

Pollution Control RBH6

DO NOT REMOVE

POLLUTION PREVENTION

IN THE '90's

THE POSITIVE APPROACH

PO

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Pollution Control (S.E. Area)

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ENVIRONMENT AGENCY



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SUMMARY

An experiment was carried out over a few months to demonstrate whether active pollution prevention inspections within an area, had any marked effect in reducing the workload of the Pollution Control Department, and therefore give better value for money.

The essential aspects that were covered are as follows:

1. Identifying main sources of pollution
2. Identifying specific items of pollution
3. Updating all Pollution Prevention Guidelines
4. Targetting certain Industrial Estates
5. Devising Standard Letters for Industry
6. Involving Media coverage
7. Revising General Brochure, Leaflets and Posters
8. Setting up a Data Base
9. Analysing Response from Industry
10. Identifying problem areas
11. Instigating detailed Inspections
12. Establishing pollution or pollution hazards
13. Sampling results
14. Relating Pollution Prevention to Incidents
15. Conclusion

POLLUTION PREVENTION

Introduction

It is ironic that, in this present day and age with burgeoning interest in the environment and the emergence of green parties and organisations, including Greenpeace, Friends of the Earth and more local groups, all calling for protection of the environment, the NRA seems to give scant regard to pollution prevention.

In the early 1970's, in this region, the River Boards were in existence and had a very strong River Inspectorate. Not only were their duties concerned with dealing with all incidences of pollution, but a significant amount of time was devoted to inspecting farms, industrial estates and other sources of potential hazards.

In 1974 the Water Authorities came into existence throughout the country, swallowing up these River Boards and it would seem that due to subsequent financial constraints, the easy target to reduce expenditure would be on pollution control, as there was no obvious product to their work. However, as the years passed, we were not the only ones to suffer. There was also reduced spending by the Authorities on Sewage Treatment Works.

From a financial point of view, this must have appeared a success, as all seemed to be progressing satisfactorily. It takes some while, if not a few years, for any deterioration in river quality, for example, to become apparent. This, sadly, was the case. Pollution incidents were on the increase and treatment processes were suffering from the lack of expenditure.

The dwindling number of pollution officers, during this period, did an excellent job in trying to deal with or contain these pollutions, but what was emerging was the net result that could be expected; staff only available to carry out a "fire-fighting" service only. Pollution Prevention had virtually ceased.

In the late 1980's this situation began to become addressed, what with pressure from "outside bodies" and also from within the Environmental Control departments of the Authorities themselves.

EEC legislation, and the new Water Act, have also assisted in this drive to better Pollution Control. Now, with the formation of the National Rivers Authority, hopefully this success can be built on by providing positive pollution prevention.

Importance of Pollution Prevention

The fact has somehow been lost that having a strong and assertive pollution prevention section within the pollution control department creates excellent value for money in that as a direct result of preventative work carried out, incidences of pollution should begin to diminish, and certainly those relating to industry and farms, etc. Unchecked, farmers and industrialists carry on in their own way, seeing only profit as the end result, but often oblivious of damage caused to the environment. With pollution prevention officers thoroughly vetting planning applications, and making sure that our comments are carried out, then new industry will be kept under close control. In many cases, existing companies have been written to with recommendations but the files and letters remain dormant with no further checks having been made to ensure compliance. This amounts to a thorough waste of time and resources. Positive action in this area can capitalise on this initial work, thus maximising the potential of the department.

Specific items that are often found to be wrong include:

- (a) unbunded tanks,
- (b) wrong connections to the surface water system
- (c) abuse of surface water gullies
- (d) potential hazards due to nearness of watercourses and sewers
- (e) pollutions that are imminent or actually occurring.

The main areas of concern can be identified as follows:

1. Industrial areas - Inherent problems of all sorts similar to those outlined above, leading to contamination of surface water systems or direct runoff to watercourses.
2. Isolated industries - These are often totally overlooked but they may be concealing localised pollution that is not picked up on main river surveys. Nevertheless it is damaging to the local community.
3. Farms - Leakage from silage clamps, high level overflows from farm tanks, runoff from irrigation areas, particularly in very dry or very wet weather. These instances can cause highly damaging effects on the aquatic environment.
4. Timber treatment plants/wood yards - These are where the "real nasties" can be found, TBTO, lindane and all types of preservatives containing metals and phenols. Leakage by insecure installations, vandalism, neglect or fire can have devastating results. This has recently been demonstrated in the "Harcros" and "Astolat" experiences, (in the River Bourne and River Wey catchments).
5. Herbicides/Pesticides stores - these are largely controlled under the BASIS scheme, but nevertheless clear and up to date records need to be maintained plus regular checks due to the inherent danger of the chemicals stored.
6. Water Authority sewage treatment works - due to the stricture of finances over the years many of the works have deteriorated thus causing sub-standard effluents.
7. Septic tanks/cesspools - Here we have the age-old problem of overflows to watercourses thus causing local contamination and annoyance!
8. Petrol filling stations - drainage under the canopy often is linked to the surface water system. This can carry with it solvents and de-greasers as these areas are not rain washed and are manually cleaned with substances which will nullify the effect of an oil interceptor.

9. Vehicle washes (jet washes) - these are often wrongly connected to the surface water sewer. The mobile washes will definitely drain to surface water grids all of which creates a pollution load to the streams.
10. Garage blocks - Here backyard maintenance is often in evidence with sump oil disposed of to local surface water gullies.
11. Swimming pools - Often the backwash water from the filter units are connected into a local ditch. Not only is the water quite foul but will carry with it chlorine, all of which can give rise to localised problems.

The checking of files and the vetting of planning applications, is and can be a valuable source to identify the change, not only of industry but all of the above mentioned sources of pollution over the years. By keeping abreast of this, the input can reap rich dividends in reducing the onerous task of dealing with the ever increasing incidence of pollution.

THE PROJECT

As a way of demonstrating the importance of pollution prevention, I took on the role of Pollution Prevention Officer for the south east area with the intention of concentrating solely on one or two industrial estates to show:

1. What can be achieved by a concerted inspection in an area
2. Identifying pollutions that may be occurring at the time
3. Dealing with potential pollution hazards.

Hopefully this would demonstrate the appalling neglect of an important section of our work and therefore give it high profile. Not only would this be beneficial to the department, but would show the community at large that we are being positive in our approach and that the NRA means business in dealing with offenders and cleaning up the environment.

PREPARATION

It had to be decided what was the most effective way to achieve the desired result. I decided to target three industrial estates. One would be visited to see what problems there were, sample the sewers and outfalls and advise on pollution prevention measures. The other two estates would be written to requesting specific details on which to make a judgement regarding their premises. After a period all the results would be monitored and the necessary action taken.

