.

This time, we received the required assurance, together with an invitation to meet with the Agency staff handling the issue. This I did, and we discussed the issues raised in our representations, together with some relevant legal aspects and the problems we had experienced in trying to obtain documents from the public register. I obtained their assurance that the economic case would not be determined prior to an application for full commercial burning of petcoke, and in response to my concerns that Drax might be granted such an authorisation on the grounds of an economic *possibility* [i.e. the possibility that Drax would otherwise fail to compete in the electricity market against dirtier plants] that might not be realised, they put forward the idea of a new form of authorisation that would only be valid under particular economic circumstances, to be reviewed every few months.

No mention was made of our complaint until I raised the matter, when I was told that their failure

to reply was due to an administrative error, but they definitely had not determined the application before they had sorted through all the submissions.

I also accepted an invitation to meet with National Power representatives at Drax power station to discuss our concerns. In order to fully exploit the opportunity for pinning them down on those points of interest to us, I subsequently produced a transcript of our conversation, which I submitted to the station manager for confirmation. After agreeing minor amendments, this transcript provides a permanent record of their position, validated by our correspondence.

Although the trials received consent in February 1997, they did not take place until October/November of that year, due to delays in providing certain information upon which that consent was conditional. Preliminary results showed that although burning petcoke produced the expected increases in sulphur dioxide, the ability of the FGD unit to remove nickel and vanadium was greater than expected. The trials also suggested that full commercial burning would be unlikely to exceed a 15% blend. Overall, they provided much of the expected technical support for a further application for burning petcoke on a commercial basis, although their failure to address ultrafine dusts as a separate issue from particulates in general will be a matter on which we will challenge their ability to inform that further application.

In anticipation of an imminent application, we turned to fine-tuning the economic and legal arguments that we had been developing. We have already found material on the public register in which National Power state their belief that only FGD-equipped stations (i.e. Drax and Ratcliffe) will be able to operate on baseload (the continuous electricity demand, including periods of low demand e.g. overnight, as opposed to peak loads) after 2001, so we will use this to argue that there cannot be any serious threat from "dirty" power stations after that date. To cover the intervening period, we have been examining the legality of assessing developments at Drax in relation to their effects at other power stations, which is fundamental to National Power's case.

The 1990 Environment Protection Act has been legally determined as requiring a site-specific determination of BATNEEC, and on that basis, we could have argued against the application on the grounds that the additional pollution at Drax does not make it the Best Practicable Environmental Option (BPEO) for that station. However, the Environment Agency believed that the 1995

Environment Act enables them to move away from this narrow approach, and weigh the additional pollution at Drax against the benefits of avoiding higher pollution at other power stations. I consulted with FOE's legal advisor to ask whether, if that were the case, the 1995 Act not also allow for the Agency to insist on the preferential use of Drax anyway, thereby providing a superior BPEO to burning petcoke? The legal advisor "didn't see why not", but it was not obvious which clause(s) of the EPA90 the Agency were basing their claims upon. We have therefore gone back to the Agency to request this information, but they are now claiming that they are now less sure of their case under EA1995 than they had originally been. This legal aspect will therefore inevitably loom large in determining a future application.

However, fate has intervened rather spectacularly to delay the expected application. A serious failure at a plant in Italy led to inspections of the FGD equipment at Drax. This showed similar serious cracking in the booster fans to that which had caused the explosion in Italy, resulting in Drax running with all the FGD switched off. National power have now submitted an application for a substantial increase in the stations SO_2 limit to allow it to go on running for the 18 months to 2 years that it will take to repair/replace these fans. They can still apply to burn petcoke on a commercial basis, but as that burning could only go ahead with FGD running, we assume that this application will be less immediate than had been expected.

This gives us a chance to review the progress that we have made. We started out complaining that the Agency appeared to have predetermined the economic case - now they have agreed that this cannot be determined before the application for full commercial burning, and they are talking about possibly bringing in a specialist economist to determine that aspect of the application. We also started out insisting that the Agency stop National Power from deciding who should and should not be consulted - now they are talking to us about the best way to handle public consultation, and are insisting on consulting with local authorities much further away, in recognition of the far reaching effects of emissions from Drax. And we are probing a legal assumption, the resolution of which could pioneer the powers of EA95, which will in turn could affect applications beyond than the petcoke issue at Drax.

Annex 1

The arguments

This annex:

- lists some arguments you may get used against you, along with some suggested answers.

When you are involved in a campaign against pollution from a local factory you are almost certain to encounter opposition. This will probably come from the company concerned, and may also come from local politicians, workers and the media, and in some cases the regulator. The questions and answers below give you some idea of the sort of issues that may be raised, and how you can answer them.

Spending money on reducing our emissions will force us to cut jobs/close the factory

The answer to this question has two elements

1) Reducing emissions through a waste minimisation project will probably save money, so saving or creating jobs. Working conditions may also be improved, for example by changing from solvent-based to water-based techniques (see Section 3 for examples).

2) Surveys have shown that factories are very rarely forced to close by the costs of pollution control. A survey of plant closures in the UK found that environmental costs were an important factor in only 1 out of 193 closures⁴³. The real and significant causes of redundancies included structural shift in demand, recession, import penetration and fluctuations in exchange rates. An environmentally aware management increases competitiveness. When improvements in environmental performance are required by government and the public those firms that fail to act early find that when the problem finally catches up with them it is far bigger, and has more serious consequences.

We are already reducing our emissions, spending £x, what are you complaining about?

We welcome the fact that you are reducing your emissions, but we believe that more is needed. We still have very limited knowledge of the links between pollution and health, and we want a precautionary approach, minimising all emissions.

(It's worth finding out what the money is being spent on. Are they moving the waste from one place to another? For example some end-of-pipe treatment can generate a lot of solid waste, which may then have to be disposed of to landfill. Is their pollution treatment going to produce more problems? For example, they may be constructing an incinerator to burn the waste.)

We care about the environment, we are committed to an environmental management system

We welcome your commitment to an environmental management system, however we consider that you could and should be doing more to minimise your emissions. Actions are more important than fine words.

(see Section 8 for an explanation of environmental management systems, including some of their deficiencies.)

Our emissions are not dangerous, you cannot prove that anyone's health has been affected

We know that you are discharging chemicals that are known to damage health. It is always hard to prove human harm from a particular exposure - just look at the decades of argument about smoking. However, we should be taking a precautionary approach and minimising exposures to dangerous chemicals. People should not be being used as guinea pigs to find out what the effects of emissions will be.

(Annex 2 discusses toxicology in detail.)

Local air quality is cleaner than the Government's targets - this factory isn't causing any harm

Some of the pollutants for which the Government has set targets for, for example PM₁₀ and benzene, have no safe threshold and the targets are set to be achievable, rather than to protect health. Therefore emissions should be reduced as far as possible, and to well below the targets.

⁴³ "Working Future? Jobs and the Environment", Friends of the Earth, November 1995.

We also know little about other chemicals that may be coming out of the factory; the chemicals monitored for only form a small group. What are the effects of the other chemicals coming out of the factory? Little is known about the effects of exposure to multiple pollutants, which may be much worse than exposure to one pollutant alone. We must minimise all emissions.

(Annex 2 discusses toxicology in detail.)

We're doing what the Environment Agency tells us to do - and they're experts in pollution control.

A responsible company will do more than required by regulator if it considers it is necessary. The Agency has limits on how effective it can be as a regulator, for example it has resource constraints and legislation restricts action on many chemicals (e.g. non-prescribed substances). In addition, companies can use cost arguments and threats of appeals against tougher regulation to reduce the effectiveness of the Agency's regulation - has your company done this?

(Section 5 explains the arguments a company can use to get laxer regulation of emissions from an existing factory)

Our emissions are a tiny part of the pollution of this area - traffic pollution is far worse

All sources of pollution need to be minimised. Friends of the Earth also campaigns against other sources of pollution, for example pollution from transport.

You are just a few unrepresentative individuals with an axe to grind

Local citizens are concerned about the environment, and are concerned about the emissions from the factory. A public meeting was attended by ... people, our petition against local pollution was signed by ... local residents.

(This sort of question highlights how useful a local opinion survey, petition or postcard campaign can be to back up your case - see Section 1 for more details)

You're scaremongering with unscientific assertions of disaster

Our concerns are based on solid scientific evidence, which we can provide you with. The company is the one making unscientific assertions of safety, when they haven't got the evidence to back them up.

Annex 2

Pollution and toxicity

This annex includes:

- *an introduction to the science of pollution;*
- *an introduction to toxicology and the problems involved in linking human health problems to pollution;*
- *information on what happens to pollutants once they enter the environment;*
- *a brief explanation of how pollution is measured.*

What is pollution?

The word pollution can describe a wide variety of things. Some definitions relevant to this manual are:

- 1) something which causes harm to the environment, for example by killing fish;
- 2) something that causes harm to humans, for example particulate air pollution;
- 3) something that reduces the amenity of an area, for example unpleasant, but harmless, smells.

Some laws also include definitions of pollution for use with that particular law.

Most pollutants are chemicals or mixtures of chemicals, though there are a few physical pollutants, for example heat and noise. Polluting chemicals can be natural or man-made (synthetic). The effect a pollutant has will depend on how much is released, where it is released and what is exposed to it. Pollution is a very complex field, involving many interacting scientific disciplines.

It is worth pointing out that an immense number of things are not known. The toxic effects of the vast majority of synthetic chemicals are not known, the fate of many chemicals in the environment is not known and very little is known about the effects of chronic (continuous) exposure to low levels of chemicals. Try asking a toxicologist "Can you prove that chemical x is safe" and you'll find that they generally can't!

This annex only provides an introduction to pollution. If you want to get really into the issue of pollution then a textbook would be useful; see Annex 9 for some suggestions.

The science of pollution is complex. However, it is not necessary to understand it all to fight a polluting factory. Don't let its complexity put you off!

Toxicity

The main concern about pollution is normally its toxicity, both to humans and to plants and animals in the wider environment.

A key element of toxicology was well expressed by the 16th century scientist, Paracelsus:

"All substances are poisons; there is none which is not a poison. The right dose differentiates a poison from a remedy."

This is often abbreviated to "the dose makes the poison". Two of the big problems in environmental toxicology are:

- we often don't know the dose accurately, particularly when dealing with chemical mixtures;
- we don't know what the effects of the dose will be, as it is hard to obtain good data from chronic toxicology experiments, and virtually impossible to deal with the effects of mixtures of chemicals.

This annex introduces some of the basics of toxicology, through explaining some of the common concepts. For more information consult a toxicology textbook; the main source of this annex is the huge "Casarett and Doull's Toxicology: The Basic Science of Poisons"⁴⁴.

Acute toxicity

Acute toxicity is usually defined as toxicity resulting from exposure to a chemical for less than 24 hours. Subacute toxicity is sometimes used to describe repeated exposure for one month or less.

⁴⁴ Amdur, M.O., Doull, J. and Klaassen, C.D. (eds.), 1991. "Casarett and Doull's Toxicology: The Basic Science of Poisons". 4th Edition, Pergamon Press. (5th Edition now available.)

Chronic toxicity

Chronic toxicity is usually used to describe repeated exposure to a chemical for more than 3 months. Subchronic toxicity is sometimes used to describe repeated exposure for 1 to 3 months.

Chronic toxicity of a chemical usually requires a lower dose than for acute toxicity. Chronic, low dose exposure is the commonest form of exposure to pollution. Acute exposure may occur after accidents, or if exposed to particularly concentrated pollution, for example in a grounded plume.

Dose-response relationships

It is often assumed that there is a linear (straight line) relationship between increasing dose of a chemical and increasing toxic response. This is, however, not always the case. This means that animal experiments with high doses of chemical are often not very useful for predicting the effects of chronic exposure to low doses.

Carcinogens

A carcinogen is a chemical which is able to produce cancer in animals or humans. There are a whole range of ways in which chemicals can do this, including by interacting directly with DNA, disrupting the immune system or disrupting the endocrine (hormonal) system.

The International Agency for Research in Cancer (IARC) has a classification system for carcinogens⁴⁵:

Group 1: Carcinogenic to humans;

Group 2A: Probably carcinogenic to humans;

Group 2B: Possibly carcinogenic to humans;

Group 3: Not classifiable (insufficient data);

Group 4: Probably not carcinogenic to humans.

Mutagens

A mutagen is able to change (mutate) the genetic material (DNA) in such a way that this change can be transmitted during cell division. If this mutation occurs in germ cells (egg, sperm) then it may be carried through to any offspring.

Teratogens

A teratogen can cause defects in the development of the unborn child.

Synergism, antagonism and additivity

When an organism is exposed to two or more toxic chemicals, the chemicals may have a combined effect:

- with additive effects the individual toxic effects of the two chemicals are added together. This is particularly relevant where two chemicals act in the same way, for example they are both able to imitate a hormone;
- with a synergistic effect the combination of the two chemicals is far more toxic than would be expected from the toxicity of the individual chemicals added together (as in additive effects);
- with an antagonistic effect the toxic effects of the two chemicals act against each other, reducing the overall toxic effect.

Endocrine disrupters

An Endocrine Disrupting Chemical (EDC) is a chemical which is able to disrupt the endocrine (hormonal) system in some way. These chemicals are sometimes called "Hormone Disrupters", "Gender Benders", "Oestrogenic chemicals" or "Hormone Copycats". A couple of readable books have been written about them (*see Annex 9*), and there is also information on the Friends of the Earth web site.

EDCs are a new area of toxicology, and new chemicals are being implicated all the time. Environmental regulation is lagging some way behind. If you find that your factory is discharging an endocrine disrupter, push for the discharge to be stopped, or at least regulated.

Immune toxins

An immune toxin is a chemical which is able to adversely affect the immune system, which is what protects us from disease. This is also a new area, and in common with endocrine and nervous system toxicity. One reason immune toxins have not been more investigated in the past is the lack of easy ways to measure the health of the immune system.

The study of AIDS has provided a massive boost to knowledge of the immune system, and it is likely that as new techniques of measuring the performance of the immune system are developed more information on immune toxins will come to light.

⁴⁵ McCunney, R.J., 1994. "A Practical Approach to Occupational and Environmental Medicine", 2nd Edition, published by Little, Brown.

Nervous system toxins

Nervous system toxins, or neurotoxins, are chemicals which damage the nervous system, including the brain. Neurotoxins may damage the development of the nervous system or brain, for example, foetal/infant exposure to lead reduces IQ. Alternatively they may damage the adult nervous system. Organophosphate pesticides are an example.

Evaluating the effects of pollution on humans

A constant issue with pollution is the question: is it harming people? This might seem like a simple question, but the reality is that this is one of the most difficult questions that science is asked to answer. Here are some of the problems:

- it is unethical to test the effects of chemicals on humans, so we must use other methods, either using animals (with more ethical problems) or using "in vitro" methods. The only human data that exists is usually from people have been exposed accidentally, or in the workplace;
- most chemicals have not even had their toxicity to animals tested;
- it is far easier to do toxicity testing with high doses of a chemical, looking for animal deaths (acute toxicity), rather than with low doses, looking at more subtle health problems (chronic toxicity). However, in the real world of exposure to factory emissions people are exposed to chronic, low doses;
- toxicity testing is usually done with a single chemical at a time, whereas most exposures in the real world are to multiple chemicals;
- the body is most sensitive to chemical exposure in the womb, but it may be decades before a health effect is seen, by which time it is too late to discover what the foetus was exposed to;
- individuals vary in their response to chemicals;
- measuring concentrations of chemicals in the environment and the body can be very complex and expensive. Attention will generally be focused on a few chemicals, which may not be the ones responsible for the effect;
- the method used to measure harm in populations, epidemiology, is very insensitive (*see below*).

Exposure routes

In order for pollution to have a health effect it must first enter the body. There are two main routes by which a pollutant can gain access to the human body: by being eaten or by being breathed in. A third, usually less important, route is through the skin, either by absorption or through wounds. Once inside the body, chemicals can pass into the bloodstream and then on to any part of the body.

Inhalation

The body has various mechanisms in the respiratory system to deter unwelcome invaders. Only gaseous compounds (e.g. carbon monoxide), and minute particles (e.g. PM₁₀) can get past the first lines of defence in the nose and throat. If heavy metals are present on the small particles, then they can be readily absorbed into the bloodstream⁴⁶.

Ingestion

Eating contaminated food or drink provides access into the body for a greater range of undesirable substances. However, not everything will necessarily be absorbed from the intestines into the body itself.

Metabolism, excretion and accumulation

Once a chemical is in the blood stream it may:

- be metabolised into another chemical, which may be less toxic, or in a few cases more toxic;
- be excreted in the urine;
- accumulate in a body tissue. For example lead accumulates in bone, and PCBs accumulate in fat.

Or it may undergo a combination of these.

Epidemiology

Epidemiology is a method of studying a large group of people to see if effects of pollution in the past (retrospective) or in the future (prospective) can be detected. An epidemiological study will usually involve comparing an exposed population with a control, i.e. a less exposed population. Levels of pollutant exposure will be measured, and health problems identified.

Sometimes an epidemiological study will clearly demonstrate a link between exposure to a chemical and a health effect. However, frequently the link is not found with certainty, or no link is found. This doesn't necessarily mean that there is no health

⁴⁶ "The Heavy Elements: Chemistry, Environmental Impact and Health Effects", 1991, Jack E. Fergusson, Pergamon Press, ISBN 0-08-040275-5.

effect, it may mean there were too few people in the study, or the wrong chemical exposure was being measured.

Risk assessment

Risk assessment is about, as the name suggests, assessing risks. A particular form of risk assessment, quantitative risk assessment, aims to produce a numerical answer to the question: How many people will this pollution harm? This figure is arrived at by calculating or measuring the exposure of the affected population, then using known toxicity factors to calculate the number likely to be harmed.

The risk assessment process is, however, deeply flawed, most obviously by its need to use toxicity data which is unreliable, as explained above. In addition, risk assessment will not usually consider the effects of exposure to several chemicals. Frequently the calculation of levels of exposure is also flawed or subject to substantial variability. The uncertainty of the information from which the risk assessment is derived means that the final number obtained is frequently of little real use.

Pollutant fate and transport

Once pollution has been released from a factory it may degrade rapidly, accumulate locally, or spread internationally. What happens to pollution depends on many factors, but it is useful to have some idea of the possibilities, which are outlined below.

Degradation

Some organic pollutants will degrade rapidly once they enter the environment, whilst others will require more time, or will hardly degrade at all. Silage liquor, for example, will degrade as long as there is enough oxygen, whereas PCBs will hardly degrade at all. Inorganic pollutants such as metals won't degrade, though they may change their chemical form to make them more or less toxic or mobile.

Transport

Pollution released into a river will usually be transported downstream, though some pollutants may bind to the sediment near to where they are released. Gaseous air pollution, such as NO_x and SO_x, may travel substantial distances, though may also be deposited near the source. Particulate and particulate-associated pollution will generally be deposited near the source.

The weather

The weather can have an important impact on the impact and transport of pollution.

In the case of air pollution, the speed and direction of the wind are important. In addition the differences in temperature at different altitudes can strongly influence the degree of mixing of different air currents. In general, the less wind the more pollution. Wind carries pollution away and mixes up the atmosphere, whereas still weather allows them to accumulate locally. The most extreme example of still conditions is a temperature inversion, which occurs when temperature increases with altitude. An inversion can lead to considerable accumulation of pollutants over several days, generating a smog.

In the case of water pollution, wet weather and high flows will flush more of the pollution away, though high flows through treatment facilities such as sewage works may reduce the efficiency of treatment. Low river flows will make any flows of effluent more important, so may show up pollution that is otherwise hidden.

Accumulation

Pollution that is not degraded and is not transported away from the factory may accumulate in the soil (and river sediment) of the local area. This is particularly the case with pollutants such as lead, PAHs and dioxins.

Some pollutants bioaccumulate; they concentrate in the bodies of plants, animals and humans. This can lead to biomagnification, where animals at the top of the food chain have much higher levels of contamination than those at the bottom.

Modelling

Computer models are often used to predict the concentration of pollutants resulting from discharges, for example in the air around a factory, or in a river. Because reality is very complex, these models have to simplify things; if they simplify too much they may give very misleading results. Modelling is complex, and without considerable resources you are unlikely to be able to get your own modelling done if you are suspicious of that produced by the company or Agency. However, the most important parts of a model are its inputs and assumptions. Check these; if they are unreasonable the results are suspect (garbage in = garbage out).

Here are some points to check:

- check that any modelling of the land or river is reasonable. For example, in a plume dispersion model, ensure that the model does not assume the area is flat if it is actually hilly. If there are houses on hills above the stack, are they included in the model, or

does the model assume that all hills are lower than the stack?;

- check that the emissions of pollution in the model are reasonable;
- be cautious about the way the results are described. For example, an air quality model around a factory was reported to show that “over a 24h period traffic emissions were the major contributor to NO₂ pollution”. However, if you looked at the data you could see several large peaks of NO₂ pollution which were due to the factory, particularly overnight when there was little traffic. This meant the factory was adding significantly to the NO₂ pollution, and exposing those who were sensitive to longer periods of exposure than with traffic alone;
- if the model is modelling the existing situation, check that it has been compared to real monitoring data. If it is modelling a future situation (with a new process, for example) check that there are plans to check it with real data if the new process is operating. If the model doesn't give answers which are close to real sampling, then the model is clearly not adequate. Fundamentally, reality is more important than what a model says.

Measuring pollution

Units

Pollution should now always be measured using a metric system, generally using SI units, explained below. Note that if you are looking at US reports you may find Imperial units still being used.

SI Units

SI units are:

- metre (m) for length;
- gram (g) for weight;
- litre (l) or cm³ for volume;
- Square metre (m²) for area.