It was important to select the right kind of estate to be visited which fulfilled the following criteria:

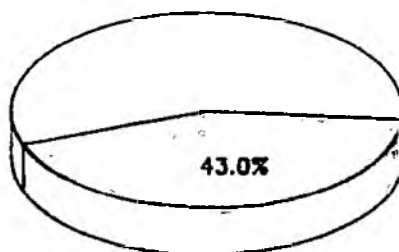
1. A manageable number of premises that could be inspected within a defined period of time
2. A surface water system that connects directly to a local stream
3. Evidence of pollution or neglect against which results can be measured.

Before embarking on any allotted task, all the pollution prevention paperwork had to be reviewed as it was found that most contained references to Thames Water or were simply out of date. All the guidelines have now been brought up to date and are attached in the appendix. These cover:

1. Industrial Premises Survey form
2. A Guide to the Pollution Prevention Measures required by the NRA
3. A list of Tanker Services
4. Guidelines for the Use and Design of Oil Interceptors in Surface water sewerage systems
5. List of Manufacturers of Oil Interceptors
6. Guidelines for the Prevention of Pollution from Above ground Oil storage tanks.
7. Outline diagram of a bunded oil tank.
8. List of Installers of Private Sewage treatment plants

The next task was to check on all our known industrial estates in the district on which we have files, and draw up lists. This was done for the Wey catchment, the Mole catchment and the Bourne catchment. These lists are attached. The total number of estates in the district, south of the River Thames totalled 48. Of these, 36 were in Surrey, 5 in Sussex and 5 in Hampshire. I then contacted Surrey County Council to obtain a list of their known industrial estates. Attached is a list for 1988 (their current list), in total 84 estates are shown. This was illuminating against our figure of 36!

TOTAL KNOWN (OR VISITED) ESTATES IN SURREY



A general survey of the numerous industrial estates was mounted to ascertain the best sites for targetting. I eventually decided to deal with the following estates:

1. Mill Lane Industrial Estate, Alton
2. Hersham Trading Estate
3. Bordon Trading Estate

The first estate would be visited as it fulfilled all the necessary criteria. The other two estates were sizeable and had the necessary mix of industry to provide a measured response to any letters written.

It is quite obvious that even with a large increase in staff, it would be an horrendous task to visit all premises on all estates within the region, so I decided to devise two different styles of letter to be sent to each of the two estates, in order to judge the most effective way of approaching industry.

STANDARD LETTERS

As the National Rivers Authority has newly been established, it was important to bring this fact to the attention of industry as it has been quite obvious from what people have been saying "out in the field" that they are still unsure as to who is responsible for the various aspects of the environment. Other points had to be established and therefore the essential ingredients of the letter were as follows:

1. Establish what the NRA is
2. The legislation under which we act
3. Our primary task
4. That pollution can occur either by direct discharge to streams or via surface water systems
5. That isolated industry is just as important as industrial areas.
6. That pollution can occur either by accident, carelessness or vandalism.

With these points in mind, two letters were devised. The first one embodied this information in a "friendly" approach, seeking cooperation in order to combat the increasing number of pollutions. This was identified as letter S (for "Soft"). The second letter was more formal indicating that should pollution be found then prosecution could ensue. This was letter H (for "Hard"). Specimens of these letters are enclosed.

MEDIA INVOLVEMENT

All our leaflets and posters appertaining to pollution prevention measures are now out of date in terms of governing body, legislation, fines, etc. and so it was necessary to give fresh thought to formulating new designs. In addition, to enhance the pollution prevention project, I thought that it would be a good idea to publish articles in the local newspapers circulating in the areas of the above estates. These would inform the public of the NRA's new approach to pollution prevention and that their particular area would be visited in the near future. Also, to project our image, articles were to be introduced in industrial publications and journals, again highlighting our renewed initiatives.

Together with the public relations department, much thought was given to these topics and useful advancement was made. To begin with, the attention was to be given to the South East area, but it was obvious that all work done and literature produced should have a region wide basis.

As time went by, particularly after inter-regional discussions between the Public Relations departments, the whole scheme has since "snowballed" and now leaflets are being devised to be used on a national basis as in keeping with the fact that we are a National rivers authority and not just restricted to the Thames region.

As a consequence of this the media coverage to my project has "fallen by the wayside" but nonetheless significant strides have been taken. If the public are not made aware of their responsibilities, etc. by extensive publication, then the NRA wherever situated can never hope to make progress. However, if pollution prevention is to be carried out seriously in the future, then, this original concept of articles in local papers can be introduced.

Enclosed is a prototype "general leaflet".

DATA BASE

Up until now, any information on various industry throughout the catchment has been filed and, to a great extent, forgotten about, particularly when follow-up checks are never made, mainly through lack of time and personnel. It is important that when this necessary work is done, all information is kept up to date and readily available. I have therefore devised a Data Base to store this information. Enclosed is an example of the criteria logged. Each file can be retrieved on a Catchment basis, an Industrial Estate basis or simply by a particular parameter, i.e. those with heating oil.

Value in Pollution Control

Apart from maintaining pollution prevention records in their own rights, this data base has extreme value if there is a significant pollution in an area and the source is unknown. Once the polluting material has been

identified, then all records for industry in that particular area can be inspected to define possible sources and thus reduce valuable Pollution Control time. In addition, on many occasions, premises have been revisited in trying to trace the source of a pollution because the information obtained originally has been forgotten or misplaced. As industry changes or evolves then all information can be updated so that the Department can always feel that it is "on top" of what is happening in its area.

This Data Base can also be used in conjunction with digital mapping so that plans of an area are readily available to show pollution "black spots" and other important areas, particularly while a pollution investigation is in progress.

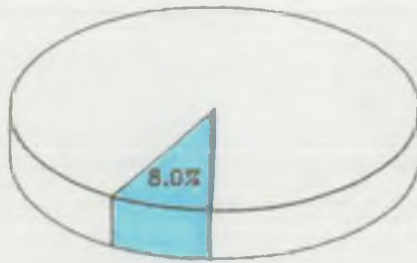
THE INDUSTRIAL ESTATES

Of the three estates "earmarked" for attention, letter "S" was sent to the Hersham Trading Estate and letter "H" sent to Bordon Trading Estate. In both instances, an industrial survey form was enclosed, along with pollution prevention guidelines and information regarding oil interceptors and oil tanks. Both letters requested that the forms should be completed and returned to the pollution control office.

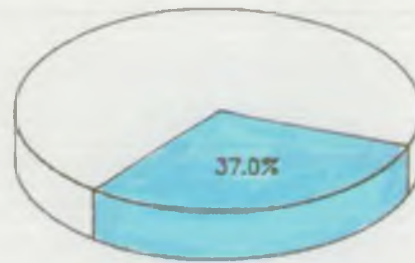
Hersham Trading Estate comprised 24 premises and there were 16 on Bordon Trading Estate. After a month had elapsed, the effectiveness of the "experiment" was checked by ascertaining what replies had been received.

From the diagrams below, it can be seen that neither letter was a complete success but, undoubtedly letter "H" had more impact and must be considered as the basis for any future correspondence.

REPLIES RECEIVED - LETTER "S"



REPLIES RECEIVED - LETTER "H"



Attached are specimen examples of industry that can be found on both these estates and which ones attracted replies.

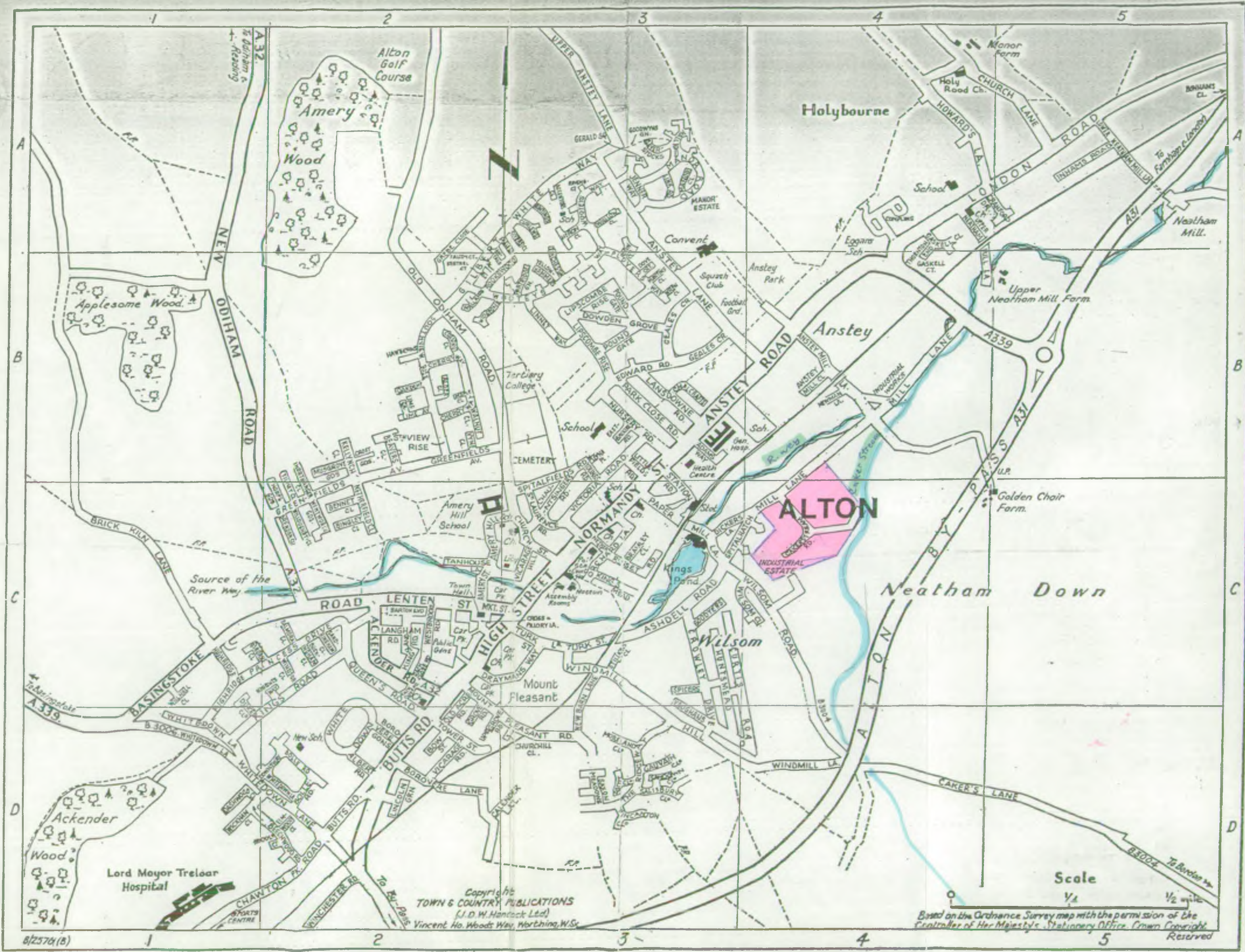
As can clearly be seen, the response was appalling. This shows clearly that industry at large is either apathetic to the question of pollution prevention, ignorant as to their responsibilities or feel that this whole question is irrelevant to them and that they will carry on (polluting?) regardless.

Maybe this attitude is a direct result of the ineptitude of the Government through its then Regional Water Authorities to show that it "had teeth" and meant business. A new NRA has obviously got a difficult, yet highly important task to perform in public and industrial awareness. This can only be successfully carried out by the establishment of a Pollution Prevention section.

MILL LANE INDUSTRIAL ESTATE, ALTON

Additional reasons why this estate was chosen to be inspected were that it has a history of causing pollution to the adjacent Caker Stream, a tributary of the River Wey (North). Over the years there have been several oil pollutions, some quite serious, and also other types of pollution including food produce and plating rinse waters containing metals.

The estate is shown on the enclosed map and it can be seen that it lies near to the headwaters of the River Wey (North). Downstream of Alton the



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Scale
1/4 1/2 mile
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river quality is exceptionally high, supporting trout. The Bentley Flyfishers are an important angling club in this area.

In addition, immediately downstream of the confluence of the Caker Stream and River Wey (North), is a mill that supports a significant flock of ornamental wild fowl. Enclosed is a list of these birds that were killed due to one of these oil pollutions in 1979. (The list, as supplied by the owner at the time). The oil, which originated from the estate, undoubtedly could have been prevented from discharging from the surface water outfall had the necessary resources been available to carry out comprehensive pollution prevention work at this time.

The main surface water outfall, when inspected on the 23rd March this year, was in a visually poor condition, showing evidence of Benthol Oxygen Demand and fungus growing along the banks and in the main channel immediately downstream. The water discharging was opalescent grey in appearance.

PROBLEMS FOUND

On entering the estate the first thing that one finds is a large sign indicating all the industrial units located on the estate with the appropriate name of the Company alongside. When one is carrying out a pollution investigation, it would be nice to know that all the names listed were current, so as to narrow the field of the source of contamination. However, this particular estate is typical of what can be found anywhere in the catchment, for estates that have been in existence longer than five years. Not only have units been added on to the estate but the companies have changed hands, all without this information being recorded on the main sign to the estate. As a consequence, one can never be sure as to what industry there is! This could be significant when a particular incident has occurred and it was felt that such an industry creating that problem could not be located on that estate. A list of premises (and changes) is enclosed.