These units may also have a prefix:

Prefix	Prefix symbol	Example	prefix in powers-of-ten
tera	T	Tg, teragram*	10 ¹²
giga	G	Gg, gigagram*	10 ⁹
mega	M	Mg, megagram*	10 ⁶
kilo	k	kg, kilogram	10 ³
-	-	g, gram	10 ⁰
deci	d	dg, decigram*	10 ⁻¹
centi	c	cg, centigram*	10 ⁻²
milli	m	mg, milligram	10 ⁻³
micro	μ	μg, microgram	10 ⁻⁶
nano	n	ng, nanogram	10 ⁻⁹
pico	p	pg, picogram	10 ⁻¹²
femto	f	fg, femtogram	10 ⁻¹⁵
(* - rare/never used)			

As is the way with measurement systems, a few inconsistencies lurk in the detail:

- volume can be recorded in two units, litres and cm³ (sometimes called cubic centimetres, cc):
 $1 \text{ ml} = 1 \text{ cm}^3$
 $1 \text{ l} = 1 \text{ dm}^3 = 1000 \text{ cm}^3$;
- 1 Mg = 1000 kg = 1 metric tonne, abbreviated to t, or sometimes te. This is (slightly) different from the Imperial Ton;
- there are two ways of expressing “per”:
 $2 \text{ grams per litre} = 2 \text{ g/l} = 2 \text{ g l}^{-1}$.

Parts per... system

Another way in which measurements are sometimes expressed is the “parts per...” system. This system can get rather confusing sometimes, particularly when conversions between weight and volume are made; even House of Commons reports have sometimes got things wrong.

For example, if you assume that 1 litre (=1 dm³) of water weighs 1 kg (which is correct under normal conditions), then:

$$1 \text{ g/l (gram per litre)} = 1 \text{ part per thousand (ppt)}$$

1 mg/l (milligram per litre) = 1 part per million (ppm)

1 µg/l (microgram per litre) = 1 part per billion (ppb)

1 ng/l (nanogram per litre) = 1 part per trillion (ppt)

Checking the compliance of measurements

Once you have a set of data, for example sampling results from an authorised emission from an IPC process, you may want to work out if the emission is complying with its authorisation. There are several things to bear in mind when comparing different measurements:

- the units of measurement. Check the results have been expressed in the same way as the quality standard. For example, analyses may be in µg/l and the consent conditions in mg/l;
- convert between units if you need to. For example, if a company is discharging 10 kg/hr of hexane from its stack, and the stack is discharging 10 m³/hr of gases, then the concentration of hexane in the stack gases is 1 kg/m³. Often, though, there will be no data on the volume discharged;
- how the substance is measured or described. Concentrations of some substances can be measured or described in different ways;
- whether values are maximum or average;
- whether the value is legally binding or merely a guideline;
- numbers of allowed failures, if any, and the time period stated (*see also the explanation of the "percentile" system below*).

Make sure you are sure that the factory has breached its emission limits before you start accusing them of anything in the media!

Understanding the "percentile" system

The natural environment is very variable, for example, heavy rain increases flows through rivers - and sewage works. In these circumstances a strict emission or classification limit which must be met all the time is not always the best solution. In such situations limits are set with a percentage of the time that they must be met - this is called the *percentile*.

For example a table in Annex 4 describes the River Ecosystem classification system. A river in the cleanest classification, RE1 river must have a

BOD(ATU) (ATU is a method of measuring BOD) of 2.5 mg/l 90th percentile. This means that at least 90% of samples taken from the river must have a BOD of less than or equal to 2.5 mg/l, and up to 10% of samples can be above this value.

This system is also used in setting emission limits for sewage works, and in the National Air Quality Objectives given in Annex 4.

Sampling and analytical methods

There are many different ways of sampling and analysing for pollution. Methods of sampling include:

- continuous monitoring. Ideally, one would want to use a continuous monitor, which would show you the level of the pollutants you are interested in all the time. Unfortunately, this can only be done with a few substances, for example SO₂, NO₂ and total particulates in air, as the technology is not available in most cases. Analytical technology is advancing rapidly though, so expect to see many more pollutants being monitored continuously in the next few years;
- grab sampling. A sample is taken of either air, water or soil, then transported to a lab where it is analysed;
- extractive sampling. A sample of water or air is passed through an extractive column on site, then the column is sent off to a lab for analysis.

The actual method of analysis used will depend on what is being looked for and the nature of the sample. Analysis is complex, and several things should be born in mind when considering analytical data:

- Any technique has limited capability. Each analytical method is only capable of detecting a defined chemical or group of chemicals;
- the analytical method will have both a detection and a quantification limit. The quantification limit is the limit below which it cannot reliably measure the concentration of the chemical. The detection limit is either lower or the same as the quantification limit, and is the concentration at which the technique is able to detect the presence of the chemical, but not quantify it. If the quantification limit is too high, then the analytical data is of little use;
- different laboratories will generate slightly different results, and large differences may occur if a laboratory is not following good

practice. Generally, laboratories that are "NAMAS accredited" or "UKAS accredited" are the most reliable;

- all analytical methods have some variability in the results, some worse than others. This is best dealt with by analysing each sample two or more times, and taking an average. If there is a big difference between results for the same sample, then the analytical method is suspect;
- variability of emissions from the process concerned can also cause problems with analytical data. If emissions vary from hour to hour, or minute to minute, one grab sample will not give a representative idea of emissions. Several samples should therefore be taken and analysed; a wide difference between results will prove that the process is variable. In this case continuous monitoring might be useful, or at least more sampling;
- analytical equipment can go wrong, and give false readings. The chances of this can be reduced by good maintenance. This can be a particular problem with continuous monitors, which must be in use all the time. However, claims by a company that the equipment wasn't working properly whilst it was measuring high levels should be viewed with some suspicion!;
- advance notice of sampling may enable companies to temporarily modify their processes to minimise emissions.

Annex 3

Important pollutants

This annex includes:

- a brief introduction to some of the commoner pollutants in the three media, air, water and land;
- an examination of some of the chemicals involved in a bit more detail.

The commoner pollutants of air, water and land

This section describes those pollutants that are most often relevant to air or water pollution. The next section looks at some polluting chemicals in more detail. This list is by no means comprehensive; for more information look at a text book on pollution, or one of the good chemical web sites (*details of both are in Annex 9*).

Air pollution

The pollutants below are often produced by factories, but it is worth noting that many of them are also produced by other sources, such as road traffic and smoking.

Particulates

Particulates are basically particles of material floating in the air. Smoke from a fire contains many particulates, as does car exhaust. Particulates vary in what they are made of, from small bits of car tyre or soot to particles of sand or rock. Particles may also have other pollutants associated with them, for example products of combustion such as PAHs and dioxins (*see below*) or heavy metals.

Smaller particulates are the most dangerous, as they can penetrate deeply into the lungs. Particulate matter (or PM) with a diameter of less than 2.5 μm (abbreviated to PM_{2.5}) can penetrate the deepest, though particulate matter with a diameter of less than 10 μm (abbreviated to PM₁₀) is more commonly monitored for.

The toxic effects of particles to humans can be due to the toxins, such as heavy metals, associated with them. However, it is also becoming clear that small particles are intrinsically toxic, possibly because of inflammatory effects in the lungs. Particulate pollution has been associated with increased mortality from both lung and heart problems, and with increased asthma attacks. It has been estimated that a 10 $\mu\text{g}/\text{m}^3$ increase in daily PM₁₀ levels is associated with a 1% increase in daily overall mortality, a 3.4% increase in respiratory mortality

and a 3% increase in asthma attacks⁴⁷. It has been estimated that at least 10,000 people a year in the UK are killed by particulate pollution⁴⁸.

The Government has set an air quality standard for PM₁₀ of 50 $\mu\text{g}/\text{m}^3$ 24 hour average. However, the WHO states that there seems to be no threshold below which particulate pollution has no health effects⁴⁹.

Metals

Many industrial processes produce metal pollution, particularly industries involved with metal processing, for example zinc smelters. Not all metals are toxic, but many are, for example, lead and mercury are neurotoxins (nerve/brain toxins). Metals in air pollution are often associated with particles, but some, such as mercury, are volatile and so form a gas. For more information on individual metals see below.

Volatile organic chemicals (VOCs)

Volatile organic chemicals, such as benzene and short chain hydrocarbons, have a wide range of health effects. Some are pretty harmless, others are dangerous; some are described in more detail below. The presence of VOCs in the air during sunny weather leads to the production of ground level ozone, an air pollutant which causes asthma attacks.

Dioxins and polycyclic aromatic hydrocarbons (PAHs)

Both dioxins and PAHs are produced by burning things, though dioxins are also found as impurities in some chemical products. Dioxins and PAHs are described in more detail below.

NOx and SOx

Oxides of nitrogen (usually NO and NO₂, abbreviated to NOx) and oxides of sulphur (usually

⁴⁷ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

⁴⁸ "Dying from too much dust", New Scientist 12th March 1994, p12-13.

⁴⁹ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

SO₂ or SO₃, abbreviated to SO_x) are produced mainly by combustion processes. These gases are all acidic, so can damage buildings and acid-sensitive habitats.

Both SO_x and NO_x can affect the lungs and the Government has set air quality standards for them (see Annex 4). Asthmatics are particularly badly affected by these pollutants, with high levels leading to an increased risk of an asthma attack.

Global air pollutants

Some air pollutants can have global, or at least large scale, environmental impacts, for example:

- acid gases such as SO_x and NO_x cause acid rain, which may occur near the point of release, or thousands of miles away;
- certain chemicals, such as chlorofluorocarbons (CFCs) and methyl bromide, damage the stratospheric ozone layer, increasing the amount of harmful UV light that reaches the earth's surface. Many of these ozone depleters are now controlled by the Montreal Protocol, a global environmental agreement;
- other chemicals, including carbon dioxide, methane and HCFCs, are global warming gases. These gases increase the amount of the sun's energy that is retained by the earth, resulting in global warming and climate change;
- persistent organic pollutants, such as polychlorinated biphenyls, dioxins and brominated flame retardants don't break down easily in the environment, and persist, often travelling towards the Earth's Poles by a process called "global distillation".

Smells

Although smells may be harmless, they can provide a considerable amount of inconvenience, affecting quality of life and reducing the value of property. "Natural" smells can originate from processes such as composting and landfill, whilst a chemical plant may be responsible for many different chemical smells. Sometimes smells can be very difficult to trace, and smell is also hard to quantify.

Visual pollution

Sometimes emissions from a factory may have a significant visual impact, whilst not being dangerous in themselves. The commonest example of this is the emission of steam, which is harmless but very visible. In a rural area, and sometimes in towns, such emissions may significantly affect the quality of life.

Water pollution

Some of the major measures of water pollution and water polluting chemicals are given below. The River Ecosystem classification table in Annex 4 gives an indication of how the values of these pollutants relate to river quality.

Biochemical Oxygen Demand (BOD) and Dissolved Oxygen (DO)

If a river is polluted by something that is biodegradable, like sewage effluent or effluent from food processing, then bacteria will need oxygen to break it down. The BOD is a measure of how much oxygen will be needed. The higher the BOD is in the pollutant, the less oxygen there is left in the river for fish and other river life to breathe. A very clean river will have a BOD of 1-3 mg/l, a less clean river 2.5-6 mg/l BOD. In comparison, treated sewage typically has a BOD of around 20 mg/l, crude sewage 200-3000 mg/l and silage liquor 60000 mg/l.

Dissolved Oxygen (DO) is a measurement of how much effect pollution is having on a river. It is a measure of the amount of oxygen present in the water, which is important because organisms in water need oxygen to live. DO can be expressed in two ways: milligrams per litre (mg/l) and per cent saturation (%sat). A rough conversion is 11 mg/l equals about 100% saturation. Game fish and some insects will begin to die when the DO falls below 70% saturation. Below 40% saturation only hardier forms of river life, such as leeches, may be able to survive.

Suspended solids

Some effluents contain suspended solids in them, which can shade out light from the plants on the river bed, and will eventually deposit on the river bed, forming a blanket of sludge if present in large quantities. The amount of suspended solids in river water is usually less than 5 mg/l in clear water and greater than 10 mg/l in polluted water, but depends on natural characteristics of the water course.

Hardness and softness

Hard water has a high level of dissolved calcium and magnesium, soft water has very little dissolved calcium and magnesium. Organisms living in the water will be adapted to the normal hardness or softness, so addition of water with different characteristics may have effects on them.

pH

The pH is a measure of the acidity or alkalinity of water. Neutral (neither acid nor alkaline) is pH 7, with low pHs (0-7) being acid and high pHs (7-14)

being alkaline. A natural river will generally have a pH fairly close to neutral, with rivers going through alkaline rocks like limestone having higher pHs and those from acidic peat bogs having lower. Fish populations decrease greatly if the pH is below 6. Pollution, through acid rain and factory discharge, can alter the pH of a river, altering its environment, and possibly killing it. Discharge consents frequently specify a pH range.

Ammonia

Ammonia is a by-product of the breakdown of organic waste. In excessive quantities it is lethal to river life. Note that ammonia can be measured in a number of different ways, so when comparing monitoring data with a standard, check that they use the same method.

Heat

The ecosystem of a river has evolved to live within a certain range of temperatures. If the water temperature gets too high, the oxygen content of the water reduces, resulting in fish and other organisms dying of asphyxiation. If a factory discharges a warm effluent this may cause major damage to a river. Similar problems also arise if a river is over-extracted, leaving little water flow, which then warms up rapidly in the summer.

Nutrients

Nitrates and phosphates are nutrients which encourage plant growth. Nitrogen is usually from farm fertilisers and sewage effluent, whilst the main source of phosphate is usually sewage effluent.

If levels of nutrients are too high then eutrophication results, disturbing the natural ecology and sometimes, resulting in massive growth of algae. This algae then prevents light penetration and removes oxygen from the water at night, killing other plant and animal life. In some circumstances, usually in lakes rather than rivers, some species of algae can produce very dangerous toxins.

Metals

Some effluents may contain metals; more details of the effects of individual metals are given below.

Other inorganic chemicals

Some other inorganic chemicals, such as hydrogen sulphide, may cause pollution of rivers (*see below for more details*).

Organic chemicals

Some effluents may contain a range of organic chemicals, some may be harmless whilst others

may be toxic. However, discharge consents and monitoring will frequently not measure individual organic compounds.

Land pollution

This guide doesn't cover land pollution (contaminated land or landfill); see Annex 9 for details of other relevant Friends of the Earth publications.

Other pollution

You may not just be concerned about chemical pollution: noise, visual impact and traffic pollution may also be a problem. These issues are not dealt with in this manual, though they may form an important part of your case against a polluting factory, particularly a new one or an extension to an existing one.

More information on some polluting chemicals

This section provides further information on some important polluting chemicals. The effects of pollutants may vary depending whether they are in air or water, this is explained when relevant.

Heavy metals

Each heavy metal has different chemical behaviour and toxicity, so here is a brief description of each one⁵⁰.

Arsenic (As)

Arsenic compounds are poisons by inhalation or ingestion. Acute arsenic poisoning from ingestion can cause nausea, vomiting and diarrhoea, whilst inhalation can irritate the nose and throat. Chronic arsenic poisoning can result in skin cancer (IARC Group 1 human carcinogen), cirrhosis of the liver, liver cancer, nervous system effects, damage to white blood cell production and kidney damage.

Cadmium (Cd)

Chronic exposure to cadmium compounds as either fumes or dust leads to pulmonary emphysema and kidney damage, and can also lead to bone pains and fractures. Cadmium has been shown to cause cancer in animals, and may be associated with prostate cancer in men and lung cancer (IARC Group 1 human carcinogen)⁵¹.

⁵⁰ "The Heavy Elements: Chemistry, Environmental Impact and Health Effects", Jack E. Fergusson, Pergamon Press, ISBN 0-08-040275-5.

⁵¹ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997; "The Heavy Elements: Chemistry, Environmental Impact and Health Effects", Jack E. Fergusson, Pergamon Press, ISBN 0-08-040275-5.

Lead (Pb)

Lead compounds have a wide range of toxic effects. Chronic, low level exposure leads to anaemia, higher exposures lead to kidney damage. Exposure during pregnancy increases the risk of hypertension and birth defects. Low level exposure to lead also impairs the neurological functioning of children, leading to reduced IQ and other cognitive problems. Lead is stored in bone, from where it may become re-mobilised under stressful conditions.

Mercury (Hg)

Mercury compounds have been responsible for several major outbreaks of poisoning around the world, and have a range of toxic effects, dependent on the chemical form of the mercury.

Elemental mercury is volatile, so it can easily enter the body by inhalation, and the vapour is also able to cross the blood-brain barrier. Exposure to mercury vapour leads to bronchial inflammation, nervous system damage and kidney damage. Inorganic mercury compounds also lead to kidney damage and neurological problems. The most toxic form of mercury is methylmercury (CH_3Hg^+), which causes disintegration of cells in the brain, leading, in cases of high exposure, to death. The worst outbreak of methylmercury poisoning occurred in Iraq in 1971-72, which killed 459 people and hospitalised 6350, after bread was made with methylmercury-treated grain.

Selenium (Se)

A low intake of selenium appears to be essential for good health, however higher intakes are toxic. Chronic overexposure to selenium can cause inflammation and pulmonary oedema in the lungs, dermatitis, jaundice, cirrhosis of the liver, nervous system damage and hair and nail loss.

Thallium (Tl)

Chronic exposure to thallium leads to peripheral polyneuritis (inflammation of many nerves), paralysis of the extremities, liver and kidney damage. It may also be a teratogen, damaging the unborn child.

Indium (In), Antimony (Sb), Bismuth (Bi), Tellurium (Te)

These heavy elements are less common, though they can still be relevant. Chronic exposure to indium causes damage to the urinogenital tract. Antimony has similar toxic effects to arsenic, with chronic exposure resulting in jaundice and damage to the heart, liver and kidneys. Bismuth exposure can cause nervous system and kidney damage. Tellurium compounds have similar toxicity to

selenium, with chronic exposure leading to nervous system effects.

Other Toxic metals

Chromium (Cr)

Acute exposure to chromium causes dermatitis and gastrointestinal problems. Chronic exposure can lead to allergic contact dermatitis, damage to the nasal membranes and kidney damage. There are several chemical forms of chromium; chromium (IV) is carcinogenic to humans, causing lung cancer (IARC Group 1). Chromium (II) and metallic chromium are unclassified for carcinogenicity (IARC Group 3)⁵².

Copper (Cu)

Copper is an element which is essential in small amounts, but toxic in larger doses, and it is phytotoxic (toxic to plants). Acute exposure to copper leads to liver damage and anaemia. Infants and children are particularly susceptible to the effects of copper. Children in India who drank milk which had been boiled and stored in brass vessels suffered liver damage⁵³.

Nickel (Ni)

Acute exposure to nickel compounds is uncommon, though nickel carbonyl is a major acute risk to health in the workplace, as it is volatile. Acute exposure leads to nausea, diarrhoea, giddiness, headache and shortness of breath. Chronic exposures lead to respiratory and skin problems. Respiratory problems include damage to the nasal tissues, bronchitis and asthma. Nickel dermatitis is common among the general population, caused by the use of nickel plated jewellery and zips. Chronic exposure may also damage the kidneys. Nickel is also phytotoxic.

Nickel compounds have been classified as carcinogenic to humans (Group 1) by the IARC, and metallic nickel has been classified as possibly carcinogenic to humans (Group 2B). The main cancers found in occupational exposure are those of the lungs and nose⁵⁴.

Zinc (Zn)

Zinc is another essential metal with toxic effects in overdose, and it is also phytotoxic. Acute exposure by inhalation to zinc or zinc oxide fumes can cause "metal fume fever", consisting of chills, fever,

⁵² "Health Effects of Waste Combustion Products. Institute for Environment and Health", 1997.

⁵³ Amdur, M.O., Doull, J. and Klaassen, C.D. (eds.), 1991. "Casarett and Doull's Toxicology: The Basic Science of Poisons". 4th Edition, Pergamon Press. (5th Edition now available).

⁵⁴ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

profuse sweating and weakness, usually for 24-48 hours. Inhalation of zinc oxide dust may cause lung damage⁵⁵.

Other inorganic pollutants

Hydrogen sulphide (H₂S)

Hydrogen sulphide is a gas used in some manufacturing processes, and it is also produced by rotting materials in some circumstances, hence its other names, "sewer gas" and "bad egg gas". It is an acute nervous system poison, and high exposures kill.

Hydrogen sulphide contamination of aqueous effluents causes toxic effects on a wide variety of river life.

Organic pollutants

There are an immense number of organic pollutants that can be present in effluent, though most of them will not be analysed for. A few are described below.

Benzene

The main toxic effect of benzene is on bone marrow cells, disturbing the formation of blood. This causes (aplastic) anaemia and leukaemia, and these effects result from both acute and chronic exposure. The main leukaemia associated with benzene exposure is acute myelogenous leukaemia. Benzene is classified by the IARC as a Class I human carcinogen⁵⁶.

Polycyclic aromatic chemicals (PAHs)

PAHs are a group of chemicals formed during incomplete combustion, and they are also present in some fossil fuels, for example tar. There is evidence that exposure to PAHs contributes to heart disease, however their main health impact is as carcinogens. The PAHs benz[a]anthracene, dibenz[a,h]-anthracene and benzo[a]pyrene are all probable human carcinogens (IARC Group 2A), several others are classified as possible human carcinogens (IARC Group 2B). There is a lot of evidence that PAH mixtures such as soots, tars, cigarette smoke and coke oven emissions can cause human cancers of the lungs, skin and scrotum.

In the atmosphere PAHs can be transformed to nitro-PAHs, which are carcinogenic to animals. It is believed that the carcinogenicity of engine exhaust may be due to these compounds⁵⁷.