SIGN FOR MILL LANE INDUSTRIAL ESTATE



SIGN FOR HERSHAM TRADING ESTATE



MILL LANE INDUSTRIAL ESTATE, ALTON



MILL LANE INDUSTRIAL ESTATE, ALTON

<u>Unit No.</u>		<u>(Change)</u>
1	Lynwood Scientific Dev. Ltd.	(empty)
2	D.S.Kemp & Sons	(empty)
3	Lynwood Scientific Dev. Ltd.	(empty)
4	Tooling Products (Alton) Ltd.	
5	Oliver Charles Accessories Ltd. and Allspares Ltd.	
6	Repro Workshop Printing Services	
7	Servosteel Ltd.	
8	Laleham	
9	Alton Frames Ltd.	
10	Polysales Ltd.	(Body Mode U.K.)
11	Alton Box Ltd.	
12	(Empty)	(Reed Security Shredding)
13	(Empty)	(Reed Security Shredding)
14	Laminated Profiles Ltd.	(Expanded Sugar)
15	Expanded Sugar Products Ltd.	
16	Loseley Dairy Products Ltd.	
17	Polysport Ltd.	(Tectonics)
18	Polysport Ltd.	(Tectonics)
19	Loseley Dairy Products Ltd.	
20	United Moulders Ltd.	
21	Sterilin Instruments Ltd.	(United Moulders)
22	A.G.Petzetakis Ltd.	
23	Sidel Aluminium Ltd	
24	Sidel Aluminium Ltd.'	
25	Laminated Profiles Ltd.	
26	Lynwood Scientific Dev. Ltd.	
27	Pollock and Searby Ltd.	
Plot 1	Lynwood Scientific Dev. Ltd.	
Plot 2	Gibbs-Palmer Western Ltd.	
Plot 3	United Carriers Ltd.	

(Extra Plot) - Altec

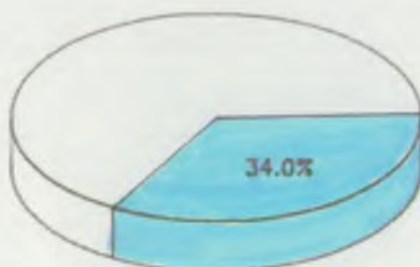
Recently, as is well documented, there was a very serious pollution by TBTO and Lindane in the River Bourne at Horsell, near Woking. It was said at the time that such an incident, although very serious, would have been even more disastrous if it was in the headwaters of the River Wey.

Well, low and behold, on Mill Lane Industrial Estate, unbeknown to this department, a certain premises does exist that could cause this very problem! According to our records, Plot 2 on the estate showed the company "Finefare", which is a well known supermarket chain. The entrance sign to the estate now shows it to be Gibbs - Palmer Western Ltd. This, I initially thought could be a warehouse for a well known biscuit manufacturer. On carrying out the pollution prevention visit, the managing director stated that the fire brigade had said that should the building catch fire then they will stand back and let it burn down! The reason being is that it is packed to capacity with some of the most dangerous herbicides and pesticides, as it is a warehouse for the horticultural industry! If there was a fire and these products entered the watercourse then the nightmare would become reality.

It was only through carrying out positive pollution prevention work that this situation was established and it makes one wonder just how many other industries with potentially lethal products are situated like "time bombs" in the region.

Of the total number of 32 units that comprise the estate, 11 companies have either changed hands or the units are now empty.

CHANGED COMPANIES/EMPTY OR NEW UNITS



4
Another problem often encountered is who actually owns the estate. With Mill Lane, for example, the local authority have taken over responsibility for the sewers but the estate roads and premises are in private ownership. The entrance sign indicates that two companies have an interest on the estate:

- (i) King and Company
- (ii) Colonial Mutual Life Assurance Society.

In checking this out, King and Company were managing agents for ICI Pension Fund Securities and they have since sold their interest to Chartwell Properties with Hartnell Taylor Cook as managing agents. Colonial and Mutual still have an interest in their part of the estate.

If there was a serious pollution from these premises and contact needed to be made with the owners, then this demonstrates just one of the problems that can be encountered in trying to trace the owners or their agents, particularly outside working hours. Again, active pollution prevention would deal with this problem.

DETAILED INSPECTION BEGINS

It is important to gauge what effect good pollution prevention is having and therefore, before any substantial work was carried out on individual premises, samples from surface water were obtained. These listed results are attached. It was obvious that one line of sewer was carrying an excessively polluting load which, undoubtedly, was causing the main surface water outfall to appear so contaminated.

Whilst this work was being undertaken, a separate and quite distinct pollution incident occurred, causing the river to turn white. By being on site and especially having got to know the drainage layout, I was quickly able to identify the premises concerned and begin tackling the problem. Once more the act of pollution prevention and more pointedly, being on the estate, saved valuable time and resources for the pollution control department.

MAIN SURFACE WATER OUTFALL, MILL LANE IND. EST. (28.3.90)



S.W.O. SILL AND STREAM BED (28.3.90)



DAIRY PRODUCE POLLUTION FROM S.W.O., MILL LANE IND. EST.



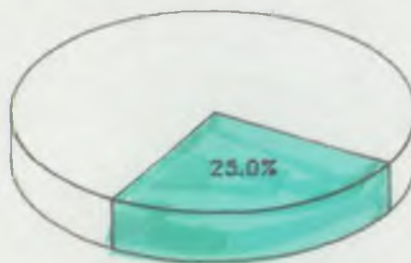
STORAGE OF PALLETTS ON SIDE OF CAKER STREAM



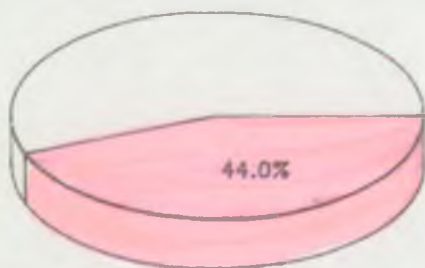
This particular industrial estate largely comprises warehousing and light industry but there are four companies where substantial manufacturing is carried out. Nevertheless, the number of premises actually causing pollution or having pollution hazards are very significant. If another estate was targetted that had heavy industry, I am sure that the statistics revealed would make worrying reading!

After completing the inspection of the site the following information was ascertained:

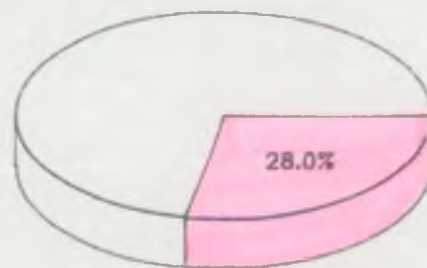
NUMBER OF SATISFACTORY UNITS - 8



NUMBER OF UNITS WITH
POLLUTION HAZARDS - 14



NUMBER OF UNITS CAUSING
POLLUTION - 9



Overall, there were 13 separate and distinct types of pollution and the list of these is attached. Against each item is a number indicating the frequency that the pollution was found. Also enclosed is a breakdown of the pollution hazards encountered, also indicated by the number of instances.

BREAKDOWN OF TYPES OF POLLUTION

Oil tank leak	1
Vehicle washing	3
Oil in s.w. gulley	2
Blocked f/w gulley	1
Cleaning of drums on yard	1
Boiler blowdown to s.w.	1
Fat in s.w. system	1
S.w. and f/w systems linked	1
Washing articles over s.w. gulley	1
Abuse of s.w. gulley	2
Wooden pallets in river	2
Paper/debris on bank/in river	1
Wrong connection of sink	1

BREAKDOWN OF POLLUTION HAZARDS

Unused/unwanted oil tank	2
Oil tank bund required	4
Sight gauge needing fixing	1
Cut off valve required on sight gauge	1
Filler point outside bund compound	3
Hole in bund compound	2
Bund compound in poor condition	2
Oil tank pipework corroded	2
Oil/raw material drum compound required	4
No oil interceptor	2
Refuelling point over s.w. gulley	1
T\E and raw materials - unbunded tanks	3
Oil trapped gulley required	1
Bund for NH ₃ store required	1
No penstock on s.w. system	2
Burning of pallets on river bank	2
Interceptors not maintained	2
Large store of pesticides/herbicides, etc.	1
Open oil drums on yard	2

EXAMPLE OF A REFUELLING POINT



EXAMPLE OF FILLING POINT OUTSIDE BUNDED OIL TANK



CONTAMINATED SURFACE WATER GULLEY BEING CLEANED



CONTAMINATION IN SURFACE WATER MANHOLE



EXAMPLE OF TYPICAL UNBUNDED OIL TANK



POLLUTION TO SURFACE WATER GULLEY AT FACTORY



SCENE AT REAR OF FACTORY



POLLUTION FROM MOBILE HIGH PRESSURE CLEANER



ANALYSIS RESULTS

At the beginning of the investigation period, a sample of the discharge from the main surface outfall was obtained. A similar sample was taken upon completion of the survey. These results, along with all archived results over the years since this estate was built in 1974, are listed and attached.

It should be noted that there is a substantial discharge of spring water from the chalk aquifer which passes through the surface water system. This undoubtedly dilutes any polluting discharge considerably. However, from the results it can be seen that in the early years of the estate there was a noticeable discharge of heavy metals from an industry which has since moved from the area. I do know that whilst this company was on the estate, some effort was exerted on the management to modify their techniques in order to eradicate the polluting load to the stream. The results show that our efforts were rewarded.

It is very significant that no results are shown for the period between late 1975 and early 1987. I know that during this time there were many oil pollutions and I would suspect other incidents that went un-noticed or were unrecorded. This period of inactivity coincides precisely with the reduction of the number of pollution officers, undoubtedly due to financial considerations, when numerous experienced staff were retired or sort more lucrative employment in other parts of the organisation and elsewhere. This was a very sad reflection of the standing of pollution control within the overall Authority.

THE END RESULT

All industries on the estate have been written to where pollution has to be curtailed or recommendations made to reduce the number of pollution hazards. Also the surface water outfall which once looked foul and was causing fungal growth in the stream, has been cleaned up and the discharge from it is now of an excellent quality. The polluted surface water system has been cleansed so as to ensure that the quality of any surface water passing through it does not deteriorate.

MAIN SURFACE WATER OUTFALL, MILL LANE IND. ESTATE, ALTON (1.5.90)
(AFTER POLLUTION PREVENTION SURVEY)



S.W.O. SILL AND RIVER BED BELOW MAIN OUTFALL (1.5.90)



During the survey, it was found that the by-pass to the main oil interceptor at the outfall was working in dry weather. This was due to a build up of debris in the manhole chamber at this point. This has now been rectified.

Should any further pollutions occur, now that the system and outfall have been cleaned, they will be more obvious and therefore easier to deal with. Also, due to public awareness on the estate, as a consequence of my visit, I know that employees and management will be more ready to report incidents of pollution when they are seen.

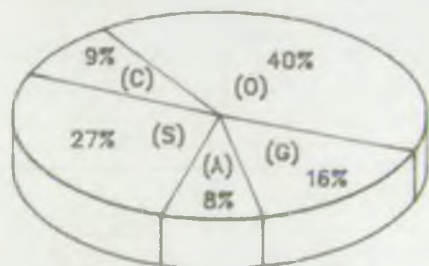
Enclosed are photographs showing the surface water outfall before and after the pollution prevention survey. Also there are photographs showing typical examples of the problems encountered on an industrial estate.

THE REALITY

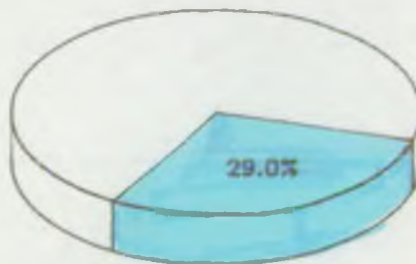
By way of demonstrating the effectiveness pollution prevention would have had within the day to day running of a District Office, all the Incidents from 1st January to 21st May of this year were analysed to check whether any of them could have been prevented. The breakdown was as follows:
(Guildford Office)

<u>Incident Type</u>	<u>Total</u>	<u>Avoidable by Pollution Prevention</u>
Oil	83	25
Chemical	18	5
Sewage	56	9
Agriculture	17	10
General	34	11
	<u>208</u>	<u>60</u>

ALL INCIDENTS
(EXCLUDING NATURALLY OCCURRING)



PREVENTABLE INCIDENTS



During the survey, it was found that the majority of the respondents were male, and the majority were working in the service sector. This was due to the fact that the majority of the respondents were male and were working in the service sector.

It was also found that the majority of the respondents were aged between 18 and 30 years old. This was due to the fact that the majority of the respondents were aged between 18 and 30 years old.

The majority of the respondents were from the service sector, and the majority were male. This was due to the fact that the majority of the respondents were from the service sector and were male.

TABLE 1

The majority of the respondents were from the service sector, and the majority were male. This was due to the fact that the majority of the respondents were from the service sector and were male.

Age Group	Gender	Occupation
18-24	Male	Student
25-34	Female	Teacher
35-44	Male	Engineer
45-54	Female	Manager
55-64	Male	Retired
65+	Female	Homemaker
		Total
		100

FIGURE 1



FIGURE 2



CONCLUSION

The foregoing demonstrates very clearly that pollution prevention gives excellent value for money, particularly within these "money conscious" times and thus is of extreme benefit to the Pollution Control Department.

In carrying out this survey and meeting and talking to all kinds of people with different attitudes, I was able to placate them when they felt that nothing was being done to clean up the environment, or, was able to inform them of their responsibilities. The net result was that the NRA was given a higher profile and its standing in the community was enhanced.