Polychlorinated biphenyls (PCBs)

PCBs are a group of compounds which were used in a variety of applications such as transformer oils, plasticisers and hydraulic fluids. Their production has been banned, but they are present in the environment and in some electrical equipment. They are extremely persistent in the environment, dissolve well in fat and bioaccumulate in animals and humans. Some PCBs are endocrine disrupters, and exposure to PCBs has been found to be linked with reduced IQ in children, and disruption of the immune system.

PCB exposure has been associated with breast cancer, and PCBs are classified by the IARC as possibly carcinogenic (Group 2A)⁵⁸.

Dioxins and furans

Polychlorinated dibenzo-*p*-dioxins (PCDDs or dioxins) and polychlorinated dibenzo-*p*-furans (PCDFs or furans) are mainly produced by combustion, but are also produced as by-products in production of some chemicals. They are a large group of chemicals, often abbreviated to "dioxins". Dioxins are present throughout the environment, and are poorly degradable, and bioaccumulate in the fat of humans and animals.

Animal experiments have shown many toxic effects from exposure to dioxins, fewer have been proven in humans, because of the difficulties in carrying out experiments caused by the complexity of dioxin and furan mixtures, the complexity of the effects and the problem of simultaneous exposures to other chemicals such as PCBs.

Dioxin exposure has been strongly linked to thyroid effects in animals, and dioxins have been shown to have endocrine disrupting, anti-oestrogenic effects. Studies have also shown immune system effects in humans, and changes in human liver function have been measured.

The IARC has classified one dioxin, 2,3,7,8-TCDD (often abbreviated to TCDD), as a definite human carcinogen (Group 1), whilst other dioxins and furans are Group 3, not classifiable⁵⁹.

⁵⁵ Amdur, M.O., Doull, J. and Klaassen, C.D. (eds.), 1991. "Casarett and Doull's Toxicology: The Basic Science of Poisons". 4th Edition, Pergamon Press. (5th Edition now available).

⁵⁶ Amdur, M.O., Doull, J. and Klaassen, C.D. (eds.), 1991. "Casarett and Doull's Toxicology: The Basic Science of Poisons". 4th Edition, Pergamon Press. (5th Edition now available); McCunney, R.J., 1994. "A Practical Approach to Occupational and Environmental Medicine", 2nd Edition, published by Little, Brown.

⁵⁷ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

⁵⁸ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

⁵⁹ "Health Effects of Waste Combustion Products". Institute for Environment and Health, 1997.

Annex 4

Prescribed Substances and Quality Standards

This annex includes:

- a list of prescribed substances;
- water quality standards;
- air quality standards.

Prescribed Substances

The Environmental Protection (Prescribed Processes and Substances) Regulations 1991, Schedules 4, 5 and 6, list the prescribed substances for release to air, water and land. All three lists apply to IPC processes, whilst only the air substances apply to Part B processes. Releases of these chemicals must be minimised using BATNEEC (*see Section 5*).

Schedule 4: Releases into the air

Oxides of sulphur and other sulphur compounds
 Oxides of nitrogen and other nitrogen compounds
 Oxides of carbon
 Organic compounds and partial oxidation products
 Metals, metalloids and their compounds
 Asbestos (suspended particulate matter and fibres), glass fibres and mineral fibres
 Halogens and their compounds
 Phosphorus and its compounds
 Particulate matter

Schedule 5: Releases into water

These are subject to individual thresholds for each compound, calculated as the amount in excess of background quantity released in any 12-month period (in grams).

Mercury and its compounds (200, as metal)
 Cadmium and its compounds (1000, as metal)
 All isomers of hexachlorocyclohexane (20)
 All isomers of DDT (5)
 Pentachlorophenol (PCP) and its compounds (350 as PCP)
 Hexachlorobenzene (5)
 Hexachlorobutadiene (20)
 Aldrin (2)
 Dieldrin (2)
 Endrin (1)

Polychlorinated biphenyls (1)
 Dichlorvos (0.2)
 1,2-Dichloroethane (2000)
 All isomers of trichlorobenzene (75)
 Atrazine (350, see simazine)
 Simazine (350, if both atrazine and simazine released, then aggregate figure is 350)
 Tributyltin (TBT) compounds (4, as TBT)
 Triphenyltin (TPT) compounds (4, as TPT)
 Trifluralin (20)
 Fenitrothion (2)
 Azinphos-methyl (2)
 Malathion (2)
 Endosulfan (0.5)

Schedule 6: Releases to land

Organic solvents
 Azides
 Halogens and their covalent compounds
 Metal carbonyls
 Organo-metallic compounds
 Oxidising agents
 Polychlorinated dibenzofuran and any congener thereof
 Polychlorinated dibenzo-p-dioxin and any congener thereof
 Polyhalogenated biphenyls, terphenyls and naphthalenes
 Phosphorus
 Alkali metals and their oxides and alkaline earth metals and their oxides
 Pesticides

Water Quality Standards

River Ecosystem (RE) Classifications

These classifications, used by the Agency in defining water quality objectives, apply to inland rivers and watercourses in England and Wales, and are contained in the Surface Waters (River Ecosystem) (Classification) Regulations 1994.

NB: See Annex 2 for an explanation of the "percentile" system.

Class	Dissolved Oxygen % saturation 10 percentile	BOD(ATU) mg/l 90 percentile	Total Ammonia mg N/l 90 percentile	Un-ionised Ammonia mg N/l 95 percentile	pH lower limit as 5 percentile; upper limit as 95 percentile	Hardness mg/l CaCO ₃	Dissolved Copper µg/l 95 percentile	Total Zinc µg/l 95 percentile
RE1	80	2.5	0.25	0.021	6.0-9.0	0 >0 and 50 >50 and 100 >100	5 22 40 112	30 200 300 500
RE2	70	4.0	0.6	0.021	6.0-9.0	0 >0 and 50 >50 and 100 >100	5 22 40 112	30 200 300 500
RE3	60	6.0	1.3	0.021	6.0-9.0	0 >0 and 50 >50 and 100 >100	5 22 40 112	300 700 1000 2000
RE4	50	8.0	2.5		6.0-9.0	0 >0 and 50 >50 and 100 >100	5 22 40 112	300 700 1000 200
RE5	20	15	9.0					

Environmental Quality Standards

Environmental quality standards define levels of substances in water which should not be exceeded. List I chemicals have had the EQS defined by the EU, whilst the DETR has set the EQS for List II. In addition, the Environment Agency is devising its own non-statutory (not legally binding) EQS, for some chemicals. The Agency uses EQS levels to decide what factories should be allowed to discharge into rivers and streams (*see Section 7*).

Those EQS that have been set to date are listed in the following two tables.

List I chemicals (or “Black List” chemicals)

The following environmental quality standards relating to EC List I chemicals were defined in the Surface Waters (Dangerous Substances) (Classification) Regulations 1989:

	Inland waters	Coastal and territorial waters
	<i>µg/l, annual mean</i>	
Aldrin, dieldrin, endrin and isodrin	0.03 for total drins 0.005 for endrin	
Cadmium and compounds	5 (total)	2.5 (dissolved)
Carbon tetrachloride	12	12
Chloroform	12	12
DDT (all isomers)	0.025	0.025
pp-DDT	0.01	0.01
Hexachlorobenzene	0.03	0.03
Hexachlorobutadiene	0.1	0.1
Hexachlorocyclohexane (all isomers)	0.1	0.02
Mercury and compounds	1 (total)	0.3 (dissolved)
Pentachlorophenol and its compounds	2	2

List II chemicals (or “Grey List” Chemicals)

The Department of the Environment, Transport and the Regions has published statutory EQS for a range of substances in the Surface Waters (Dangerous Substances)(Classification) Regulations 1998, the Surface Waters (Dangerous Substances)(Classification)(Scotland) Regulations 1998, and the Surface Waters (Dangerous Substances)(Classification)(Scotland) Regulations 1997.

	Fresh Water	Salt water
	<i>µg/l, annual average unless otherwise stated</i>	
1,1,1-Trichloroethane	100	100
1,1,2-Trichloroethane	400	300
2,4-D (ester)	1	1
2,4-D (non ester)	40	40
2,4-Dichlorophenol	20	20
2-Chlorophenol	50	20
4-Chloro-3-methyl phenol	40	40
Arsenic	50	25
Atrazine and Simazine	2 (total)	2 (total)
Azinphos-methyl	0.01	0.01
Bentazone	500	500
Benzene	30	30
Biphenyl	25	25
Chloronitrotoluenes	10	10
Demetons (approved)	0.5	0.5
Dichlorvos	0.001	0.04, Maximum 0.6 (24h after application)
Dimethoate	1	1
Endosulphan	0.003	0.003
Fenitrothion	0.01	0.01
Linuron	2	2
Malathion	0.01	0.02
Mecoprop	20	20
Mevinphos	0.02 (Max. admissible)	
Naphthalene	10	5
O-methoate	0.01	
Toluene	50	40
Triazophos	0.005	0.005
Tributyltin	0.02 (Max. admissible)	0.002 (Max. admissible)
Trifluralin	0.1	0.1
Triphenyltin and derivatives	0.02 (Max. admissible)	0.008 (Max. admissible)
Xylene	30	30

Air Quality Standards

National Air Quality Standards and Objectives

The UK National Air Quality Strategy sets the following standards and objectives (*see Annex 2 for an explanation of the "percentile" system*)⁶⁰:

Pollutant	Standard		Objective
	Concentration	Measured as	
Benzene	5 ppb	running annual mean	achieve by 2005
1, 3- Butadiene	1 ppb	running annual mean	achieve by 2005
Carbon monoxide	10 ppm	running 8-hour mean	achieve by 2005
Lead	0.5 µg/m ³	annual mean	achieve by 2005
Nitrogen dioxide (NO ₂)	104.6 ppb	1 hour mean	99.9th percentile by 2005* (8h exceedance per year)
	20 ppb	annual mean	achieve by 2005 *
Ozone	50 ppb	running 8-hour mean	97th percentile by 2005* (all but 10 days per year)
	50 ppb	running 8-hour mean	97th percentile by 2005* (all but 10 days per year)
Particles PM ₁₀	50 µg/m ³	running 24-hour mean	99th percentile by 2005* (all but 4 days per year)
Sulphur dioxide (SO ₂)	100 ppb	15-minute mean	99.9th percentile by 2005* (99.9% of measurements below 100 ppb)

* Provisional objectives, all to be reviewed in 1999.

UK air quality bandings

This is the system used to inform the public of the levels of air pollution in their area; it was revised in November 1997⁶¹:

	Low	Moderate	High	Very High	Measured as
SO ₂	<100	100-199	200-399	>400	ppb, 15 minute average
Ozone	<50*	50-89	90-179	>180	ppb, hourly average
CO	<10	10-14	15-19	>20	ppb, 8 hour running average
NO ₂	<150	150-299	300-399	>400	ppb, 15 hourly average
PM ₁₀	<50	50-74	75-99	>100	ppb, 24 hour running average

* - standard threshold for ozone expressed as 8-hour running average

⁶⁰ "Pollution Handbook", NSCA, 1997.

⁶¹ "New air quality bandings", ENDS Report 274, November 1997, p40-41.

Proposed new EU air quality standards

The European Commission has proposed new air quality standards, based on World Health Organisation Guidelines⁶²:

	Averaging period	Limit Value	Date for compliance
NO₂			
Human Health	1 hour	200 µg/m ³ , 8 times/yr max	1/1/2010
	Calendar year	40 µg/m ³	1/1/2010
Vegetation	Calendar year	30 µg/m ³ (NO + NO ₂)	Two years from entry into force
PM₁₀: stage 1			
Human health	24 hours	50 µg/m ³ , 25 times/yr max	1/1/2005
	Calendar year	30 µg/m ³	1/1/2005
PM₁₀: stage 2			
Human health	24 hours	50 µg/m ³ , 7 times/yr max	1/1/2010
	Calendar year	20 µg/m ³	1/1/2010
SO₂			
Human health	1 hour	350 µg/m ³ , 24 times/yr max	1/1/2010
	24 hours	125 µg/m ³ , 3 times/yr max	1/1/2010
Ecosystems	Calendar year and winter	20 µg/m ³	Two years from entry into force
Lead			
Human Health	Calendar year	0.5 µg/m ³	1/1/2005

⁶²“Commission homes in on PM10 in air quality proposals”, ENDS Report 273, October 1997, p42.

Annex 5

Campaign flowcharts

This annex has flowcharts demonstrating typical campaigns:

- *campaigning against a new factory;*
- *campaigning against pollution from an IPC regulated factory;*
- *campaigning against pollution from a Part B regulated factory;*
- *campaigning against a polluted river.*

NB: The flowcharts are written from an England and Wales perspective; in Northern Ireland many of the regulations described in the flowcharts are only just coming into force; refer to Section 9 for more details. In Scotland, replace the Environment Agency with SEPA, and the small factory air emissions are also regulated by SEPA, rather than by local authorities.

Figure 2: Flowchart for campaigning against a proposal for a new factory

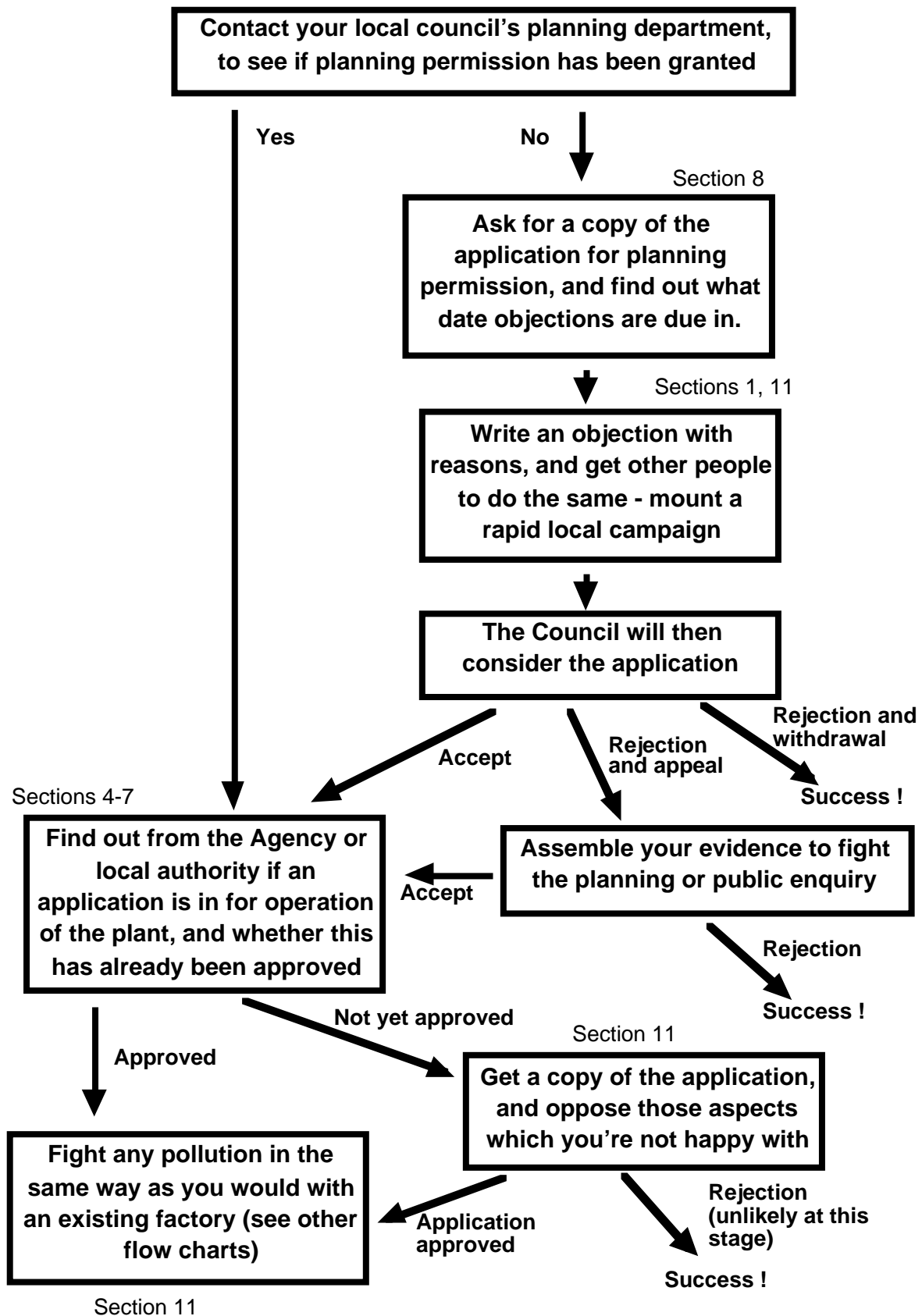


Figure 3: Flowchart for campaigning against pollution from a large, IPC regulated, factory