However, much needs to be done in higher levels of organisation. For example, the Chief Chemist who sits on the board of the C.B.I., from Bass Charrington, was recently heard to remark that he did not know which department deals with what within the NRA. Another comment heard was that not enough information was given to the public, and that industry was not fully aware of the pollution legislation as it now stands.

It would seem that the Water Utilities are more inclined to take legal action against companies that discharge trade effluent or other contaminated matter into the surface water sewers and it is imperative that the NRA shows equal determination in following up the resultant pollution to the streams. By pursuing an active pollution prevention policy, such incidences should start to diminish as public awareness is raised.

With respect to the estates, many are owned by Bodies for commercial or financial gain and they are just passed to different organisations, like stocks and shares, with no thought of actually "caring" for the estate, let alone remedying pollution that may be occurring! Just by walking around such estates, one would be horrified at the degree of pollution or just "bad housekeeping", causing an overall visual deterioration of the premises. Often the oil interceptors that may have been constructed are neglected, not having been emptied or cleaned since their installation. This also applies to the many oil trap gullies. In times of heavy rain, surface water systems such as these are flushed out, causing an unwanted pollution load to the ever increasing urban drainage.

New Industrial Estates are constantly being built with an eye to profit and it is difficult to keep up with them. They often masquerade under "posh names" sometimes concealing potential pollution hazards behind a facade of "tasteful" brickwork! Vigorous vetting and following up of planning applications, upon construction would pay great dividends.

Often new estate drainage systems are wrongly constructed, have no interceptors or bear no resemblance to the submitted plans. Many a pollution enquiry is thwarted due to this.

Other examples where pollution can go unchecked are on Crown Exempt property. Even though we cannot enforce our recommendations, good pollution prevention work can encourage the Property Services Agency to do as we request.

When visiting any premises, whether they be isolated or on estates, it always seems to take longer to deal with problems encountered, than anticipated; nothing is ever straightforward. Knowing this, programmed pollution prevention work can take this into account without any disruption.

THE NEW IMAGE

The Pollution Control Manager stated recently that as a Department he does not want us to "stand still" but should be ever evolving and leading the way. Thames Region should be in the forefront of progress.

It is quite apparent that a new Pollution Prevention Section should be established within the Pollution Control Department so as to make a determined effort to have a proper impact on this rather neglected but high profile area. The work of this new Section, if linked up with strong Public Relations support, would enable this area of neglected work to "take off", much to the benefit and credit of the Thames Region.

I was seconded as the Pollution Prevention Officer in the South East Area in January and since then I have laid the foundations for such a Pollution Prevention Section that would be viable and constructive within the Pollution Control Department. Since that time, however, I have found

that the demands from and within the District, especially with the latest serious incidents, have often side-tracked me from my task. It is likely that, even with an extra Pollution Officer per District, the amount of Pollution Prevention work that could be carried out amongst the ever escalating pollution incidents, would be marginal, unless positive steps are taken.

Apart from us carrying out the necessary inspections of industrial estates, the Section could also identify premises in residential or isolated areas where very toxic chemicals are being stored. The recent "Harcros" incident (spillage of wood preservatives) has exposed a serious shortcoming of NRA policy. As these installations lie outside the confines of BASIS, we have no real power to deal with them except under the Water Act. However, the necessary Section 110, (copy enclosed) which contains all the necessary powers, has not been defined and implemented to make it mandatory for tanks to be contained within bund compounds, etc.

In the case of the "Harcros" incident, their installation was properly banded, but in the event, the fire rendered it useless. With the necessary powers and personnel to carry out unhindered inspections, then we could even insist on specific types of construction, according to the products stored.

This incident caused quite a furore in the local papers, with "pressure groups" saying "who is 'policing' premises that store and use toxic chemicals?" It would seem that the NRA is pressing for more statutory controls for these products, but if implemented it is essential that they are enforced by an effective department that has the time and personnel to do this work - and be seen to be doing it.

By reviewing the policy towards Pollution Prevention, it will show that Thames Region means business and is building on the lessons learnt so as to have a positive impact in the 1990's.

WEY CATCHMENT

Alton - Mill Lane Industrial Estate
Alton - Chown Industrial Estate
Alton - Caker Industrial Estate
Alton - Wilsom Road Industrial Estate
Alton - Weyside Park Industrial Estate
Bordon - Woolmer Industrial Estate
Bordon - Industrial Estate
Byfleet - Brooklands Industrial Park
Byfleet - Wintersell Road Industrial Estate
Byfleet - Weymead Estate SWO
Byfleet - Oyster Lane Industrial Estate
Cranleigh - Vine Works Industrial Estate
Cranleigh - Littlemead Industrial Estate
Cranleigh - Elliot Industrial Estate
Esher - Royal Mills Industrial Estate
Farnham - Guildford Road Industrial Estate
Farnham - Trading Estate
Godalming - Catteshall Lane Industrial Sites
Godalming - Wharfe Area
Guildford - Middleton Industrial Estate (University Drain)
Guildford - Walnut Tree Close Industrial Estate (Grays Drain)
Guildford - Slyfield Green Industrial Estate
Haslemere - Kings Road Industrial Estate
Haslemere - Station Industrial Estate
Hersham - Trading Estate
Passfield - Van Leer Trading Estate
Peasmarsh - River Wey Industrial Estate
Woking - Woking Business Park

MOLE CATCHEMENT

Crawley - Stephenson's Wey Industrial
Crawley - County Oak Industrial Estate
Crawley - (Flemming Wey) Industrial Area
Crawley - (Manor Royal) Industrial Area
Crawley - (Gatwick Road) Industrial Area
Dorking - Curtis Road Industrial Estate
Dorking - London Road Industrial Area
Dorking - Vincent Lane (Station Road) Industrial Site
Leatherhead - Mole Business Park
Leatherhead - (Ronsons Drain) Industrial Area
Redhill - Holmthorpe Industrial Estate
Salfords - Lyons Industrial Estate

BOURNE CATCHMENT

Addlestone - Weybridge Trading Estate
Ascot - Industrial Premises
Chertsey - Hanworth Lane Industrial Estate
Chertsey - Fordwater Industrial Estate
Egham - Rusham Road Industrial Estate
South Ascot - Industrial Estate
Thorpe - Ten Acre Lane Industrial Estate
Woking - Goldsworth Park Industrial Estate

LIST OF INDUSTRIAL ESTATES IN SURREY 1988

PAGES

ELMBRIDGE : EL

13 - 48

- 1 Molesey Industrial Estate, Island Farm Road, West Molesey
- 2 Kingston House Estate, Portsmouth Road, Long Ditton
- 3 Imber Court Trading Estate, Orchard Road, East Molesey
- 4 North Weylands Industrial Estate, Molesey Road, Hersham
- 5 Hersham Trading Estate, Molesey Road, Hersham
- 6 Riverdene Industrial Estate, Molesey Road, Hersham
- 7 Sandown Industrial Park, Mill Road, Esher
- 8 Wintersells Road Industrial Estate, Oyster Lane, Weybridge
- 9A/B Brooklands Industrial Park, Oyster Lane, Weybridge
- 10 Ferry Works, Summer Road, Thames Ditton
- 11 Summer Road Industrial Estate, Thames Ditton
- 12 Albany Works, Queen's Road, Thames Ditton
- 13 St Georges Business Centre, Locke Kings Road, Weybridge
- 14 Churchfield Road Industrial Estate, Walton-on-Thames

GUILDFORD : GU

57 - 96

- 1 Midleton Industrial Estate, Midleton Road, Guildford
- 2 Woodbridge Meadows Industrial Estate, Woodbridge Meadows, Guildford
- 3 Woodbridge Park Industrial Estate, Woodbridge Park, Guildford
- 4 Cathedral Hill Industrial Estate, Midleton Road, Guildford
- 5 Walnut Tree Close Industrial Estate, Walnut Tree Close, Guildford
- 6A/B Slyfield Green Industrial Estate, Moorfield Road, Guildford
- 8 Pines Trading Estate, Broad Street, Guildford
- 9 Broadford Park Business Centre, Broadford Road, Shalford
- 10 Rio Works, Polesden Lane, Send
- 11 Peasmarsh Industrial Estate, Portsmouth Road, Peasmarsh
- 12 Riverway Industrial Estate, Portsmouth Road, Peasmarsh
- 13 Merrow Industrial Estate, Merrow Common, Guildford
- 15 Surrey Research Park, Gill Avenue, Guildford
- 16 Station Road Industrial Estate, Station Road, Shalford
- 17 'Q' Factory Estate, Tanyard Lane, Shalford

MOLE VALLEY : MO

97 - 124

- 1 Old Char Wharf, Station Road, Dorking
- 2 Curtis Road Industrial Estate, Curtis Road, Dorking
- 3 Vincent Lane Industrial Estate, Vincent Lane, Dorking
- 4 Bookham Industrial Park, Church Road, Bookham
- 5 Commerce Estate, Kingston Road, Leatherhead
- 6 Plough Estate, Kingston Road, Leatherhead
- 7 Regent Industrial Estate, Kingston Road, Leatherhead
- 8 Mole Valley Business Park, Randalls Road, Leatherhead
- 9 Leatherhead Industrial Estate, Station Road, Leatherhead
- 10 Couch Industrial Area, Barnett Wood Lane, Leatherhead
- 11A/B Leatherhead Research Area, Cleeve Road, Leatherhead

REIGATE AND DANSTEAD : RE

125 - 144

- 1 Pear Tree Farm Industrial Estate, Bonchurst Road, Salfords
- 2 Reading Arch Road Industrial Area, Brighton Road, Redhill
- 4A/B Holmthorpe Industrial Estate, Holmthorpe Avenue, Redhill
- 5 Gatwick Metro Centre, Balcombe Road, Horley
- 6 Albert Road North Industrial Estate, Albert Road North, Reigate
- 7 Gatton Park Business Centre, Battlebridge Lane, Redhill

RUNNYMEDE : RU

145 - 170

- 1 Ten Acre Lane Industrial Estate, Crabtree Road, Egham
- 2 Chertsey Bridge Estate, off Bridge Road, Chertsey
- 3 Fordwater Trading Estate, Fordwater Road, Chertsey
- 4 Hanworth Trading Estate, Hanworth Lane, Chertsey
- 5 Weybridge Trading Estate, Hamm Moor Lane, Weybridge
- 6 Causeway Estate, (including The Green Business Centre), Egham
- 7 Rusham Road Estate, Rusham Road, Egham
- 8 Gogmore Lane Industrial Estate, Gogmore Lane, Chertsey
- 9 Rivers Edge Industrial Park, River Park Avenue, Staines
- 10 Pinetree Business Park, Chertsey Lane, Staines

WAVERLEY : WA (By permission of Waverley Borough Council)

255 - 288

- 1 Little Meads Industrial Estate, Alford Road, Cranleigh
- 2 Vine Works Industrial Estate, Elmbridge Road, Cranleigh
- 3 Manfield Park Industrial Estate, Guildford Road, Cranleigh
- 4 Wrecclesham Trading Estate, (Grovebell), Wrecclesham Road, Farnham
- 5 Guildford Road Industrial Estate, Guildford Road, Farnham
- 6 Farnham Trading Estate, Water Lane, Farnham
- 7A/B The Wharf and Woodside Park Industrial Estate, Cattershall Lane, Godalming
- 8 Weydon Road and Station Yard Industrial Estate, Weydon Lane, Haslemere
- 9 Kings Road Industrial Estate, Kings Road, Haslemere
- 10 Blackdown Rural Industries, Haste Hill, Haslemere
- 11 Riverside Park Industrial Estate, Dogflud Way, Farnham
- 12 Farnham Business Centre, Dogflud Way, Farnham
- 13 Weydon Lane Industrial Estate, Wrecclesham, Farnham
- 14 Martinette Industrial Estate, High Street, Cranleigh

WOKING : WO

289 - 320

- 1 Abbots Close Industrial Estate, Oyster Lane, Byfleet
- 2 Camphill Industrial Estate, Camphill Road, West Byfleet
- 3 Sheerwater Industrial Estate, Albert Drive, Woking
- 4 Woking Business Park, Albert Drive, Woking
- 5 Monument Bridge Industrial Estate (West and East), Monument Way, Woking
- 6 Manor Way Industrial Estate, High Street, Old Woking
- 7 Poole Road Industrial Estate, Poole Road, Woking
- 8 Goldsworth Road Trading Estate, Goldsworth Road, Woking
- 9 Goldsworth Park Industrial Estate, Horsell, Woking
- 10 Lamsbury Industrial Estate, Lower Guildford Road, Woking
- 11 Martland Industrial Estate, Smarts Heath Road, Woking
- 12 Robin Hood Park Industrial Estate, Robin Hood Road, Woking
- 13 Royston Road Industrial Area, Royston Road, Byfleet
- 14 The Mayford Centre, Smarts Heath Road, Mayford Green, Woking

Letter 'S'



NRA

National Rivers Authority
Thames Region

DATE:

[] []
[] []

Your Ref: POL/PREV/ICL
Our Ref:
Please reply to:

Mr. Larkins

Dear Sir,

Pollution Prevention Measures at
Water Act 1989

On 1st September 1989, the National Rivers Authority (NRA) was established. One of our primary tasks, under the above legislation, is to ensure that no pollution occurs to any ditches or watercourses, either by direct discharge or via the surface water system.

Due to the increasing number of pollution incidents that are occurring, I seek your co-operation in trying to reduce any potential hazards. In this connection you will find a copy of our pollution prevention guidelines, which should assist you to achieve this.