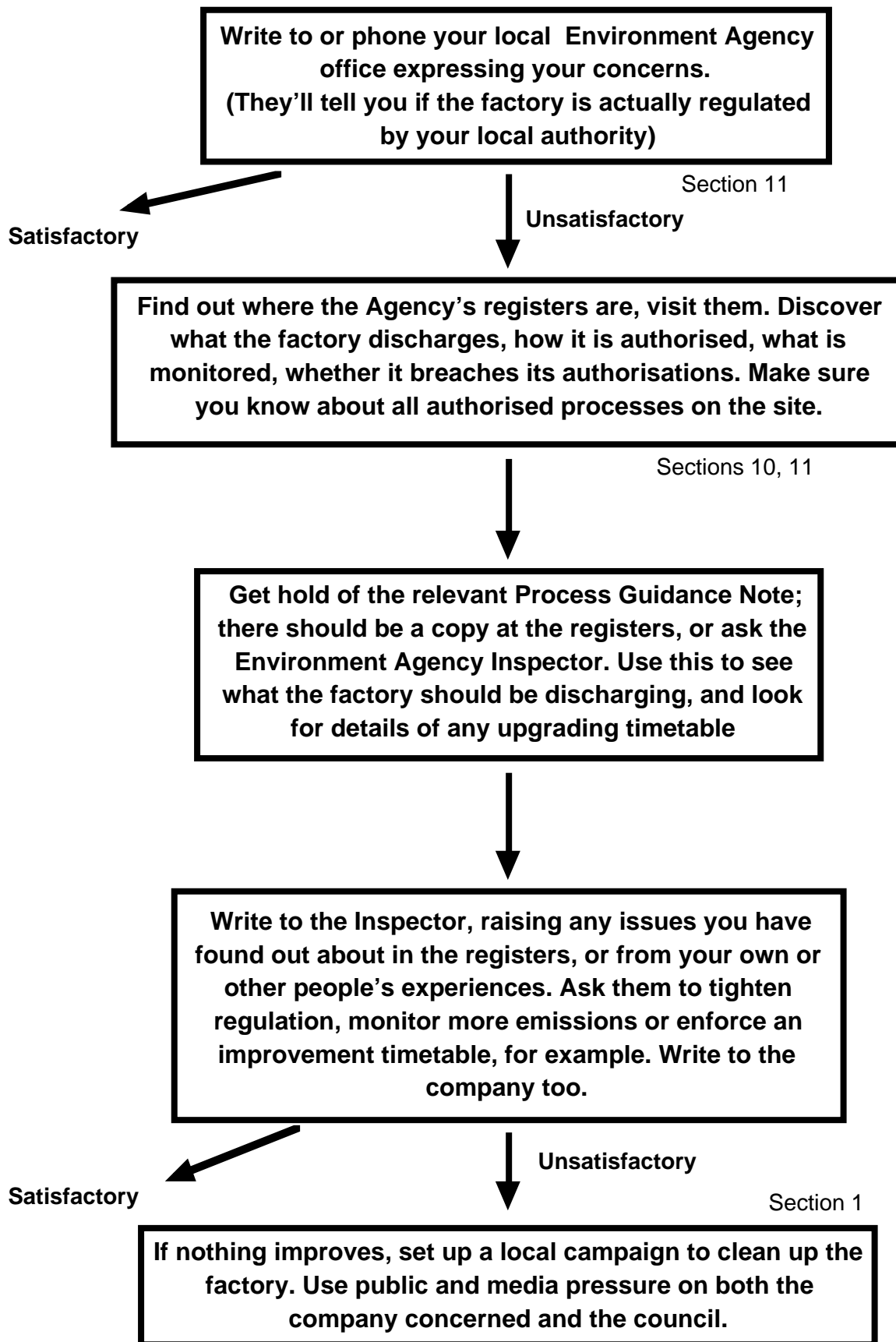


Figure 4: Flowchart for campaigning against air pollution from a smaller factory

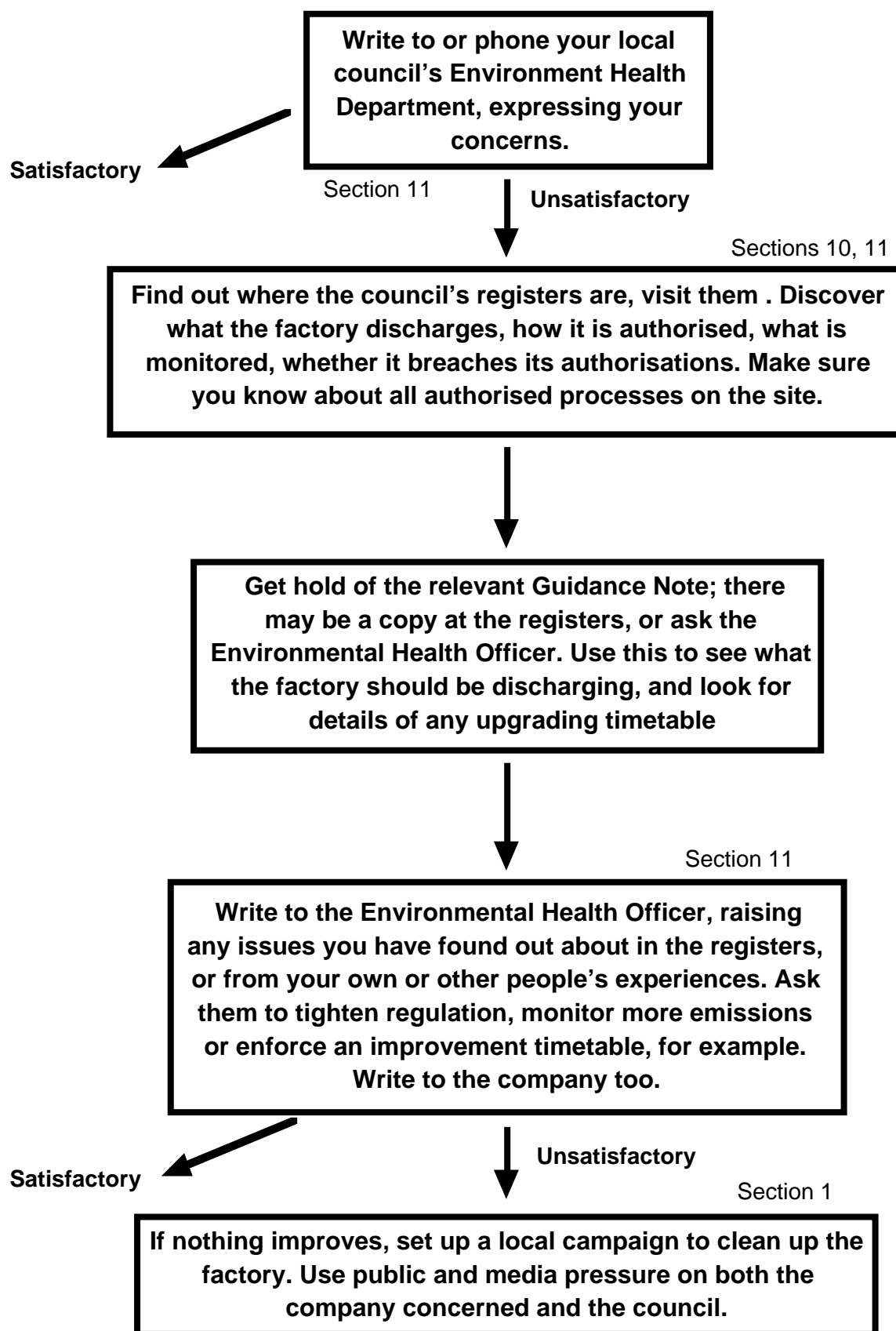
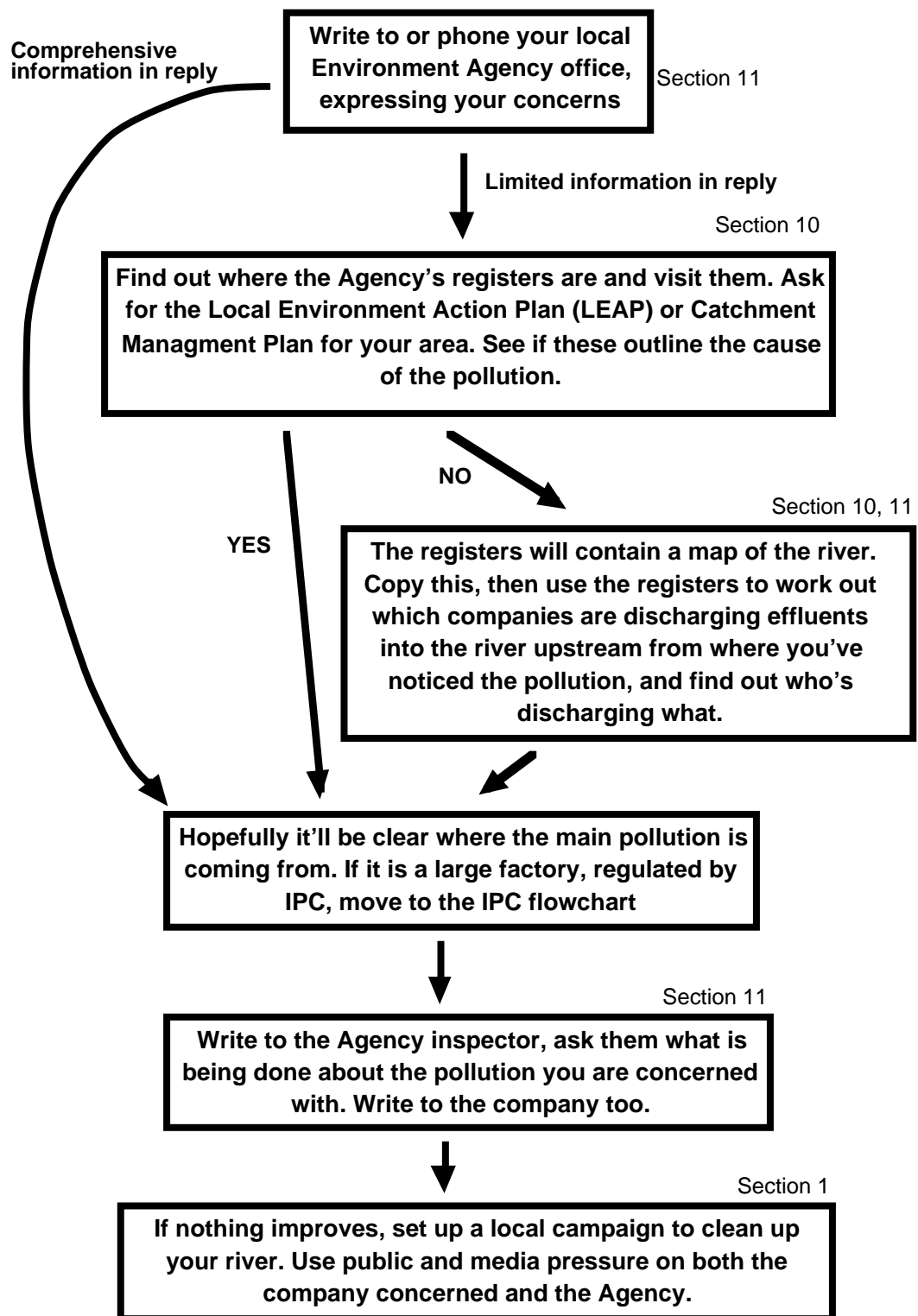


Figure 5: Flow chart for campaigning against a polluted river



Annex 6

Using the law

This annex includes:

- *a brief introduction to the use of legal action in environmental campaigns.*

General points on legal action:

- using the law shouldn't be a last-ditch attempt when you've exhausted your campaign weapons - if it isn't planned, it's an uphill struggle;
- get familiar with legal issues early on in the campaign - a good starting point is either "Environment Action: A Citizens Guide" or "Environmental Law and Citizen Action" (*see Annex 9*);
- when planning the campaign, think ahead for future opportunities for legal challenges;
- ensure the campaign is well documented (correspondence, official documents, public register material) so that, if and when legal action is contemplated, the paper chain is sorted.

Finding a solicitor

The Environmental Law Foundation (*see Annex 8*) can put you in contact with a solicitor who is interested in doing environmental work. However, personal recommendation from another campaign group is a good way of ensuring that you get a solicitor who is really experienced in the field, rather than someone who has just started.

Funding legal action

Legal action is inevitably very expensive, usually too expensive for an individual to undertake by themselves. A possible way to fund legal action has been through Legal Aid, though changes to the system may make this more difficult. Some groups have also taken actions, using fundraising from supporters to gain enough money.

Legal Aid

Legal Aid is currently available for people on low incomes. If you, or someone else affected by the factory, are eligible for Legal Aid then it is possible that Legal Aid can be used to pay for both your legal costs and the costs of associated sampling and research. More information on Legal Aid can be obtained from a solicitor, or from your local Citizens Advice Bureau.

No win, no fee

At the time of writing, the Government has announced that it wishes to change the way the legal aid system operates. This may include removing Legal Aid funding from civil actions, such as nuisance and personal injury. Instead, there may be an extension of the no win, no fee system, in which solicitors receive no money unless they win a case, but receive a portion of the winnings if the case succeeds. There may also be some charges on the person bringing the case, for example insurance against losing. Legal Aid will remain for judicial review, but only if there is a very clear chance of winning, which will exclude many cases.

This modification may make it easier for those not entitled to legal aid to take actions, but it may make solicitors less willing to take on actions.

The government has also suggested setting up a "public interest fund" to finance test cases, but it will be some time before it's in place.

The final result of the government review is not clear at the time of writing. A Citizens Advice Bureau, or your legal advisor, should be able to tell you what the situation is.

Possible forms of legal action available

This is a very brief outline of the sort of actions that could be taken in law. However, ask for legal advice before considering any of them.

Nuisance

There are three types of nuisance: public and private nuisance are defined in Common Law, whilst statutory nuisance is defined in the Environmental Protection and other Acts (*see Section 8*). Nuisance is an ancient, and complex, body of law, existing to enable people to take action against those who are causing a "nuisance", for example, through pollution or noise.

Judicial review

Judicial review is a limited means of challenging a decision, or a failure to make a decision, by a public body. It requires a decision to have been made, or

to have not been made within a legally defined period, but is limited to the way in which the body has behaved, rather than the merits of the case. You must lodge a request for a judicial review “promptly”, and usually within three months. There must have been a decision or omission to challenge in the first place. This could be in the form of a decision by the Agency to authorise a process, or to grant a variation to an authorisation, or by a planning authority to grant planning permission. For example a decision of the Agency could be challenged on the grounds that it didn't adhere to the principles of BPEO or BATNEEC. A victory in a judicial review may be temporary; the regulator may just repeat their authorisation process, with more care this time, and come to the same decision.

Personal injury and property damage

In a personal injury or property damage action you sue a company, individual or organisation, claiming that they have negligently injured you or your property in some way. It is often very difficult to prove a causal link between emissions from one site and the symptoms apparent in local people. Statistical evidence is rarely sufficient on its own; other proof is very elusive. Even if to you the link seems obvious, don't be too optimistic that a judge will consider it a clear cut case. However, in certain areas there are scientific techniques available to relate pollution to harm, and more are being developed as time goes on; get legal advice to see if this is possible in your case. You'll also have to show “negligence”, i.e. that the company owed you a duty of reasonable care.

Private prosecution

This process allows an individual to prosecute a company, individual or organisation for a breach of the criminal law. For example, this would include the breach of IPC or LAAPC authorisation conditions, but not breach of a planning permission condition.

This sort of case requires a very high burden of proof, and has strict rules of evidence. A private prosecution is not to be lightly embarked upon, so it is rare. Legal costs for a private prosecution will normally be paid for by the State.

Annex 7

Using your right to know

This annex includes:

- *an introduction to the legislation allowing access to information;*
- *how to use your right to know.*

Introduction ⁶³

Friends of the Earth campaigns for the basic rights that people need to protect their environment - the right to know, the right to act and the right to seek redress.

The right to know is central to our campaigns. Without the information to identify the environmental problems which exist, appropriate action is not possible. The right to know is a central element of any healthy democracy where citizens are not required merely to rely on bland assurances by government and industry that the environment is being adequately protected.

Friends of the Earth welcomed European Directive 90/313/EEC on the freedom of access to information on the environment, which came into force on 31 December 1992. The Directive was implemented in England, Wales and Scotland by the Environmental Information Regulations 1992⁶⁴ ("the Regulations" in this annex) which are accompanied by extensive guidance notes⁶⁵ ("the Guidance") issued by the Department of the Environment (DoE, now DETR). The guidance itself is not legally binding, but is a powerful tool for any information seeker, reflecting the Government's official position on how the Regulations should be interpreted.

Note that the Regulations only apply to public bodies, and that the public registers (*Section 10*) are defined in separate legislation.

For Northern Ireland, the Directive was implemented by the Environmental Information Regulations (Northern Ireland) 1993 which came into force on 31 March 1993. A separate briefing has been prepared for Northern Ireland (*see Annex 9*).

The Government is intending to introduce a new Freedom of Information Act, which should extend access to information in some circumstances, and should also provide a better mechanism for appealing against non-disclosure

A right to know campaign

Obtaining information, even if you have a legal right to it, is rarely easy and your two best campaign tools are persistence and patience. This is as much about **exercising** the right to know and pressuring the relevant bodies to be more open, as actually getting your hands on the information you request. **It is therefore essential that you keep signed and dated copies of all correspondence.** Keep a close eye on dates too and be ready to send reminders when the 2 month deadline for answering information requests looms (more details about this later).

This Annex aims to guide you through the Regulations and give some pointers to the difficulties that maybe encountered.

The Right to Know - in context

There has been much talk about the "right to know", "access to information" and the "freedom of information", but what does this mean in practice? Under the Regulations, it merely means that you have a right to demand information about your environment. If citizens are to be expected to share responsibility for the environment, then they should also be provided with the information needed to make the right choices. In most cases, information covered by these Regulations is collected at the taxpayers' expense and we should be allowed to see what we are paying for.

Existing information rights

There were existing environmental information rights before the Regulations came into force and these are still relevant. It is not possible to go into all the individual pieces of legislation which give citizens rights of access to information, but some background may be helpful.

⁶³ This Annex is an edited and amended version of the Friends of the Earth Local Groups Briefing Sheet "Using your right to know", published in June 1994.

⁶⁴ Environmental Information Regulations 1992 (SI 3240), available from HMSO.

⁶⁵ Available from the DETR.

(i) Register-held information

You have a right to look at and copy information held on public registers around the country; these registers are described in Section 10

(ii) The Local Government (Access to Information) Act 1985

This Act gives you important rights to attend meetings and request information from your local authority. Most of the rights to information under this Act are linked to council meetings. Whenever there is a council, committee or subcommittee meeting you have a right to attend and can have access to the agenda, the report to be presented to the meeting and the background documents on which that report is based. The Regulations supplement this Act in that you can request information which the local authority holds, regardless of whether it is linked to a particular council meeting. More details are in Box 5 below.

(iii) The Code of Practice on Access to Government Information

This was published in April 1994 and is not limited to environmental information. The code does not give you any **legal** rights to information and as such is of limited value when requesting environmental information, where you now have a legal right under the Regulations. Politically, however, the code may be helpful as many promises have been made by the Government about being more "open". The code and the publicity given to it will hopefully mean that Government departments and agencies,

as well as the other public bodies covered by the code, become more aware of the need to be open with the public. This code does not cover local authorities. The Parliamentary Commissioner for Administration (alternatively called the Parliamentary Ombudsman) has been given the task of overseeing the code; Annex 8 gives more information about the Ombudsman.

The Regulations cover all environmental information

The benefit of the Regulations is that they cover ALL environmental information held by public bodies. Where there is an existing right (e.g. the EPA provisions for public access to information held on registers), the Regulations may provide access to extra information. Where there is no existing right, the Regulations provide a new right to information. Either way, quoting the Regulations ensures that the person dealing with your request realises that you have a legal right to the information.

How to use the regulations

Who can make a request?

Anyone can request information under the Regulations and no reason needs to be given as to why you want the information. It is useful to state that your request is being made under the Regulations, but there is no need to quote a particular part of the Regulations. Legally there is not even a need for you to mention the Regulations,

Box 4: A model letter for a request for information

Date [important to refer back to for 2 month time limit of response]

Dear X,

I would like to request the following information under the Environmental Information Regulations 1992.

Specify as clearly as possible:

(i) what you want;

(ii) whether you want the information as a photocopy or on disk. If you want it on disk, specify the format. If you are prepared to come to the offices to inspect the information for yourself suggest this to them.

If you intend to make a charge for this information, could you please notify me before sending me the information. I understand from the Regulations that charges should only cover costs, such as copying and postage which are reasonably attributable to the supply of the information.

Could I also remind you that the Regulations require requests to be responded to as soon as possible and within 2 months at the latest.

I look forward to your response and thank you for your co-operation. If you have any problems identifying the information requested, please do not hesitate to contact me at the above address (or give a telephone number if you don't mind them calling you).

Yours sincerely

but doing so will help focus the minds of those answering your request! For suggested phrasing of an information request, you might like to use the model letter which can be found in Box 4.

Who can you request information from?

The Regulations cover Government departments and agencies, local authorities and other bodies which carry out functions of public administration and have responsibilities which relate to the environment (Regulation 2(3)(a)). They also cover bodies which are under the control of public authorities and have responsibilities for the environment (Regulation 2(3)(b)).

Friends of the Earth is concerned that the scope of the Regulations is rather ambiguously defined. Friends of the Earth has had refusals from bodies we feel are clearly covered, exploiting this ambiguity and the fact that there is no effective appeal procedure.

The Regulations should however cover Government departments and agencies (such as the Meteorological Office), local authorities (this should include bodies carrying out administrative functions for the local authorities such as waste disposal companies), bodies such as the Environment Agency and English Nature. They should also cover state-owned bodies such as British Nuclear Fuels Plc, although this is presently being disputed by them.

Privatised Utilities

Private companies which are controlled by Government and subject to statutory duties are, in Friends of the Earth's view, also covered. This applies in particular to the privatised utilities such as the water companies (e.g. Thames Water) and the electricity generators (e.g. Powergen). These bodies are answerable to Government ministers and carry out various statutory duties which relate directly to the environment. The water companies, for example, have legal responsibilities for industrial waste which enters the sewers. Friends of the Earth therefore feels that these privatised utilities are covered by the Regulations and you should feel free to request information from them under the Regulations.

You should, however, be warned that these companies may not take the same view! Keep this in mind, but certainly do not be deterred from requesting information. The Freedom of Information Act may improve matters.

Private companies

Requesting information from clearly private companies such as ICI is not possible under the Regulations as they cannot really be said to be under the control of public authorities. The Regulations do, however, allow you to see what environmental information is held on private companies by, for example, local authorities and the Environment Agency.

What is environmental information?

All information relating to the environment is covered. Information on the state of water, air, flora, fauna, natural sites or other land is covered. This includes physical, biological and chemical conditions past, present or future. The Regulations also cover activities, such as construction work, which affect the state of the environment, as well as those which are designed to protect the environment. Information which was collected before the Regulations came into force is also covered.

What form does the information take?

The Regulations extend to information held in almost every form. The information can be in documents, in files, on computer and video, as well as tape recordings and maps.

What charges can be made for the information?

One of the more problematic parts of the Regulations is that they allow bodies covered to charge for information. Under Regulation 3(4)(b) any charges must however be "reasonable" and they must be linked directly to the supply of the information you have requested. This could therefore include photocopy costs, the cost of a disk for information from databases and postage. You should not be charged for the cost of gathering and producing the information in the first place. There is no definition of what is a "reasonable" charge.

There is a grey area where staff time is required to pick out the information you have requested and copy it. If your request is a simple one and you have been charged for a large amount of staff time in responding, then you should point out that any charge made must be "reasonable". The information they hold should be arranged in such a way that it is accessible and you should not be charged for staff time wasted in rummaging around badly organised files to find the information you need.

If your request involves scanning through a lot of information, it may be best to visit the offices where the information is held and select the information yourself. If the office is not too far away, this may be worth suggesting as it should help to keep costs down.

Although the Regulations make no distinction between requests from non-governmental

organisations (NGOs), individuals or companies, it is worth pointing out that you are a local citizen or a member of a NGO and do not want the information for commercial ends. To avoid being landed with a large bill, it is also advisable to ask the information holder to notify you beforehand of the cost.

If you feel that the charges made are excessive, ask

Box 5: The Local Government (Access to Information) Act 1985

This Act gives members of the public access to all council meetings, as well as committee and subcommittee meetings. It also means that the public have access to the agenda, reports, minutes and background papers. Although the Act covers committees and subcommittees it does not cover working groups or informal groups. It may not be that obvious when a committee is not a committee but a working group! Working groups, however are not allowed to make policy and their recommendations must be referred to a committee or subcommittee, at which stage relevant reports will be available.

Under the Act you can find out the names and addresses of all councillors and which committees they sit on from the main council offices. You can attend council meetings, committee and subcommittee meetings. Notices of these meetings must be posted at the main council offices at least three days in advance. Before the meeting, the agenda should be made available to you along with the reports to be presented and the relevant internal documents and background papers. Agendas and reports are available to you for up to six years; important internal documents for up to four years.

You can only be excluded from a meeting for a number of tightly defined reasons. These include discussions of

- Specific individuals and their business/financial affairs
- Industrial relations matters
- Issues which are sub judice
- Employees and job applications

Councils cannot exclude you merely by saying that the matters are "confidential" or "contrary to the public interest". Grounds for refusal must be one of the specific reasons listed above. If you are excluded from a meeting, you must be told exactly why, the reason must be included in the minutes, you must be readmitted to the meeting after discussion of the restricted item, and you must be able to read a record of the discussion afterwards.

You can go to the main council offices and inspect or get a copy of available information. A "reasonable" charge may be made. As with the Regulations, there is no clear definition of what is a reasonable charge. Councils have been known to charge up to £3.50 per sheet for photocopying. If this is the case, tell them that you think their charges are unreasonable. The main council offices will have a written summary of your rights to attend meetings and inspect and copy documents under this Act, which can be inspected during office hours.

The Relationship between the Local Government (Access to Information) Act 1985 and the Regulations

The Regulations apply if the information you want is not something which has come up before the Council or one of its committees for a decision. It may be, for example, that the Council made a decision several years ago to investigate contaminated sites. The reports and background papers will not tell you anything about the sites themselves, so you may need to invoke the Regulations.

You should note that the creation of Local Authority Waste Disposal Companies may have an effect on your rights under the Local Government (Access to Information) Act 1985. As these companies are legally separate persons your local authority may exclude the public from meetings where the financial and business affairs of these companies are being discussed. You should however still have the right to request information about the companies from the local authority and from the companies themselves under the Regulations.

the body in question to justify them and give you an exact breakdown of the charges quoted. Remind them that the Regulations only allow for "reasonable" charges to be made. If you still don't get a satisfactory response, see "Challenging the authorities" below.

The body concerned should reply to your request "as soon as possible", and within two months at a maximum.

Formulating your request

You must formulate your request as clearly as possible so that the body you are requesting information from can identify what it is you want. If your request is formulated in too general a manner it can be refused, but the organisation in question should help you be more specific. If they use this as grounds to refuse you the information, ask them for assistance in reformulating your request; and point out to them that under the Regulations they are required to make "practical arrangements" so that you can exercise your right. One of these arrangements should include telling the public what information they hold.

The response

Now that you have sent the request, sit back and wait for:

(i) Success!!!

You are supplied with information as soon as possible (and within the 2 month deadline) free of charge or at a charge which is "reasonable".

(ii) Silence

You have waited 2 months and still had no reply. Under the Regulations the body in question must either supply you with the information as soon as possible, and at the latest within 2 months, or give you written reasons as to why they cannot give you the information. A letter saying: "Thank you for your request. We will get back to you shortly", is not enough. Contact the body again and let them know that their time is up. If you telephone them, keep a note of the date and what was said. If you still have no joy, see "Challenging the Authorities" below.

(iii) Refusal

The Regulations allow for a request to be refused in certain circumstances. Any refusal must be accompanied by a letter clearly outlining why the request has been refused.

Dealing with a refusal

If you get a letter of refusal, don't give up. Despite the fact that there seem to be ample grounds on which an information holder can refuse your request it should be remembered that the Regulations are as much about perseverance and changing the existing tradition of secrecy, as about legal interpretation.

Although the exceptions are very vague and open to interpretation, do not be put off asking the information holder to reconsider if you feel that their refusal is unreasonable. They can only say no and will realise that any refusals to give out information will need to be carefully considered as you are serious about enforcing your right to know.

Grounds for refusing a request

The grounds on which a request for information maybe refused are set out in Regulations 4(2), 4(3) and 3(3). Regulation 4(2) sets out grounds on which are request **may** be refused. Regulation 4(3) sets out the grounds on which a request **must** be refused. Regulation 3(3) sets out practical and administrative grounds on which information requests **may** be refused.

Regulation 4(2) grounds

Your request for information **may** be refused because it affects:

- international relations;
- national defence;
- public security;
- legal or other proceedings;
- confidential deliberations and internal communications;
- commercial or industrial confidentiality.

Your request may also be rejected if it involves the supply of an unfinished document or data.

Dealing with a refusal under Regulation 4(2)

If the ground for refusal falls within one of the categories listed in Regulation 4(2) and you feel that the refusal may be bogus or unclear, then refer the body in question to the Guidance which accompanies the Regulations. Paragraph 40 of the Guidance says:

"The presumption is that environmental information should be released unless there are compelling and substantive reasons to withhold it."

Remind them that for the exceptions in Regulation 4(2) they do not **have** to exclude that information from the public, but merely have a **discretion** to do so. Discretionary powers must be exercised reasonably and only exercised where there are "compelling and substantive" reasons. Ask them what procedure they went through to come to this decision and ask them what the "compelling and substantive" reasons for the decision are.

Remind them also that even if there are "compelling and substantive" reasons for refusing you the information, this does not allow them to refuse you access to a whole report or data set. They are required to separate out the confidential information and release the rest.

Regulation 4(3) grounds

Requests **will** be refused if the information is:

- personal information;
- supplied voluntarily by someone who has not consented to it being made public;
- likely to increase environmental damage if made public.

Requests will also be refused where the body you are requesting the information from feels that there are "compelling and substantive" reasons for it falling within one of the grounds for refusal in Regulation 4(2) **and** disclosure would contravene another law or agreement. For example, the Radioactive Substances Act 1960 makes it a criminal offence to disclose commercial information to third parties. If the information you have requested is deemed to be commercially confidential **and** it falls under the Radioactive Substances Act 1960, then the body in question must refuse your request.

Dealing with a refusal under Regulation 4(3)

Where the information has been supplied to the body voluntarily, by a private company for example, you could check whether the suppliers of that information have been asked if they mind that information being made available to the public.

Where you have been refused information on the grounds that it is personal information, ask the information holder to explain exactly why the information is personal. If the answer is that information is protected by the Data Protection Act 1984, remember that this Act only covers information which is or has been processed electronically. It does not cover information which is just held on paper and in manual files.

Remind them also that even if they are sure that the information must be treated as confidential, they must try to separate out the confidential information and release the rest.

Regulation 3(3) grounds

As mentioned previously in the section dealing with "formulating your request", a body may refuse to give you information if your request is "formulated in too general a manner". If you get such a refusal, ask the body in question for guidance on how to be more specific.

Your request may also be refused on the grounds that it is "manifestly unreasonable". This may apply where your request is specific, but would require an inordinate amount of the information holder's time to answer. For example, if you ask the Environment Agency for everything they have on air quality control, you may be told that the request is not only too general but also that it is manifestly unreasonable. Remember that just because a request may take a while to comply with, it does not mean it is unreasonable, let alone "manifestly unreasonable". In our opinion, a refusal on this ground should be rare.

If you are still dissatisfied, see the section below.

Challenging the authorities

If you are having difficulties and you feel that your request for information has been refused unreasonably, the charges are exorbitant, or the 2 month deadline has passed and you still have no answer, there are various avenues open to you.

Before going into the various options open to you, you should keep in mind Friends of the Earth's main complaint that there is no effective appeal procedure. As was mentioned in the introduction, Friends of the Earth sent a complaint to the European Commission on the grounds that parts of the Directive had been inadequately implemented in the Regulations. The Directive requires the UK to provide for an effective appeal procedure and in our view this has not been done.

Essential first step:

Ask for an internal review

Write to the head of the department which is dealing with your request and to the head of the organisation and outline your problems. If, for example, you are requesting information from your local authority, you should write to the Chief Officer of the department which is being unhelpful. You should also write to the Chief Executive by name; you can find his/her name listed in the

Municipal Year Book, a copy of which can be found in your local library (Volume 2 gives details of relevant names and addresses for every local authority in the country) or call your local authority and ask.

If the internal review is not successful, you could step up the pressure through lobbying: e.g. your councillor, MP, relevant Ministers or local press letter pages.

Possible next steps:

Your local councillor and/or MP

Write to your local councillor or one you know to be sympathetic. Ask them to look into the matter, particularly where the refusal is from your local authority. You can also write to your local MP. If the refusal is from a Government department or agency, ask them to raise your concerns with the relevant minister.

Go to the top

Write to the relevant minister directly, particularly if your request was to a Government department or agency for which he or she is directly responsible. Otherwise write to the Prime Minister: the Government did, after all, promise more openness!

You could also write to the Secretary of State for the Environment, Transport and the Regions who is responsible for the Regulations and should be made aware of their limitations. Head your letter "Request under the Environmental Information Regulations 1992" and outline the problems you have had.

The press

Write to the local press letter pages. This may be particularly effective where your local authority is refusing to supply you with information.

Official appeal mechanisms

There are currently two official appeal mechanisms available to you: The Ombudsman and the Courts. Hopefully the Freedom of Information Act will include a new "Information Commissioner" who will deal with appeals against non-disclosure, which should improve the appeal system.

The Ombudsman

There are four Local Government Ombudsmen (three for England and one for Wales) and there is a Parliamentary Ombudsman. The former deal with local issues and questions concerning local authorities, while the latter deals with questions concerning central government and other public bodies.

Paragraph 72 of the Guidance states that you can apply to an Ombudsman for review. Friends of the Earth does not feel however that the Ombudsman necessarily provides an adequate appeal forum as the Ombudsman's decisions are not enforceable, the review procedure takes place behind closed doors, and ultimately he or she is under no obligation to take up your case. The Ombudsmen also have limited jurisdiction and cannot, for example, review the decisions and actions of certain state-owned enterprises and other bodies such as the water companies. However, the Ombudsman has been useful in some cases.

A complaint to the Ombudsman is free. For further information on the Ombudsmen and how to make a complaint see Annex 8.

Appealing through the Courts

In theory, you could go to the High Court and start an action in judicial review, which is the process whereby courts can review the actions of public authorities (*see Annex 6*). The problem is that judicial review does not allow you to question the decision of the authority itself but only the way in which that decision was reached. It can also take years and cost thousands of pounds and consequently is an unlikely forum in which to claim, for example, that your local authority's charge of £3 per page photocopying is unreasonable!

In addition, the Directive specifies that you can ask for any information without having to say why you want it. However, a judicial review action requires you to have a "legitimate interest" in the matters in dispute and in effect say why you want the information.

These are just some of the reasons why we do not feel that judicial review is an adequate form of appeal for the purposes of the Directive and we would not advise you to go down this road without serious consideration and legal advice (*see Annex 6*).

Keeping Friends of the Earth informed

FOE's Right to Know campaign is always interested in hearing about experiences in getting information. This information helps us demonstrate the flaws in the existing arrangements, and suggest improvements for the future. Send any experiences to the Right to Know campaign.

Annex 8

Key players and contacts

This annex includes:

- *a description of the main regulators, how they work, how to contact them, and how to complain about their actions;*
- *brief information on other organisations involved in regulating pollution;*
- *contact details for other organisations that you may find useful.*

Environment Agencies

The Environment Agency (Agency, or EA)

Role

Regulation of pollution in England and Wales; see Section 4 for details.

You are entitled to report cases of suspected pollution to the Agency, and they are obliged to respond. A copy of any subsequent analysis will be put on the public register, but a copy will not be sent automatically to the person who reported the incident, though it can be requested free of charge.

Geographical structure

The Agency is divided into 8 regions, each with its own headquarters (*see below for contact addresses*). Within each region there is further division down to areas, of which there are generally 3 or 4 per region. Decisions are generally made at the area level, with reference to guidance from higher levels where appropriate. This means that different areas may have different approaches to the regulation of industry, even though they are all applying the same legislation and guidance. Each region has a Regional General Manager, each area has an Area Manager.

The regional boundaries are set by river catchment areas, which leads to the Welsh region incorporating parts of England, and the Midlands region incorporating part of Wales. Each region has three statutory regional committees covering environmental protection, flood defence and fisheries. These committees include local authority and business representatives, and the meetings are open to the public and the media.

At the local level the Agency will have a variety of officers, for example those covering IPC regulation, others covering fisheries and others specialising in the ecology of rivers. Some Agency staff are very receptive to local campaigners (others aren't!). By

talking to several of the Agency officers, you have a good chance of finding one who may be helpful.

Comments on the Agency

The Agency came into existence on 1st April 1996. It was formed by the merger of the National Rivers Authority (NRA), who were responsible for regulating river pollution, Her Majesty's Inspector of Pollution (HMIP), who were responsible for regulating IPC, and Waste Regulation Authorities (WRAs) who were responsible for regulating waste issues.

The culture of the Agency is still partly determined by the different cultures of the previous organisations. As a generalisation, NRA officers mainly focused on keeping rivers clean, and often had a biology/ecology type background. HMIP officers worked with industry to reduce emissions, were often ex-industry, and generally had an engineering or chemistry background. Waste regulation officers are less relevant to this manual, and, as they existed in a huge number of separate local organisations, had a less clear-cut culture.

The NRA-type culture is generally more receptive to environmental concerns, whilst the "working with industry" approach of an HMIP-type culture tends to be less sympathetic.

Agency Inspectors do not have an easy job to do. They have to go into a company and determine what is BATNEEC, how much money a company can spend on improvements etc. They must do this in a situation when the company will probably have several experts talking to the inspector. These experts will probably know more about the process than the Inspector: "we understand this process, and it's already operating to the best environmental standards possible".

One problem with human nature is that people tend not to want to admit that they've made a mistake. If an Inspector authorises a process, they may feel

unwilling to later tighten up that authorisation, if it looks like it will reflect badly on their original decision. In this sort of situation a face-saving formula could assist.

Complaints procedure

The Agency's complaints procedure is described in their "Customer Charter", available from your local office (or on their web site):

1) Contact your local office. They aim to sort out your problem immediately, if this is not possible they will send a written reply within 5 working days.

2) If the matter cannot be dealt with in 5 days, you should receive a letter explaining the reason for the delay, who is dealing with your complaint and when they will contact you.

3) The Agency will then provide a written response, if necessary they will contact you to discuss the problem on the phone or in person.

4) If you are not satisfied with the response, contact the Regional General Manager for your region. If not satisfied, contact the relevant Directorate at Head Office in Bristol.

If you are still not satisfied, then you can contact the Parliamentary Ombudsman through your MP (*see later in this section for contact details*). You can also complain to the Secretary of State for the Environment at the DETR if you're in England (*contact details below*), or the Secretary of State for Wales if you're in Wales (*contact details below*).

Contacting the Agency

Pollution hot line: 0800 80 70 60

This is a 24h emergency hot line, for reporting all environmental incidents relating to air, land and water.

General enquiries: 0645 333 111

This number will connect you to your area office, who will be able to give you addresses of the local, regional and national offices, or put you through to the person you need to speak to. Note that there is also a list of addresses and phone numbers of regional offices below.

Email: enquiries@environment-agency.gov.uk

Web: <http://www.environment-agency.gov.uk>

Addresses

Head Office

Rio House
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD
Tel 01454 624400
Fax 01454 624409

Hampton House
20 Albert Embankment
London SE1 7TJ
Tel 0171 587 3000
Fax 0171 587 5258

Regional Offices

Environment Agency
North East Region
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel 0113 2440191
Fax 0113 2461889

Environment Agency
Anglian Region
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel 01733 371811
Fax 01733 231840

Environment Agency
Thames Region
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel 0118 9535000
Fax 0118 9500388

Environment Agency
Southern Region
Guilbourne House
Chatsworth Road
Worthing BN11 1LD
Tel 01903 832000
Fax 01903 821832

Environment Agency
South West Region
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel 01392 444000
Fax 01392 444238

Environment Agency
Midlands Region
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel 0121 711 2324
Fax 0121 711 5824

Environment Agency
Welsh Region
Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0LT

Tel 01222 770088
Fax 01222 798555

Environment Agency
North West Region
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel 01925 653999
Fax 01925 415961

Northern Ireland Office Environment and Heritage Service (EHS)

The EHS is an executive agency within the Department of the Environment for Northern Ireland. It is the lead body for implementation of the Government's environmental strategy and policies in Northern Ireland. It also advises the core of the Department on the development of those policies.

The main activities of the EHS relevant to this manual are:

- the control of air, water and land pollution (*see Section 9*);
- the identification and management of sites of nature conservation value.

The EHS publishes a "Customer Services Guide Regulatory and Statutory Services" which sets out the laws which the EHS implements.

Geographical structure

The activities of the EHS are centred around their offices in Belfast (*see contact details below*).

Complaints

1) Speak to the person you are complaining about.

2) Write to the customer service manager:

Customer Services Manager
Commonwealth House
35 Castle Street
Belfast BT1 1GU
Tel 01232 546 533

They will acknowledge receipt within 3 days, and you can arrange to meet the Customer Services Manager to discuss your complaint.

3) All written complaints will be investigated by a senior manager, and you will receive a written reply within 15 working days.

4) If this isn't adequate, write to the Chief Executive (at the Headquarters), who will reply within 15 working days.

5) If this reply isn't sufficient, then you can refer your complaint to the Parliamentary Ombudsman, via your MP (*see contact details below*).

Contacting the EHS

Pollution hot line: 0800 80 70 60

This is a 24h emergency hot line, for reporting all environmental incidents relating to air, land and water.

General enquiries: (01232) 2547540

This number will connect you to the Belfast office of the Environment Protection and Natural Heritage section of the EHS.

Email EHS@nics.gov.uk

<http://www.nics.gov.uk/ehs/index.htm>

Headquarters and Countryside Designations and Protection:

Environment and Heritage Agency Headquarters
Commonwealth House
35 Castle Street
Belfast
BT 1GU
Information and Education: Tel 01232 546528
Countryside Designations and Protection: Tel 01232 546612

Industrial Pollution Inspectorate, Industrial Air Pollution and Radiochemical Inspectorate, Water Quality Unit, Environmental Quality Unit, Waste Management Inspectorate:

Calvert House
23 Calvert Place
Belfast
BT1 1 FY
Fax 01232 254 700
Industrial Pollution Inspectorate, Industrial Air Pollution and Radiochemical Inspectorate: Tel 01232 254709
Water Quality Unit: Tel 01232 254757
Environmental Quality Unit: Tel 01232 254 816
Waste Management Inspectorate: Tel 01232 254815

Scottish Environment Protection Agency (SEPA)

Role

SEPA was established under the Environment Act '95 as a new "one-stop" agency. It has inherited duties and powers from the former River Purification Board, HM Industrial Pollution Inspectorate, District and Island Councils, and many of the duties of the Hazardous Waste Inspectorate.

SEPA's "Mission Statement" sets out their objectives: "*To provide an efficient and integrated*

environmental protection system for Scotland which will both improve the environment and contribute to the Government's goal of sustainable development."

SEPA is a Non-Departmental Public Body which is accountable to the Secretary of State for Scotland. SEPA's head office is in Stirling and supports a network of 3 regional and 17 local offices throughout Scotland. However, in some remote locations Local Authorities and independent agents may be contracted to carry out the work of SEPA.

As with the Environment Agency, SEPA should be contacted about cases of suspected pollution. SEPA are obliged to respond, though there is no statutory maximum response period. Section 4 describes regulation of pollution in Scotland.

Comments on SEPA

SEPA is similar to the Environment Agency; it was also formed by a merger of organisations, the River Purification Boards (RPBs) and Her Majesty's Industrial Pollution Inspectorate (HMIPI).

One crucial difference between the Agency and SEPA is that the Agency undertakes its own prosecutions, whilst in Scotland the Procurator Fiscal carries out the prosecution, if it is "in the public interest". This means that SEPA can prepare a prosecution, only to have it rejected by the Procurator Fiscal; this happened in nine out of 38 cases in 1996/7⁶⁶.

Complaints procedure

Similar to the Agency's.

Contacting SEPA

Pollution hot line: 0800 80 70 60

This is a 24h emergency hot line, for reporting all environmental incidents relating to air, land and water.

General enquiries: (01786) 457700

This number will connect you to SEPA head office, who will be able to give you addresses of the regional and national offices, or put you through to the person you need to speak to.

Web: <http://www.sepa.org.uk/>

Addresses

Head Office

Scottish Environment Protection Agency
Erskine Court

The Castle Business Park
Stirling FK9 4TR
Tel 01786 457700
Fax 01786 446885

SEPA North Region HQ

Graesser House
Fodderty Way
Dingwall Business Park
Dingwall
IV15 9XB
Tel 01349 862021
Fax 01349 863987

SEPA East Region HQ

Clearwater House
Heriot Watt Research Park
Avenue North
Riccarton
Edinburgh
EH14 4AP
Tel 0131 449 7296
Fax 0131 449 7277

SEPA West Region HQ

5 Redwood Crescent
Peel Park
East Kilbride
G75 5PP
Tel 01355 574200
Fax 01355 574699

Local Authority

Role

Regulation of air pollution from smaller processes in England and Wales; see Section 6 for details.

Contact details and structure

You can find the contact details of your local authority in your phone book (or on your council tax bill!). It is usually the lower tier local authority that is involved in environmental regulation if your area has a two-tier system. Regulation of pollution is usually the responsibility of a Public Protection, Environmental Health or Pollution Control Department. Planning matters will usually be dealt with by a Planning Department.

Council officers will use guidance from government (such as process guidance notes) in order to help them carry out their job. Depending on the size and structure of the authority, they may have a wide remit, including other aspects of environmental health, or they may specialise in pollution control. They may or may not have good resources, such as a pollution monitoring equipment, and their response to complaints about pollution may vary. Always start with a positive approach, as this increases the chance of them reciprocating.

⁶⁶"SEPA's prosecution record held back by fiscals, low fines".
ENDS Report 273, October 1997, p45-46.

Complaints procedure

If you are having problems with your local pollution control officer, the following is a suggested complaints procedure; if you are not getting a proper response, go progressively higher.

- 1) Approach the Pollution Control or Environmental Health Officer responsible for the factory.
- 2) Write to the officer, asking for answers on specific actions by a specific deadline.
- 3) If nothing happens by the deadline, copy the letter to the head of the council department concerned, asking for a response by a deadline.
- 4) If you are still not satisfied, write to the Chief Executive, asking them to invoke the Council's complaints procedure, if one exists.
- 5) Involve the local member/councillor for the ward where the problem exists. They can apply pressure if the service you receive is not satisfactory. If they won't help, write to your MP.
- 6) You can complain to the Local Government Ombudsman if you believe the council is not carrying out its duty as a regulator.

Other relevant agencies and Government

Department of the Environment, Transport and the Regions (DETR)

The DETR (formerly the Department of the Environment and the Department of Transport) originates the UK legislation about the environment. Many changes in the law are now introduced using Regulations, which are put forward by the relevant minister, and can be introduced far more rapidly than a new act can be passed through Parliament.

In some cases the DETR (technically the Minister) acts as an place of appeal over the enforcement of regulations (though many of these appeals are now directed first to the Planning Inspectorate). As DETR also writes new regulations then it may be worth writing to them to point out deficiencies in the current system. The DETR is also ultimately responsible for the Agency, so complaints about the Agency can be sent to the DETR.

Outside England the DETR's role is fulfilled in many circumstances by the relevant Secretary of State.

Department of the Environment, Transport and the Regions

Eland House
Bressenden Place
London
SW1E 5DU
Tel 0171 276 3000
<http://www.detr.gov.uk/>

Welsh Office

The Secretary of State for Wales is a Statutory Consultee for all process authorised by the Agency in Wales, and is responsible for Agency operations in Wales.

Environment Division
Cathays Park
Cardiff
CF1 3NQ
Tel 01222 825111
<http://www.cymru.gov.uk/>

Northern Ireland

Environmental Protection and Natural Heritage
Calvert House
Castle Place
Belfast BT1 1FY
Tel 01232 254754

Scottish Office

The Scottish Office Agriculture, Environment and Fisheries Department is responsible for SEPA, and fulfils the roles played by MAFF and the DETR in England.

Environmental Protection Unit
Environmental Affairs Unit
Scottish Office Agriculture, Environment and Fisheries Department,
The Scottish Office
Victoria Quay
Edinburgh
EH6 6QQ

Scottish Office enquiry line: 0345 741741
Scottish Office Switchboard: 0131 556 8400

<http://www.scotland.gov.uk/>

Planning inspectorate

The Planning Inspectorate processes appeals regarding planning law, IPC and LAPC.

Operators whose processes are subject to Integrated Pollution Control (Part A) or Local Air Pollution Control (Part B) may appeal against certain decisions of the regulator. All parties should be allowed to put forward their point of view.

The Inspectorate publishes guidance on how the appeals procedures work; contact them for more information.

In England:

The Planning Inspectorate
Room 14/04

Tollgate House
Houlton Street
Bristol BS2 9 DJ
Tel 0117 987 8927
Fax 0117 987 8139

In Wales:

The Planning Inspectorate
Cathays Park
Cardiff CF1 3NQ
Tel 0122 282 3892
Fax 0122 282 5150

Email: enquiries.pins@gtnet.gov.uk
<http://www.open.gov.uk/pi/how.htm>

Parliamentary Ombudsman

The Parliamentary Ombudsman can investigate complaints of poor administration by Government departments or agencies, such as the Environment Agency. You must direct any complaints via your MP; you should first address your complaint to the organisation concerned. The Ombudsman is independent of Government, an Officer of the House of Commons, appointed by the Queen.

The Parliamentary Ombudsman
Office of the Parliamentary Commissioner for
Administration
Church House
Great Smith Street
SW1P 3BW
Tel 0171 276 2130
Fax 0171 276 2135
Email: opca-enqu@ombudsman.org.uk
<http://www.parliament.ombudsman.org.uk/parly.html>

In Northern Ireland:

Parliamentary House
33 Wellington Place
Belfast
BT1 6HN
Tel 01232 233821
Freecall information Service: 0800 252050
Freepost: Ombudsman, Freepost, Belfast BT1 6BN

Local Government Ombudsman

The Local Government Ombudsmen investigate complaints of injustice arising from maladministration by local authorities. If you are thinking of complaining to the Ombudsman, then get hold of the Leaflet "Complaint about the Council? How to complain to the Local Government Ombudsman" from your council or one of the numbers given below.

In England:

General enquiries, publications: 0171 915 3210

Greater London, Kent and East Sussex:

Mr E.B.C. Osmotherly CB
Local Government Ombudsman

21 Queen Anne's Gate
London SW1H 9BU
Tel 0171 915 3210
Fax 0171 233 0396

Surrey, West Sussex, East Anglia, the South West, the West, the South and most of Central England (not Birmingham):

Mr J.R. White
Local Government Ombudsman
The Oaks No 2
Westwood Way
Westwood Business Park
Coventry CV4 8JB
Tel 01203 695999
Fax 01203 695902

Birmingham, Cheshire, Derbyshire, Nottinghamshire, Lincolnshire and the North of England:

Mrs P.A. Thomas
Local Government Ombudsman
Beverly House
17 Shipton Road
York YO3 6FZ
Tel 01904 663 200
Fax 01904 663269

In Wales:

Local Government Ombudsman
Derwen House
Court road
Bridgend
CF31 1BN
Tel 01656 661325
Fax 01656 658 317

In Scotland:

Local Government Ombudsman
23 Walker Street
Edinburgh
EH3 7HX
Tel 0131 225 5300
Fax 0131 225 9496

Ministry of Agriculture, Fisheries and Food (MAFF)

MAFF are a statutory consultee for authorisations given by the Agency. They will concern themselves with possible pollution of farms and livestock and the effect on the foodchain. If there is to be an investigation of contamination of livestock by such substances as dioxins they will be involved. MAFF are also concerned with any issue that might threaten the loss or damage to valuable agricultural land.

The Government is about to set up a new Food Standards Agency, which will take over several of MAFF's responsibilities, including the duty to test foods for contaminants.

Outside England MAFF's role is fulfilled in many circumstances by the relevant Secretary of State.

Ministry of Agriculture, Fisheries and Food
(MAFF)
Nobel House
17 Smith Square
London
SW1P 3JR
Tel 0171 238 3000
<http://www.maff.gov.uk/>

Department of Health (DoH)

The Department of Health will be involved if any epidemiological studies are proposed. The DoH is beginning to get more involved with environmental pollution, now that the Government's health strategy is incorporating the problems of pollution.

Department of Health
Wellington House,
135-155 Waterloo Road,
London
SE1 8UG
Health Information Service 0800 66 55 44 (10am-5pm, Mon-Fri)
<http://www.open.gov.uk.doh/dhhome.htm>

Health Authorities

You will find details of your local Health Authority in the telephone book.

Health and Safety Executive (HSE)

The HSE is concerned with the health of workers, so has no responsibility for general public health. However, if you consider that the pollution you are concerned with could be affecting workers, then contacting them with your concerns could produce action.

The HSE also has responsibility for regulating procedures relating to safety of factories which carry out particularly hazardous activities. This is part of the Seveso Directive, which regulates the provision of detailed safety and evacuation plans by those factories which are covered by the Control of Industrial Major Accident Hazard (CIMAH) Regulations. The public is not allowed access to these reports but is entitled to outline information from the factory in question which gives the nature of the risks if there were to be an accident and the identity of the chemicals that present the risk.

The HSE are a statutory consultee for all Agency authorisations.

HSE Infoline: 0541 545 500
(8.30am-5.00pm, Monday-Friday)
<http://www.open.gov.uk/hse/hsehome.htm>

Written and faxed enquiries, and personal callers:

Sheffield Information Centre
Health and Safety Executive
Health and Safety Laboratory
Broad Lane

Sheffield
S3 7HQ
Fax 0114 289 2333

Personal callers only:

Health and Safety Executive
Rose Court
Ground Floor North
2 Southwark Bridge
London
SE1 9HS

Health and Safety Executive
St Hugh's House
Trinity Road
Bootle
Merseyside
L20 3QY

Scotland:

HSE Scotland
59 Belford Road
Edinburgh
EH4 3UE
Tel 0131 247 2000

Conservation Agencies

English Nature (EN)

EN is a statutory consultee for all process authorised by the Agency that might impact on a Site of Special Scientific Interest (SSSI). They can be very helpful if there is a serious threat and may possess valuable monitoring data. They also have powers to intervene when some other protected sites and species are threatened.

English Nature Headquarters
Northminster House
Northminster
Peterborough
Cambridgeshire
PE1 1UA
Tel 01733 340345
<http://www.english-nature.org.uk/>

Countryside Council for Wales (CCW)

Duties similar to English Nature.

Countryside Council for Wales
Plas Penrhos
Ffordd Penrhos
Bangor
Gwynedd
LL57 2LQ
Tel 01248 370444
Fax 01248 355782
<http://www.ccw.gov.uk/>

Northern Ireland Environment and Heritage Service

See the section on the Environment and Heritage Service, above.

Scottish Natural Heritage (SNH)

Duties similar to English Nature.

Scottish Natural Heritage
12 Hope Terrace
Edinburgh
EH9 2AS
Tel: 0131 447 4784
Fax: 0131 446 2279

Harbour Authority (HA)

The HA is consulted for all processes which may involve pollution of a harbour under its control. You should be able to find contact details for the HA in the phone book or at your local library, where relevant.

Water and sewerage suppliers

You will find the address of your water and sewerage supplier on your water bill, or look in your telephone directory under "Water" which should show where to go for information about water and sewerage in your area. If you have any difficulty your local library should be able to help you.

Companies House

Companies House contains details of all companies registered in the UK.

Central Enquiry unit: 01222 380801
(0131 535 5800 if company registered in Scotland)

Main offices: London, Cardiff, Edinburgh

Satellite Offices: Glasgow, Birmingham, Leeds, Manchester.

Non-Governmental organisations

Friends of the Earth (England, Wales And Northern Ireland)

Friends of the Earth
26-28 Underwood Street
London
N1 7JQ
Tel 0171 490 1555
Fax 0171 490 0881
email: enquiries@foe.co.uk
<http://www.foe.co.uk/>
Industry and Pollution Campaign:
<http://www.foe.co.uk/camps/indpoll/>

Friends of the Earth Northern Ireland office
40 Wellington Park,
Belfast
BT9 6DN
Tel 01232 664 311
Fax 01232 660 727

Friends of the Earth Cymru
33 The Balcony,
Castle Arcade,
Cardiff
CF1 2BY
Tel 01222 229 577
Fax 01222 228 775

Friends of the Earth Scotland

Friends of the Earth Scotland
Bonnington Mill
72 Newhaven Road
Edinburgh
EH6 5QG
Tel 0131 554 9977
Fax 0131 554 8656
email: foescotland@gn.apc.org
<http://www.foe-scotland.org.uk/>

Other environmental NGOs

Communities Against Toxics
PO Box 29
Ellesmere Port
South Wirral
L66 3TX
Tel 0151 339 5473
Fax 0151 201 6780
email: cats@gn.apc.org

Council for the Protection of Rural England
Warwick House
25 Buckingham Palace Road
London SW1W 0PP
Tel 0171 976 6433
Fax 0171 976 6373
cpre@gn.apc.org
<http://www.greenchannel.com/cpre>

Council for the Protection of Rural Wales
Ty Gwyn
31 High Street
Welshpool
Powys
SY21 7JP
Tel 01938 552525
Fax 0938 556212

Association for the Protection of Rural Scotland
(APRS)
Gladstone's Land (3rd Floor)
483 Lawnmarket
Edinburgh
EH1 2NT
Tel 0131 225 7012/3
Fax 0131 225 6592

Greenpeace
Canonbury Villas
London N1 2PN
Tel 0171 865 8100
Fax 0171 865 8200/8201
Info@uk.greenpeace.org
<http://www.greenpeace.org>

London Hazards Centre
Interchange Studios
Dalby Street
London NW5 3NQ
Tel 0171 267 3387 (helpline, Mon, Tue, Thu, Fri,
10am-12, 2pm-5pm)
Fax 0171 267 3397
email: lonhaz@gn.apc.org

Provides free advice and information about community and occupational health and safety, for example chemicals safety.

Marine Conservation Society
9 Gloucester Road
Ross-on-Wye
Herefordshire
HR9 5BU
Tel 01989 566017
Fax 01989 567815
<http://www.mcsuk.mcmail.com/>

National Society for Clean Air and Environmental
Protection (NSCA)
136 North Street
Brighton BN1 1RG
Tel 01273 326 313
Fax 01273 735 802

The Pesticides Trust
The Euro Link Centre
49 Effra Road
London SW2 1BZ
Tel 0171 274 8895
Fax 0171 274 9084
email: peststrust@gn.apc.org
<http://www.gn.apc.org/pesticidetrust/>

The Pesticides Trust is a public interest group
concerned with health and environmental impacts
of pesticides, and participates in the world-wide
Pesticide Action Network.

Surfers Against Sewage
The Old Counthouse Warehouse
Wheal Kitty
St Agnes
Cornwall TR5 0RE
Tel 01872 553001
Fax 01872 552615
<http://www.sas.org.uk/>

Surfers Against Sewage campaign for the cessation
of all marine sewage and toxic waste discharges.

Women's Environmental Network (WEN)
87 Worship Street
London
EC2A 2BE
Tel 0171 247 3327
Fax 0171 247 4740

WWF-UK (Worldwide Fund for Nature)
Panda House
Weyside Park
Catteshall Lane
Godalming
Surrey GU7 1XR
Tel 01483 426 444
Fax 01483 426 409
<http://www.wwf-uk.org/home.shtml>

Trade bodies

Environmental Law Foundation
Lincoln's Inn House
42 Kingsway
London
WC2B 6EX
Tel 0171 404 1030
Fax 0171 404 1032

Provides information on a nationwide network of
lawyers working on environmental issues

Environment Industries Commission
6 Donaldson Road
London
NW6 6NB
Tel 0171 624 2728
Fax 0171 328 5910
email: eic@eureco.com
<http://www.eureco.com/eic>

Trade body for environment-associated industries
such as Environmental Consultants, Analytical
Laboratories and Bioremediation contractors

Annex 9

Other sources of information

This annex lists:

- *some useful books;*
- *some relevant official publications;*
- *relevant Friends of the Earth publications;*
- *some useful web sites.*

Useful books

Textbooks about pollution

Pollution is a complex area of science, therefore you would be wise to be clear about what you want from any book before you buy it. In particular:

- does it contain the information you're looking for? Many books are very general, while you might need very specific information;
- can you understand it? Some books are written for those with a good background in chemistry.

New books are coming out all the time, so if you have access to a good book shop, take the time to browse. In general, books on "Environmental Science" are more general, but more accessible, those on "Environmental Chemistry" are more specific and less accessible, and books on "Toxicology" are pretty inaccessible, and are often mainly about acute toxicity, whilst you are likely to be mainly concerned with chronic effects.

Here's some suggested books - always buy the most recent edition you can find, as science is moving rapidly in this field.

"Understanding our Environment: An Introduction to Environmental Chemistry and Pollution" edited by R.M. Harrison, Royal Society of Chemistry, 2nd Edition, 1992, c. £19.50.

A good general introduction to pollution.

"Pollution: Causes, Effects and Control" edited by R.M. Harrison, Royal Society of Chemistry, 3rd Edition, 1996, c. £35.

A more detailed examination of pollution, with parts requiring a good chemistry background.

"Dictionary of Environmental Science and Technology" by Andrew Porteous, Wiley and Sons, 2nd Edition, 1996, c. £13.

A good ready reference manual on environmental topics.

Issues in Environmental Science and Technology Series, Edited by R.E. Hester and R.M. Harrison, published by the Royal Society of Chemistry.

A series of books on individual areas of pollution. They are all very detailed; if one is relevant to you it may be useful.

Popular books on pollution

"The Feminisation of Nature" by Deborah Cadbury, 1997, Hamish Hamilton

A readable account, from a UK author, of the developing science of endocrine disruption.

"Our Stolen Future" by Theo Colborn, Dianne Dumanski and John Peterson Meyers, 1997, Abacus, £ 7.99, ISBN: 0349108781

This book also describes the problem of endocrine disruption.

"Living Downstream: An Ecologist Looks at Cancer and the Environment", Sandra Steingraber, 1998, Virago, £18.99, ISBN 1860494692

An examination of the links between pollution and cancers.

Environmental laws and campaigning (*see below for official publications*)

"National Society for Clean Air and Environmental Protection 1997 Pollution Handbook", National Society for Clean Air and Environmental Protection

A guide to UK and European Pollution Control Legislation: - This comes out every

year, updated with the latest legislation - get the most recent one you can.

"Environmental Action: A Citizens Guide", ED. Martyn Day, 1998, Pluto Press

A good description of how to use the law, including planning law, with some information on campaigning.

"Environmental Law and Citizen Action", Alan Murdie, 1993, Earthscan

A good introduction to what you can use the law for.

"Environmental Information - Law, Policy & Experience", G. Bakkenist, 1994, Cameron

"The Video Activist Handbook", Thomas Harding, 1997, Pluto Press

How to use video in campaigning.

Books about planning

"How To Stop and Influence Planning Permission" by Roy Speer and Michael Dade pub. Dent ISBN 0-460-86194-8)

If you want to know more about how to influence the planning process, then this is a useful guide.

"Campaigners Guide to Public Inquiries and Planning appeals", Council for the protection of Rural England, Warwick House, 25 Buckingham Palace Road, London SW1W 0PP, Tel 0171 976 6433.

Books specific to Northern Ireland

"Northern Ireland Environmental Law", S. Turner and K. Morrow, 1997, Dublin, Gill & Macmillan, ISBN 0 7171 2274 3.

"Northern Ireland Planning Law", J.A. Dowling, 1995, Gill & Macmillan, ISBN: 0 717 12340 5.

Books specific to Scotland

"Protecting our Environment" 2nd Edition, published by Friends of the Earth Scotland, 1997, £ 4.95 (£5.50 including postage), ISBN: 1 901855 00 7.

This is a citizens action guide to environmental rights and action. It will tell you what you can legally expect your council and other public bodies (e.g. SEPA) to do about local environmental problems - and how you can encourage them to do more!

"Pollution Control: The Law in Scotland", C. Smith, N. Collar, M. Poustie, T&T Clark, 1997.

A very good explanation of pollution control law in Scotland.

Recommended Journals

ENDS Report

A monthly Journal tracking environmental policy, with a daily counterpart (ENDS Daily). Published by:

Environmental Data Services Ltd
40 Bowling Green Lane
London EC1R 0NE
Tel: 0171 278 4745
email: post@ends.co.uk
<http://www.ends.co.uk/>

Environmental Science and Technology

A twice-monthly scientific journal, including good articles about pollution and environmental technology

<http://pubs.acs.org/>

Environmental Health Perspectives

A monthly scientific journal, focusing on the effects of pollution on health

<http://ehpnet1.niehs.nih.gov/>

New Scientist

A weekly general science news journal, which sometimes has relevant information on pollution and its health impacts

<http://www.newscientist.com/>

Official Publications

Her Majesty's Stationery Office (HMSO)

HMSO publishes Acts, Bills, Regulations etc. You should be able to order these through bookshops, in addition the full text of many of them is now being published free on the web:

<http://www.hmso.org.uk/>

The Stationery Office

The Stationery Office (created by the privatisation of part of HMSO) publishes the Government's books and reports, including those of its agencies, for example the Environment Agency. Many larger bookshops will stock Stationery Office publications, details of your nearest stockist should be in Yellow pages, under "Book shops".

<http://www.the-stationery-office.co.uk/>

Environment Agency

General publications

"A guide to information available to the public",
Environment Agency (free)

A guide to the information that the Agency
holds in registers (there is also a copy on
their web site).

Industry sector guidance notes

These give general guidance to the Agency on
specific industry sectors; detailed guidance is given
in the IPC Guidance notes (below).

IPR 1 Fuel and Power Industry

IPR 2 Metal Industry

IPR 3 Mineral Industry

IPR 4 Chemical Industry

IPR 5 Waste Disposal Industry

IPC Guidance notes

These were originally prepared by HMIP, as "Chief
Inspectors guidance notes", first series numbered
IPR..., second Series S2....

They are now being superseded by IPC Guidance
notes (numbered S2...).

Each authorised process has a Guidance note; they
are all available from The Stationery Office; your
IPC inspector should tell you which one(s) is used
for the factory you are concerned with.

These Environment Agency guidance notes are also
used by SEPA and will be used by the Northern
Ireland EHS for Part A or ICC processes.

Technical Guidance Notes (TGN) - Guidance for Operators and Inspectors of IPC Processes

These guidance notes cover more general areas.

Monitoring

M1: Sampling facility requirements for the
monitoring of particulates in gaseous releases to
atmosphere, 1993, £5.00, ISBN 0-11-752777-7

M2: Monitoring emissions of pollutants at
source, 1994, £10.00, ISBN 0-11-752922-2

M3: Standards for IPC monitoring Part 1:
standards, organisations and the measurement
infrastructure, 1995, £11, ISBN 0-11-753133-2

M4: Standards for IPC monitoring Part 2:
standards in support of IPC monitoring, 1995,
£11, ISBN 0-11-753134-0

M5: Routine measurement of gamma ray air
kerma rate in the environment. 1995, £11, ISBN
0-11-753132-4

Dispersion

D1: Guidelines on discharge heights for
polluting emissions, 1993, £8, ISBN 0-11-
752794-7

Abatement

A1: Guidance on effective flaring in the gas,
petroleum, petrochemical and associated
industries, 1993, £4.25, ISBN 0-11-752916-8

A2: Pollution abatement technology for the
reduction of solvent vapour emissions, 1994, £5,
ISBN 0-11-752925-7

A3: Pollution abatement technology for
particulate and trace gas removal, 1994, £15,
ISBN 0-11-752983-4

A4: Effluent treatment techniques, 1997, £28,
ISBN 0-11-310127-9

Environmental

E1: Best Practicable Environmental Option
Assessments for Integrated Pollution Control,
1997, The Stationery Office, £35, ISBN 0-11-
310126-0

Other relevant publications

Released substances and their dispersion in the
environment, Environmental Analysis Co-
operative 1996, HMSO, £19.50, ISBN 0-11-
702010-9

DETR

"Environmental Facts: A guide to using public
registers of environmental information",
Department of the Environment, January 1996
(free)

A guide explaining where different registers
of environmental information are available
for consultation.

"Integrated Pollution Control: A Practical
Guide" issued by the Department of the
Environment and the Welsh Office, March 1996
(or most recent).

A guide aimed mainly at industry,
explaining the IPC process.

Local authority air pollution control (LAAPC) guidance

The DETR have produced a series of general
guidance ("GG") notes on LAAPC in England and

Wales. The basic introduction is also available on the web:

<http://www.aeat.co.uk/products/centres/netcen/airqual/info/labrief.html>

Each LAAPC process has guidance notes, which the DETR, Welsh Office and Scottish Office have published; a full list is given in the above document.

The DoE in Northern Ireland will be publishing Part C (or LC) guidance notes; Part B (or RCC) guidance notes will be published by the EHS.

Planning Policy Guidance

PPG 1 General Policy and Principles (March 1992)

Outlines the planning framework and the purpose of the planning system. Contains a general statement of planning policy

PPG 23 Planning and Pollution Control (July 1994)

Gives guidance on the relevance of pollution controls to the exercise of planning functions. Advises on the relationship between local authorities' planning responsibilities and the separate statutory responsibilities exercised by local authorities and other pollution control bodies under the Environmental Protection Act 1990 and the Water Resources Act 1991. (note that in autumn 1996 a revised draft of the sections of this PPG dealing with waste was published)

PPG 24 Planning and Noise (September 1994)

Advises on the use of planning powers to minimise the adverse impact of noise; outlines the main considerations in determining applications for both noise-sensitive development and for activities which generate noise; introduces the concept of noise exposure categories for residential development.

Environmental Appraisal of Development Plans: A Good Practice Guide (November 1993)

Provides guidance on a range of techniques and procedures. Illustrates how environmental appraisal can be easily integrated into each stage of the plan making process.

Welsh planning policy guidance

Some PPGs, but not all, apply in Wales. Wales also has Technical Advice Notes (TANs), which only apply in Wales.

Planning Guidance (Wales) Planning Policy, Welsh Office 1996.

General planning guidance for Wales

Planning, Pollution Control and Waste Management, Planning Guidance (Wales), Technical Advice Note (Wales) 9, Consultation Draft, November 1996

The Welsh equivalent of PPG 23 (though still draft); read in association with Planning Guidance (Wales).

Northern Irish Planning Policy Guidance

See briefing on "Using the planning system in Northern Ireland", from Friends of the Earth's Northern Ireland Office.

Scottish Planning Policy Guidance

Scotland has National Planning Policy Guidance (NPPGs) and Planning Advisory Notes (PANs). The following are relevant to this guide.

NPPG 1 The Planning System, 1994

NPPG 2 Business and Industry, 1993

NPPG 10 Planning and Waste Management, 1996

PAN 51 Planning and Environmental Protection

Relevant Friends of the Earth Publications

Campaigning manuals

"Landfill Campaign Guide", Friends of the Earth, September 1997, £15

How to campaign against new and existing landfills.

"Incinerator Campaign Guide", Friends of the Earth, December 1997, £15

How to campaign against new and existing incinerators.

"Kerbing the Car" (provisional title), Friends of the Earth, due for completion summer 1998

How to campaign for traffic reduction.

"Fighting Road Schemes", Friends of the Earth, October 1995, £4.50

How to campaign against new road schemes.

"Stopping the Sprawl", Friends of the Earth, August 1997, £7.

How to campaign against new green-field housing.

Other publications

"Buyer Beware: A guide to finding out about contaminated land", Friends of the Earth, July 1993, £4.95

This guide provides lots of information on the problems of contaminated land and how to find out about contaminated land in your area. Note that new regulations should be introduced soon which will alter the way in which contaminated land is dealt with.

Action Briefings

Friends of the Earth have produced a range of Action Briefings for Friends of the Earth local groups. The following may be useful:

- 3. Planning campaigns
- 5. Local information sources
- 11. Basic media work
- 12. On the air: radio skills
- 13. Stand and deliver: public speaking and presentation skills
- 16. Lobbying your MP
- 20. What on earth? A guide to abbreviations, acronyms and jargon in common usage in environmental campaigning.

If you are a Friends of the Earth local group, then you will probably have already received these at some point, if not contact Friends of the Earth's local campaigns department.

Publications for Northern Ireland

Available from Friends of the Earth's Northern Ireland Office (*contact details in Annex 8*)

"Using the planning system in Northern Ireland"

"Using your Right to Know in Northern Ireland"

Friends of the Earth Scotland

"Protecting our Environment" 2nd Edition, published by Friends of the Earth Scotland, 1997, £ 4.95 (£5.50 including postage), ISBN: 1 901855 00 7.

This is a citizens action guide to environmental rights and action. It will tell you what you can legally expect your council and other public bodies (e.g. SEPA) to do about local environmental problems - and how you can encourage them to do more!

Sites on the World Wide Web

The contact details in Annex 6 also include web addresses. Those sites listed below are in addition to these.

Note that Friends of the Earth's web site also includes links to many other environmental web sites:

<http://www.foe.co.uk>

Chemical Release Inventory

<http://www.foe.co.uk/cri/index.html>

This FOE site provides access to the full chemical release inventory for England and Wales, with information on what is being discharged by IPC regulated factories. At the time of writing data only goes up to 1994; however the site will be revised during 1998.

Chemfinder

<http://chemfinder.camsoft.com/>

This site has a massive searchable database of chemicals, giving you their structure and links to sites describing their toxicological characteristics. Particularly good for obscure organic chemicals.

Scorecard

<http://www.scorecard.org/>

This site also incorporates a large database of chemicals and their toxic effects. The main role of the site is as a way of presenting information about emissions from chemical plants in the US.

Annex 10

Abbreviations and definitions

This annex contains:

- *abbreviations;*
- *definitions.*

Abbreviations

Unfortunately, environmental regulation is littered with abbreviations. Here's some of the most important ones.

AQMA	Air Quality Management Area	EHS	Environment and Heritage Service (Northern Ireland)
AGM	Annual General Meeting	EIA	Environmental Impact Assessment
ARL	Achievable Release Levels	EIC	Environment Industries Commission
BAT	Best Available Technique (or Technology)	EQS	Environmental Quality Standard
BATNEEC	Best Available Technique Not Exceeding Excessive Cost	EN	English Nature
BOD	Biochemical (or Biological) Oxygen Demand	EPA 1990	Environmental Protection Act 1990
BPEO	Best Practical Environmental Option	EQS	Environmental Quality Standard
BPM	Best Practicable Means	EMAS	Eco-Management and Audit Standard
BS	British Standard	EMS	Environmental Management System
CCW	Countryside Council for Wales	ENDS	Environmental Data Services, publishers of The ENDS Report and ENDS Daily (<i>see Annex 9</i>)
CFC	Chlorofluorocarbon	EU	European Union
CIGN	Chief Inspector's Guidance Note	FGD	Flue Gas Desulphurisation
CIMAH	Control of Industrial Major Hazards	FOE	Friends of the Earth
COPA	Control of Pollution Act 1974	FOE (EWNI)	Friends of the Earth (England, Wales and Northern Ireland)
CRI	Chemical Release Inventory	GQA	General Quality Assessment (of rivers)
DETR	Department of the Environment, Transport and the Regions (created from the merger of the Departments of Environment and Transport in 1997)	HA	Harbour Authority
DO	Dissolved Oxygen	HCFC	Hydrochlorofluorocarbons
DoE	Department of the Environment (now DETR); Also Northern Ireland Office	HCH	Hexachlorohexane
DoH	Department of Health	HMIP	Her Majesty's Inspectorate of Pollution (now superseded by the Environment Agency)
EA	Environmental Assessment, Environment Agency	HMIPI	Her Majesty's Industrial Pollution Inspectorate (now superseded by SEPA)
EA(1995)	Environment Act 1995	HMSO	Her Majesty's Stationery Office
EDC	Endocrine Disrupting Compound/Chemical	HSE	Health and Safety Executive
EHO	Environmental Health Officer	HSWA	Health and Safety at Work Act 1974
		IARC	International Agency for Research on Cancer
		ICC	Integrated Central Control
		IPC	Integrated Pollution Control
		IPI	Industrial Pollution Inspectorate (Northern Ireland)

IPPC	Integrated Pollution Prevention and Control
ISO	International Standards Organisation
LAAPC	Local Authority Air Pollution Control (also LAPC)
LC	Local Control
LEAP	Local Environment Action Plan
MAFF	Ministry of Agriculture, Fisheries and Food
NGO	Non Governmental Organisation
NRA	National Rivers Authority (now superseded by the Environment Agency)
NSCA	National Society for Clean Air and Environmental Protection
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PGN	Process Guidance Note
PM ₁₀	Particulate matter less than 10 µm in diameter
PM _{2.5}	Particulate matter less than 2.5 µm in diameter
PPG	Planning Policy Guidance
PPP	Polluter Pays Principle
RCC	Restricted Central Control
RE	River Ecosystem (classification system)
RPB	River Purification Board (now superseded by SEPA)
RTK	Right To Know
SEPA	Scottish Environment Protection Agency (Scottish equivalent of the Environment Agency)
SNH	Scottish Natural Heritage
SLF	Substitute Liquid Fuel
SS	Suspended Solids
SSSI	Sites of Special Scientific Interest
TAN	Technical Advice Note
TCPA	Town and Country Planning Act
TGN	Technical Guidance Note
VOC	Volatile Organic Compounds
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
WCLI	Waste and Contaminated Land Inspectorate (Northern Ireland)
WHO	World Health Organisation

WRA Waste Regulatory Authority (now superseded by the Environment Agency)

WRA (1991) Water Resources Act 1991

Definitions

Here are a few useful definitions. Many other words are defined within the text.

Acute toxin	A substance that has toxic effects after a short exposure.
Bioaccumulation	The mechanism where by organisms concentrate heavy metals or other stable compounds from their environment in their own tissues.
Black list	Now superseded by List I (<i>see Annex 4</i>).
Carcinogen	A substance that causes cancer (<i>See Annex 2</i>).
Chronic Toxin	A substance that has toxic effects after a long, usually low level, exposure (<i>See Annex 2</i>).
Controlled Water	Almost all fresh and saline natural waters up to the UK offshore territorial limit, including rivers, streams, estuaries, canals and some lakes. Discharges to controlled waters are regulated by the water pollution regulator (the Environment Agency in England and Wales).
Endocrine Disrupter	A substance that imitates or disrupts the endocrine (hormonal) system (<i>See Annex 2</i>).
Grey List	Now superseded by List II (<i>see Annex 4</i>).
In vitro	Outside a living organism (opposite of in vivo).
In vivo	In a whole, living organism.

L.C. ₅₀	The concentration of a substance in air or water that kills 50 per cent of a sample within a certain time.	Part C	Processes regulated for air emissions by Local Control in Northern Ireland.
L.D. ₅₀	The dose of a substance which is sufficient to kill 50 per cent of the animals under test.	Percentile	Percentage of readings that must be below the limit given (<i>see Annex 2</i>).
List I	List I in the EC Framework Directive (also called the 'Black List'). This list covers substances which are most harmful when discharged into water (<i>see Annex 4</i>).	Phytotoxic	Toxic to plants.
List II	List II in the EC Framework Directive (also called the 'Grey List'). This covers substances considered less harmful when discharged into water than those on List I (<i>see Annex 4</i>).	Polluter Pays Principle	The principle that the polluter should pay for monitoring, clean-up and effects of their emissions.
Leachate	The liquid which seeps from a waste disposal site or spoil heap.	Prescribed process	A process which is regulated for its emissions through the Environmental Protection Act 1990 (<i>see Sections 4 -6 and 9</i>).
Mutagen	A substance capable of damaging DNA (<i>See Annex 2</i>).	Red List	A UK list of toxic chemicals, some listed on EU List I, others on EU List II (<i>see Annex 4</i>).
Organic matter	Material containing carbon combined with hydrogen often with other elements (oxygen, nitrogen) e.g. plastics, vegetable matter.	Responsible Care	A voluntary chemical industry scheme, where companies commit themselves to some loose aims related to the environment and other issues.
Part A	Processes regulated by Integrated Pollution Control, or Integrated Central Control in Northern Ireland. (<i>see Sections 5 and 9</i>).	Sectoral Affordability	The measurement used for calculating the amount of money a business sector can spend on environmental improvements.
Part B	Processes regulated for air emissions by Local Authority Air Pollution Control in England and Wales, by SEPA in Scotland and by Restricted Central Control by the EHS in Northern Ireland.	Sewerage Undertaker	The organisation which is responsible for sewers and sewage treatment.
		Statutory Consultee	These are bodies, generally Government departments or agencies who must be approached for their opinion during a consultation period for the award of an authorisation by the Environment Agency or a planning permission. The responses of such bodies should be found on public registers.

Synthetic	Man-made.
Trade Effluent	Industrial effluent discharged into a sewer.
Waste	Something that has “fallen out of the chain of utility”. What is or isn’t waste can be an issue of great controversy, and the subject of legal rulings.

TOXICS IN YOUR BACKYARD

Your *Right to Know* about industrial pollution - a case study at Avonmouth

Friends of the Earth believes that everyone should have a *RIGHT TO KNOW* about pollution. In our eyes this is not simply the existence of a piece of paper unseen in a bureaucrat's office, but it should also involve a responsibility on authorities to pro-actively present information to the public - in a way which will engage interest. At a time when cost-benefit balances and risk assessments are used to guide policy, it is particularly important for the weight of public opinion to be added into the balancing process. A well-informed public can have a powerful effect on environmental policy.

We hope that this report can help Bristol and Avonmouth residents to track industrial pollution and become empowered citizens.

This report is not exhaustive and does not attempt to analyse the environmental impact of any of the releases; rather, we hope we have produced -

- information on industrial emissions that is of interest to the public;
- exposure of information that is *not* available;
- awareness of the current barriers blocking the public's *RIGHT TO KNOW*.

Because of our commitment to public information and our belief that environmental information will increase pressure for clean up, we are pressing for improvements in industrial disclosure.

At Avonmouth/Sevenside near Bristol are several companies operating major industrial processes. Some of these companies operate several different processes, and certainly have significant releases. These are clearly public interest matters to our minds. The sites release pollutants to air and water and land; thousands of tonnes of wastes are disposed of on-site in landfill; other wastes, again thousands of tonnes, are sent off-site for landfill, incineration, or unspecified treatment. Movement of hazardous and toxic materials into the sites and storage are also surely matters of public interest.

The official guide to the pollution control for these large industries states:

“The [pollution control] system was designed to encourage a significant degree of public involvement in the decision-making process”¹.

In practice, we believe that this aim is far from fulfilled. If the public are to be truly involved, the public should be encouraged to ask questions and demand better explanations of emissions.

In particular we want to see a straightforward comprehensive *release and transfer*² inventory in place and the publication of league tables of polluters. We believe that this will hugely stimulate interest in pollution control. The existing database of industrial emissions (the Environment Agency’s *Chemical Release Inventory* of annual releases) has many flaws, and thwarts analysis in practice (*see Box 1*).

The CRI has been a missed opportunity. In the US, the *Toxics Release Inventory* has been very successful at engaging attention, and has stimulated many pollution reduction programmes (*see Box 2*).

It is not only the public that have an interest in pollution information: the files that Friends of the Earth has investigated have revealed that neighbouring industries and other authorities with public responsibilities also need more information at times.

This report looks briefly at the type of information about Avonmouth/Sevenside industry that can - or cannot - be answered by scrutiny of the public files that are available with respect to major industrial processes. We have looked at files on the following

companies:

Albright and Wilson
Avon Refuse Disposal Works (Avon County Council/Bristol City Council (the waste incinerator))
Blagden Packaging
BP Oil (UK)
Britannia Zinc
British Gas
Chemical Recoveries
ICI Chemicals and Polymers
Rhone Poulenc
Sevalco
Zeneca

Our research shows that:

- Releases of thousands of tonnes of waste to air, land and water are documented;
- Some permits allow the release of unnamed substances for reasons of “commercial confidentiality”;
- Some substances for which little or no information on ecotoxicology is available are used and/or released to the environment;
- Reports on disposal of wastes at off-site “treatment centres” - very often landfill or incinerators - is often not recorded routinely, and can only be inferred from reading the applications submitted by the industries;
- The monitoring data show breaches of conditions;
- Several companies have received “enforcement notices” from the Agency in recent years;
- Most of the IPC sites submit reports of the annual quantities of substances released to the environment;
- Some information on storage, often of hazardous chemicals, may be present in the applications, but it is not necessarily comprehensive.

¹ IPC - A Practical Guide DOE/WO 1996

² “Releases” is a term applied to all wastes disposed of either as emissions to air, discharges to water, or solid wastes. “Transfers” indicate materials/wastes transferred from one site to another.

A complete picture of releases in the area is difficult to piece together because:

- Some of the industries have separate permits to release wastes to surface waters - and the data is kept in a different Environment Agency office at Exeter;
- There are many smaller industries in the area with local authority air pollution

control permits and these do not have to report annual emissions;

- Some industries and sources of emissions (such as petrol stations and dry-cleaners) do not have air pollution control permits at all.

Box 1: The Chemical Release Inventory

The Environment Agency (then HMIP) created a *Chemical Release Inventory* in 1993 (which included some data for 1992). The data is compiled from the emission reports from companies with IPC authorisations and shows data for annual releases of various substances to air, land and water.

The Agency has the entire data set in electronic format and published summary reports on the 1993 and 1994 data, but failed to name a single company in those summaries. We believe that much information of interest is missing (as we have documented in this report) and that the detail is insufficient for proper analysis. For instance, many substances are grouped together and not identified individually, and there is no distinction between releases to surface water or sewer - they are all called "water" releases. In addition, because IPC authorisations were being phased in over several years, the earlier reports will not cover all industries. So, Britannia Zinc, for example does not appear in the 1994 CRI even though it now has an IPC authorisation.

It is not possible to give a comprehensive list of substances reported to the CRI - there is no fixed list as such. New authorisations set requirements for reporting as is deemed to be necessary by the Agency. This is leading to discrepancies - some similar operations may not be reporting on the same substances.

Friends of the Earth has given the public direct access to the 1994 database at our Internet site:

<http://www.foe.co.uk/cri>

By adding in geographic information we have been able to map the IPC sites, and you can click on a map of factories in your area and look at the reported annual emissions.

Unfortunately, the Agency has been unable to finish collating the 1995 data so far, although it was due to be published last year. The 1996 data is already due, and some individual reports from the companies are in place in the public register already.

Box 2: The US Toxics Release Inventory, TRI

The world's first toxics release inventory was produced in the US in 1987. The TRI requires reporting by sites (not individual processes) against a common list of around 600 substances (originally 300). The data is compiled together into a national databases, and used to produce a variety of analyses at both national, State and local level.

The true role of a chemical inventory is to stimulate pollution prevention and waste reduction programmes. Collection, disclosure and analysis of information on outputs of chemicals in the USA has provoked a remarkable number of initiatives, not all anticipated, involving many sectors of society. Exercising a community's *Right to Know* has brought together neighbours and engineers, company economists and environmentalists, to reduce hazards and waste to mutual benefit.

TRI data has been used for a variety of purposes - identifying sources of pollutants, for modelling environmental exposures, for setting priorities for reduction programmes and for developing environmental indicators.

One feature that makes the data so much more useful than that of the CRI (*see Box 1*) is the detail given on the method of disposal and release. It is possible to know whether wastes are recycled, sent to a landfill or incinerated (with or without energy recovery) or discharged down the sewer. A couple of States take this even further and require some measures of inputs of materials as well as outputs.

The most simple and useful analyses of the TRI have been lists of companies ranked by quantities of emissions. The disclosure, and the data collection itself, has been a very powerful incentive for emissions reduction programmes. The "33/50" programme (voluntary) aimed to reduce emissions of 17 high priority chemicals by 33% and then 50%, and achieved its aims well ahead of target.

An industry representative from Dow Chemical said:

"[TRI] opened up our industry to greater public view, and that has been healthy. We believe it will help accelerate the waste-reduction mentality through-out industry..." - John Harrison, Dow Chemical, Texas (Houston Chronicle, July 24, 1989).

BACKGROUND TO THE REPORT

Since 1990, major industrial processes have been regulated by the Environment Agency (formerly Her Majesty's Inspectorate of Pollution) under a system called *Integrated Pollution Control*, IPC. Industry receives permits which set conditions of operation, often including limits for pollutants and timetables for improvement. Agency

Inspectors visit the sites.

By law, the public have access to much information, including the companies' applications, the permits themselves and required monitoring data. This information is kept on a *Public Register*, an Agency office holding the paper files (*see Box 3*). Copies of the information are also sent to the relevant local authority (for Avonmouth, Bristol City

Council, or South Gloucestershire Council for Severnside) (*see Box 4*).

In a preliminary study of available information, a researcher from Friends of the Earth visited the Agency's public register at Bristol (since moved to Bridgwater) to search out the sort of information that might be of interest to the public in the locality. This is presented below.

EXCEEDANCES OF POLLUTION LIMITS

The IPC authorisations often contain limits for emissions, and companies are required to report monitoring data against which compliance can be judged. Exceedances are a breach of the conditions of the authorisations. Sometimes the conditions are less than straightforward to interpret (for example, rolling averages may be required), and it is not always easy to spot exceedances in the data on file. Nevertheless, it is clear that most of the companies have, at times, exceeded the formal limits or had unauthorised releases (*see below*), and some have had persistent problems.

The principles behind the operation of IPC mean that the registers are very much oriented around the industrial process rather than around environmental information. Limits for harmful substances are set to reflect *Best Available Technology Not Exceeding Excessive Cost*, BATNEEC, which means roughly that processes should be operated to the best standards - as long as it does not cost too much. Permits should also respect official standards for environmental quality, but the BATNEEC principle also means that if production doubles, then it may well be possible to double the limits for emissions. This complicates any environmental interpretation of exceedances and means it is very difficult for a non-specialist to understand the basis for the limits.

At least one example of a permit exactly

reflected the data submitted by the applicant, which turned out to underestimate the emissions. The original authorisation had granted **Albright and Wilson** limits that were identical to the figures given in their application. When the company realised that they were consistently emitting more than these limits, they applied for a variation. A letter stated: " ... *we can only assume the true maximum hourly concentrations were not reported in the original submission*" (letter of 6/4/94). It would seem that the company itself had limited knowledge of the exact quantities of emissions from this particular process.

Data submitted by **Albright and Wilson** show exceedances for all of the processes that we found in the register. For example, 1996 data for one process shows an annual methanol release of 14.1 tonnes, 6 tonnes more than the (revised) limit of 8 tonnes. Prior to 1995, the original limit had been 5 tonnes. There had also been a slight exceedance in 1995 (8.1 tonnes), despite the plant being shut for part of the year.

A release of dibromomethane to air also exceeded in 1996 - 2.6 tonnes vs a limit of 2 tonnes.

Blagden Packaging have reported exceedances of the particulate emissions for 1996, and also seem to be needing to improve the hydrogen chloride emissions. A letter of 16/1/97 states that "*the emission quantities of particulates and hydrogen chloride will be considerably reduced once our bag filter/lime dosing equipment is in place*".

The emphasis on process also has meant that permits are granted with temporarily higher limits - so usually no breaches are recorded, but a time-limit for improvement should be given. There is some evidence that the time-limits are not always met.

Sevalco have had persistent problems with particulate releases - these were noted in the files in 1993 and were still under discussion in

1996 when the Agency noted the company's recognition of "*unacceptable levels of particulate release... and the Company's imminent investment in improved abatement equipment*". A letter to the Agency from **Sevalco** stated that it was "*scheduled*" to install a filter system "*in October 1996*". More recently, the Agency has granted an extension to end of September 1997, but has warned the company that "*regulatory action*" will be considered "*should this revised deadline be exceeded*" (letter of 7 January 1997).

Chemical Recoveries were granted an authorisation with high limits and were operating equipment without any abatement equipment. The authorisation required improvements (to a vacuum pump exhaust) to be made by January 1996, yet values hugely in excess of the new target - by a hundred-fold - were measured during 1996. We understand that a new authorisation is currently (ie a year later) under consideration.

Rhone Poulenc Chemicals - at least three permits were granted with "limits to be determined". Such conditions make it difficult for the public to get a handle on compliance.

UNAUTHORISED RELEASES

Some companies have also reported "unauthorised releases" which are releases not expected to happen normally. There is some room for discretion as to whether a company reports these, so we cannot be sure that all significant releases are recorded in the

register.

Zeneca has notified the Agency of over 40 unauthorised releases in 1995, 25 in 1996 and 2 so far this year.

Sevalco have reported unauthorised releases of carbon black, smoke, feedstock oil and fuel oil-contaminated water.

ICI reported the release of between 2 and 5 tonnes of unburned ammonia in 1995.

COMMERCIALLY CONFIDENTIAL INFORMATION

Several companies have submitted applications and have been allowed to withhold certain details of the processes from the public register - for example, **Sevalco**, **Albright and Wilson**, **Zeneca**. Of more immediate interest to residents though might be the fact that certain substances used or released to the environment are not named.

Albright and Wilson has several such cases, although the company has tried to give descriptions of the chemicals involved and provide generic names, such as "polyhydric alcohol", "carrier solvent", "alcohol", "catalyst", "solvent A" and "solvent B", and report on the quantities released on an annual basis. Some of these are released in quite large amounts: eg 10.6 tonnes of "carrier solvent" were released to the atmosphere in 1996 (*see Table 1*).

Authorisation Number	Substance	Amount released in 1996	Comments
AN9123	Solvent A	phased out	Occupation Exposure Limit (OEL) given, but no ecological information in application. Permit was originally for 14 tonnes to be released, but no data on actual releases could be found. From application, it appears to have been in use prior to IPC authorisation.
	Solvent B	up to 4.683 tonnes (to air)	Readily biodegradable according to the application; also found in <i>“contaminated air, especially in traffic or near petrol filling stations”</i>
	An amine	12 kg (to air)	OEL given. <i>“It has not been established whether it biodegrades in soil or water”</i> stated the application. <i>“In the atmosphere... an estimated half-life of 4.5 hours.”</i>
AN9131	An alcohol	10 kg (to air)	Insignificant toxic hazard to fish
	A catalyst		Hydrolyses rapidly to insoluble and inert products
AN9140	Carrier Solvent	10.670 tonnes (to air)	<i>“Classed.. under the category of ‘halogens and the compounds’”</i> . Residues also anticipated to be disposed to landfill.
AN9158	Epoxides	14.551 tonnes (estimated)	Includes large release of epichlorohydrin in explosion, October 1996
	First and Second Stage Catalysts		Not expected to be released, but stored on site
	Polyhydric alcohol		<i>“Suppliers advise us that no ecological information is available”</i> . Fugitive emissions noted in application.

Table 1 Commercially confidential substances in Albright and Wilson’s files.
The quotes are from the applications for authorisation at the public register.

The company stated in a letter to the Agency:

“we recognise the public has a right to information and we have referred to key raw materials by their generic name only...”.

No emissions of solvent A were reported for 1996 and **Albright and Wilson** had planned to replace it with an alternative. If this is the case, then it is not clear what the alternative is and if it is reported.

ENVIRONMENTAL IMPACTS AND ECOTOXICOLOGICAL INFORMATION

Information on environmental impact and ecotoxicology can be found in the register files. However, it is of highly variable detail and not easy to digest. That some companies have submitted less than ideal descriptions of the impact of their emissions or that the full picture is not available can be seen from the following examples. In one case, a chemical company, and in another two, the statutory nature conservation body, English Nature, commented on the applications.

Albright and Wilson commented on the application submitted by **Chemical Recoveries**, which had stated that *“It is not our position to suggest what the overall consequence of air emissions will be.”* In a response to the Agency, **Albright and Wilson** stated that they *“strongly disagree. Since A&W is adjacent to Chemical Recoveries it is important for our employees to be aware of nature and consequence of any emissions...”*.

With respect to **Britannia Zinc**’s application, English Nature commented on cadmium levels in the estuary and recommended *“further intensive monitoring should take place around the outfall...”*.

Information on the ecotoxicology of many substances in use is also rather sparse or simply unavailable. All of the following examples are from the files on **Albright and Wilson**’s authorisations.

Albright and Wilson release dibromomethane and stated *“we have no specific information on dibromomethane though it may be anticipated that biodegradation in water will be slow and that the compound will persist in the environment. There is potential for bioaccumulation.”*

And on dimethyl phosphite - if in soil and water, it is expected to hydrolyse, but *“its fate in air is unknown”*. As far as we can ascertain, it was expected to be released to air, although the Agency did not require annual quantities to be reported.

Styrene phosphonic acid: *“No ecotoxicological data is available. All we can say is that it is not biodegradable.”*

Alkyl ketene dimer: *“No studies for environmental effects have been carried out.”* A&W also estimated that 15 tonnes of *“substandard product”* might be released *“to land”* per annum.

ENFORCEMENT NOTICES

Several companies have received enforcement notices, which are issued when the Agency believes that a condition of a permit has been or is being contravened, and requiring action.

Blagden Packaging - an enforcement notice for *“offensive smells”* was issued in 1993.

Britannia Zinc were issued with an *“improvement notice”* in 1995 (under the Health and Safety at Work etc. Act rather than IPC legislation) for failure to *“use the best practicable means for preventing the emission into the atmosphere from the*

sulphuric acid plant of a noxious substance, namely, sulphur trioxide”.

Chemical Recoveries Ltd: Two enforcement notices were issued in 1994 for failure to complete some aspects of their improvement schedule with respect to the dyne that borders their site.

A release by **ICI** of 17 tonnes of ammonia (to water) in one 24 hour period in 1996, (5 tonnes more than the permitted 12 tonnes) occasioned an enforcement notice in 1996.

Sevalco: An enforcement notice for a contravention involving an effluent discharge “*outside the period from 1.5 hours before high tide to 1.5 hours after high tide*” was issued (1994).

Zeneca: An enforcement order to install a particular connection for effluent was made in 1994.

ANNUAL RELEASES

A useful “snapshot” of industrial releases and transfers is provided by annual emission data. Since 1992, the Agency has required reporting of annual releases of specified substances and compiled this into the Chemical Release Inventory, the CRI (*see Box 1*).

The Agency public register should have the 1995 and the incoming 1996 annual release inventory reports. Although this data is now appearing in the individual files at the register, the Agency has yet to finish compiling the 1995 set of data and the 1996 data is due in already.

Below are some examples, which we think might be of interest.

Britannia Zinc’s 1996 emissions include over 3,300 tonnes of sulphur dioxide, 190 tonnes of particulates, 1.6 tonnes of cadmium, 19.5 tonnes of lead and nearly 50 tonnes of zinc to

air. Water emissions included over half a tonne of cadmium, plus over a tonne each of zinc and lead.

Ninety three tonnes of particulates were released by the **Avon Refuse Disposal Works** (the municipal incinerator) in 1996.

Chemical Recoveries: 7 tonnes of Volatile Organic Compounds were reported (1995), plus 3.3 tonnes of particulate matter, 6 tonnes of sulphur oxides and nitrogen oxides. They also reported releases of 5,881 tonnes of “residues”, 24,000 drums/metal containers, 14,500 tonnes of waste waters, 728 tonnes of “soluble emulsions” and 1,334 tonnes of “difficult” material.

ICI (C&P) reported (1995) 1,680 tonnes of ammonia to air and 1,432 tonnes of nitrogen oxides. Releases to water include 834 tonnes of ammonia, 3,558 tonnes of nitrates, 550 kilograms of zinc, 600 kg of nickel, 130 kg of chromium. For off-site disposal, they produced 550 tonnes of solid waste and 270 tonnes of liquid waste.

At the other end of the scale, **Blagden Packaging** reported emissions of 45 milligrams (a thousandth of a gram) of dioxins in 1996. In solid waste, the company also produced 16 tonnes of steel shot, 757 tonnes of crushed drums, 388 tonnes of bottom ash/slag and dust and 157 tonnes of drainings/sludges.

For three separate processes in 1996, **Zeneca** reported waste solvent production of 987 tonnes, 1,706 tonnes and 3,228 tonnes - a total of for off-site disposal of 5,921 tonnes of waste solvent in all.

Rhone Poulenc’s emissions to air (1995) included 6 tonnes of potassium fluoride to air, 11 tonnes of fluorspar dust, 11 tonnes of volatile organic compounds, 3.8 tonnes of chloroform, 1.5 tonnes of carbon tetrachloride. Also listed are over 250 tonnes of organic compounds - chlorofluorocarbons

and hydrofluorocarbons, some of which are ozone-depleting and also global-warming gases.

Over 7 tonnes of benzene was released from **Sevalco** in 1995.

Non-specific Aggregated Information on CRI

Metals are often reported as a group of substances even though individual species may be of interest. For instance, for the upgraded waste incinerator, MAFF requested emission estimates for each individual metal, rather than an aggregated “metal” group.

Similarly “organic compounds” may not be distinguished. In a particularly unhelpful piece of reporting, one company, **Zeneca**, which had reported 1995 releases of 894 tonnes of “organic compounds”, stated to the Agency that this figure was “*theoretically incorrect*”, and, with the Agency’s agreement, would no longer supply this figure. The theory was based on the reported measurements of Biological Oxygen Demand and Chemical Oxygen Demand (and for which figures continue to be supplied) but these tests, which measure uptake of oxygen in water by polluting effluents, give little or no information about toxicity or persistence.

INFORMATION THAT DOES NOT APPEAR ON CRI

BP Oil - Their application estimated 4.4 tonnes of propane and butane released under normal operation per year and quantities in excess of 2 tonnes of a refrigerant (Isceon 22), but there is no requirement to report these annual mass releases.

The municipal waste incinerator, **Avon Refuse Disposal Works**, only had to report annual masses of particulates. From monitoring data, it can be seen that this

incinerator was also releasing quantities of metals, dioxins, hydrogen chloride, hydrogen fluoride and organic compounds. It may be argued that the quantity of particulates will be an indicator of the masses of other substances, but in terms of public involvement this again is not very helpful. We understand that more reporting is required in the new authorisation.

British Gas were asked to quantify emissions of sulphur compounds for the Agency, although annual mass reporting was not required for the CRI, and currently they are not required to have an IPC permit (*see below*).

A letter from MAFF was also on file, requesting further data on dioxin emissions from **Britannia Zinc** - however, we did not find a response (or any data) relating to this.

Bulk wastes

Wastes transferred for off-site disposal are often not incorporated into the CRI, although some authorisations do require this. It can be difficult to understand the amounts of any toxic substances being produced by the process and transferred into the waste, since it is often described in general terms, as “process sludges” or “waste solvents” or the like.

Much information on production of wastes can be found in the files, although much detail is absent. It is not necessarily toxic, although, according to the process details, some wastes clearly contain prescribed substances (ie those specifically earmarked for control under IPC). It should be noted that if process details have changed without need for a variation, then details below on waste production (if not reported annually) may be out of date.

Some examples are given here:

The municipal waste incinerator, **Avon Refuse Disposal Works**, was authorised for production of up to 85,000 tonnes of clinker

and ash (material needing further disposal itself).

One process at **Albright and Wilson** produces 2,500 tonnes of liquid waste which is tankered to a “licensed treatment centre”. Another process produces 3,800 tonnes of chloride solution and 4,000 tonnes of sludges for off-site disposal, though this practice was to be reviewed. Yet another process produces, according to the application, 3,650 tonnes of “special waste”, classified because of its cyanide content, which (at the time of the application at least) was taken to landfill at Pitsea by **Cleanaway**.

Another process produced 3,000 tonnes of ethylene dichloride-containing waste waters for off-site disposal, and 15 tonnes of waste solvent residues, containing ethylene dichloride and carrier solvent destined for incineration.

None of this information appears on the CRI (*see Box 1*).

On the other hand, **Zeneca** produced 3,229 tonnes of waste solvents for off-site disposal in 1996 - information which will appear on the CRI.

Storage

It rather states the obvious that many companies obviously have raw materials, wastes and products on site for periods of time. Some of the details emerge in applications for authorisation but it is not clear that the details are comprehensive (*and see section on CIMA sites below*).

One of the more unusual details that we came across included an inventory of up to 30 tonnes of waste calomel (mercurous chloride) at **Britannia Zinc**, which if not sold is transferred to a “*specialist contractor under Duty of Care Regulations*” ie waste disposal. This would not appear on the CRI.

OTHER PERMITS

Anyone interested in tracking down the entire set of emissions for the Avonmouth area will find that they have to visit more than one register - companies in the region have permits which are (currently) either kept at a different office of the Agency or have permits issued by the relevant local authority (Bristol City Council or South Gloucestershire Council for the companies mentioned here).

Water permits

At least one of the sites, **Albright and Wilson**, has a permit issued under the Water Resources Act 1991. The permits and monitoring data for these are kept at the Exeter office of the Environment Agency.

It is also theoretically possible for a site to have a separate trade effluent permit for discharges to sewer, although these would have to be for non-IPC processes and we have not investigated these further for this study.

Local authority air pollution control

There are many smaller industrial processes which are not controlled by the Environment Agency, but are controlled with respect to air pollution by the local authority. Bristol City has 77 such permits within its boundaries, some of which are located at Avonmouth, and it appears that some industries have *both* IPC process permits (often called “part A” permits) and local authority permits, which is feasible since the permits cover distinct processes rather than a site. This is a further hurdle for anyone trying to assess the overall releases and transfers, and in many cases there will be no monitoring data available for these processes.

The LNG terminal run by **British Gas** used to have an IPC authorisation, and had requirements to report emissions for the year. However, the criteria for IPC changed, and

the facility became a non-IPC site, but we understand will become an IPC site once again in the future. In the meantime, although we might presume that emissions are still occurring, these are not being reported to the CRI although this may change in the future if the site becomes subject to IPC again.

That the emissions might be relatively small is somewhat beside the point: it is difficult for the public to have any confidence that they can discover the whole picture.

One Avonmouth industry understood to have both IPC and local authority permits is **Blagden Packaging**. It may be worth mentioning here for anyone interested that the clinical waste incinerator, **Motherwell Bridge Envirotec**, is under local authority control.

CIMAH sites

Some of the sites (Rhone Poulenc and ICI) at Avonmouth are registered as "CIMAH" sites - the Control of Industrial Major Accident Hazards Regulations. Some information is supplied to the public where *"they are liable to be affected by a major accident"*. This information should include descriptions of the activity undertaken at the site and some details of the substances which could give rise to a major accident. We have not investigated these permits further in the current study. Other permits to be investigated are the Hazardous Substances Consents, yet another

different source of public information.

No permits

Not all sources of emissions will have IPC or air pollution control permits. We have not surveyed any other likely sources we should mention that facilities such as dry-cleaners and petrol stations are likely sources of pollutants - and of course almost everyone is aware of vehicle emissions these days.

THE PUBLIC REGISTERS

The guide to IPC states that one of the aims is

*"to maintain public confidence in the regulatory system through a clear and transparent system that is accessible and easy to understand and is clear and simple in operation"*³.

It seems likely that very few members of the public are aware of the existence of the public register. Although we have no numbers, staff at the Agency are under the impression that very few "ordinary members of the public" have ever visited the Public Register.

³ Department of the Environment/
Welsh Office (1996). IPC - A Practical Guide.

Box 3: The Environment Agency's IPC Public Register

Public registers have to be open during normal office hours, which at Bristol was 9 am to 4.30 pm. Requests can also be made by mail (but beware of photocopying charges). All public information relating to a particular IPC authorisation is copied (omitting any commercially confidential information) and placed in a hanging file. Each company and each authorisation has a separate hanging file to which one has direct access.

A typical file will contain the company's application, related correspondence including comments on the application from other statutory bodies such as MAFF, the authorisation, enforcement notices, monitoring data and annual release reports. We found no correspondence or comments from the public in the files.

In many cases it can be difficult to relate the emission data back to the exact requirements, and breaches are not highlighted unless there is correspondence in the file regarding them.

Even beyond the technicality of many of the documents, the files can be difficult to follow. Documents tend to be deposited in chronological order, so that threads of correspondence are interrupted; it may not be obvious if a response to a question has ever been provided; enforcement notices seem to be in a separate file; staff report that parts of files are stolen sometimes. There is nothing to guide the public around the office really - the best approach is to ask to be shown which files are which and in what order they are kept, then just plough through a file to see what is in it.

Another problem is that one process may have more than one file number if variations have been granted. A variation is an amendment to a process authorisation. Variations to authorisations are often granted new codes, but it was apparent that later reports were sometimes filed under the original file number. Often this is because the company has submitted data using the original code rather than the new code assigned to the variation, but means that one should look through all the files for a particular company, or certainly all the variations for one process.

A file log sheet is in place, noting date of receipt of file and date of placing in the register - some files had not been registered for around 6 months or more.

In one instance an application for authorisation (it had been given a new file number) was not in place and appeared not to have been sent to the register clerks, although it should have been on the register to provide opportunity for the public to comment. However, the Agency did retrieve the file very quickly when it was pointed out that it was missing.

Requests for photocopies have to be handled by the staff - a certain amount of photocopying can be done free of charge, but check the potential costs.

The current staff were trying to be as diligent as possible, despite a reduced work-force and the fact that the entire Bristol area office was being transferred to Bridgwater while our study was underway. We have not visited the Bridgwater office so have not seen it in operation. The register is now located at:

Environment Agency, Rivers House, East Quay, Bridgwater, Somerset TA6 4YS.
Telephone: 01278 457333.

Box 4: The Public Register at Bristol City Council

A copy of the IPC register is sent to Bristol City Council, and can be inspected by the public. In addition, the local authority's own Air Pollution Control file is in the same office.

Photocopying is expensive, with a minimum charge of £5.50 for the first ten copies. 63 copies cost us £22.02.

We came across files that had been misplaced - apparently because the Agency had sent a batch together and so the files were deposited in a box according to the very top batch of papers, without looking at the files underneath.

Paper work for one company is just deposited in a box file for that company. Unfortunately the files for different IPC processes at one company have not been separated. Tracking a sequence of events or data can be impossible without going through many files.

A log of papers had been started, but appears to have been abandoned around 1994. If a visitor happens to shuffle the papers, it would be close to impossible to spot missing files or make sense of some of the papers.

The registers are at:

Bristol City Council, Health and Environmental Services, Brunel House, St George's Road, Bristol BS1 5UY Telephone: 0117 922 2000

For processes outside Bristol City's boundary at Severnside, contact:

South Gloucestershire Council, Castle Street, Thornbury, South Gloucestershire, BS12 1HF; Telephone -01454 868686

Box 5: International initiatives - Agenda 21

In 1992, 170 countries attended the Earth Summit conference in Rio di Janeiro, and signed a declaration on sustainable development, *Agenda 21*. This declaration emphasises the importance of informed decision-making involving all levels of society. It also promotes the use of public toxic chemical inventories as part of a broad agenda aimed at chemical management and risk reduction.

Similarly, Bristol City Council and South Gloucestershire Council believe that they do not receive many visitors other than consultants/sales people looking for sales leads for monitoring or pollution control equipment. Whilst our research was under way the only other visitors to the Agency register were 6 university students who stayed for about 15 minutes, and a consultant who stayed for a couple of hours. Simply to look through the files for Avonmouth took one researcher approximately sixty hours.

At a small meeting of Friends of the Earth supporters, which included Avonmouth residents with a long-standing interest in the industrial pollution, we found that no-one was aware of the registers, despite contact with the Agency and its Inspectors.

There is little doubt that the register files are not easy to understand; all of the documents are highly technical and use jargon that would probably be unfathomable to anyone without experience of industrial processing or pollution matters.

This is not to say that the information should not be there or should only contain that information that is understandable by the general public, but that **public registers alone are NOT providing the avenue for public**

involvement in pollution control.

To be fair to the Agency, but also to point out behaviour which supports our thesis, we understand that the Inspectors are somewhat conscious that sending the public to the register would not be a satisfactory way of dealing with concerns and so have invested their time in more direct discussion with complainants.

Additionally we have had to chase missing documents. Although the Agency always immediately responded to us (despite their being in the midst of upheaval and relocation to Bridgwater), our experience means that we have a considerable advantage in this respect. Anyone with less experience would find it difficult to even know what was missing or might not have the tenacity to dig deeper than the filed documents.

Without extensive knowledge of the particular industrial processes, it is also probably impossible to know what information might never have been recorded - we do not know what we do not know.

*Mary Taylor
Senior Research Officer
Friends of the Earth
25 March 1997*