Even if your premises are not adjacent to any streams, but are isolated or within an industrial area, pollution can still occur, be it by accident, carelessness, or vandalism.

You will also find enclosed a questionnaire which I would be obliged if you will complete and return to this office. This will assist us greatly in the Management of Pollution Prevention.

In due course a member of my staff may be visiting your company to carry out an inspection, but in the meantime I look forward to receiving your reply.

Yours faithfully

I.C. Larkins
Pollution Prevention Officer

Lodymead
By-Pass Road
Guildford
Surrey
GU1 1BZ
Tel: (0483) 577655
Fax: (0483) 61598

Letter "H"



National Rivers Authority
Thames Region

DATE:

[]
[]

Your Ref: POL/PREV/ICL
Our Ref:
Please reply to:
Mr. Larkins

Dear Sir,

Pollution Prevention Measures at
Water Act 1989

On 1st September 1989, the National Rivers Authority (NRA) was established. One of our primary tasks, under the above legislation, is to ensure that no pollution occurs to any ditches or watercourses, either by direct discharge or via the surface water system.

Any pollutions that occur will be viewed very seriously by this Authority. If they can be traced back to the company or industrial premises concerned, then a prosecution could ensue, in addition to clean-up charges being recouped.

Enclosed you will find our pollution prevention guidelines and a questionnaire. This should be completed and returned as soon as possible. I also seek your confirmation that any remedial measures will be implemented.

In due course a member of my staff may be visiting your company to carry out an inspection, but in the meantime I look forward to receiving your reply.

Yours faithfully

I.C. Larkins
Pollution Prevention Officer

Ladymead
By-Pass Road
Guildford
Surrey
GU1 1BZ
Tel: (0483) 577655
Fax: (0483) 61598

RIVER POLLUTION

and how to avoid it

THE POLLUTION PROBLEM

The battle against pollution concerns all of us. This leaflet is designed to help you to help us safeguard the water environment.

As England and Wales have become more and more urbanised, with increasing numbers of industrial sites, homes and businesses, considerable strain has been placed upon our natural environment.

One, very serious result of this is the increasing number of river pollution incidents. Even rural areas are not free from the pollution threat. Many serious pollutions originate from farms.

And, it is not only rivers, streams, lakes and ponds which are at risk from pollution. Pollutants can also seep through the ground and threaten underground water.

There are many sources of pollution. Large industrial estates pose a potential risk but so do smaller sites such as car parks, petrol stations, and garages. Pollution can be caused deliberately, or through negligence, by accident or vandalism and the results can be catastrophic: Drinking water and irrigation supplies can be put at risk, the entire wildlife population of the river can be wiped out and those responsible can face a massive clean up bill and criminal prosecution.

Our lives depend upon a clean and healthy water system. It is in all our interests to ensure that river pollution does not happen.

HOW DO RIVERS BECOME POLLUTED?

Pollutants find their way into rivers via two main routes:-

Direct Drainage from land.

Cattle slurry from farm land is just one example. The main causes are:- inadequate storage facilities, accidents, negligence and sometimes vandalism.

Via the Sewerage System

There are two types of sewerage system. The foul water sewer leads to the sewage works where it is treated. The effluent is then discharged into a watercourse with the consent of the NRA. These discharges are routinely monitored to ensure that they are up to standard.

The other type of sewer is the surface water sewer. This discharges directly into streams, without any treatment, as it should only be conveying harmless surface water. Problems occur when the surface water systems become contaminated either through wrong connections or through acts of negligence or vandalism

WHO ARE WE?

The NRA is an independent public body charged with safeguarding and improving the natural water environment. Alongside pollution control, we are responsible for flood defence, regulating rivers and groundwaters, protecting and improving fish stocks and promoting water based recreation of all types. We are committed to improving wildlife habitats and conserving the natural environment in everything we do.

WHAT DO WE DO?

The NRA keeps a regular check on river water quality. Anyone discharging effluent into rivers must obtain legal permission from us first in the form of a "discharge consent". The effluent is monitored regularly to check that it is up to standard. Pollution officers are also on call to cope with other river pollutions and the resulting clean-up operations.

Although the NRA has strong powers of prosecution when rivers are polluted, we firmly believe that prevention is better than cure. Our aim is to make everyone aware of the risks to our rivers and of the steps that can be taken to prevent pollution. Pollution control officers regularly visit industrial estates and other business premises to see what measures are being taken and to advise owners and managers if anything further needs to be done.

WHAT YOU CAN DO

- * Don't put oil, petrol or garden chemicals down drains or into gutters
- * Don't throw rubbish into rivers or streams.
- * Don't allow any potentially polluting matter to escape into rivers or streams or the drainage system.
- * Do ask us for advice if you are not sure how to dispose of a potential pollutant.
- * Do report any suspected pollution immediately to us.
- * Do tell us if you have a spillage of a potential pollutant.

All pollution is an offence under the Water Act 1989 and polluters can be prosecuted. The NRA is available to give help and advice at any time. Get in touch with us and take action before its too late.

DATA BASE

CATCHMENT Mole ESTATE None
COMPANY Wendogable Ltd. TELEPHONE 0372 84425
ADDRESS Gable Works, Steels Lane, Oxshott, Surrey KT22 ORD
TYPE OF INDUSTRY Builders/Plant Hire
MANAGER Brian Howard ALTERNATIVE CONTACT Michael Constable
DATE VISIT 22/3/90 LETTER 27/3/90 REPLIED 12/4/90 FILE WAT/MOL
MATERIALS Gas Oil NO. OF TANKS 2
BUNDED 1 x 500 gallon tank UNBUNDED 1 x redundant oil tank
COOLING WATER None TRADE EFFLUENT Domestic only
DISPOSAL Sink Waste to S/W TREATMENT None
HEATING Electric EXTERNAL STORAGE 1 x waste hire skip
INTERCEPTOR 3 stage PARKING Miscellaneous
WASHING Yes - S/Wtr.
REMARKS Divert wash water and sink waste to F/W.

HERSHAM TRADING ESTATE, LYON ROAD, HERSHAM

Letter "S" Sent 11.04.90

COMPANY NAME

REPLY
LETTER/FORM

Racal Defence Electronics (Radar) Ltd.

Thames Offset Printing Services Ltd.

Derek & Stopps Ltd.

Consoles Ltd.

Aircraft Furnishing International Ltd.

British Metal Treatments Ltd.

02.05.90

Communication Solutions Ltd.

Birch & Jacques (1981) Ltd.

Minting Equipment Ltd.

P. & E. Engineering

Maxiprint

Walton Conservatories

T.J. Harrington

Premier Colloid Mills Ltd.

Photo Plant Ltd.

19.04.90

Hersham Valves Ltd.

Retro Exhaust Brakes

Surrey Design Services Ltd.

Chelsea Artisans PLC

A.C.R. Lift Truck

Auto Clero Ltd.

Simac

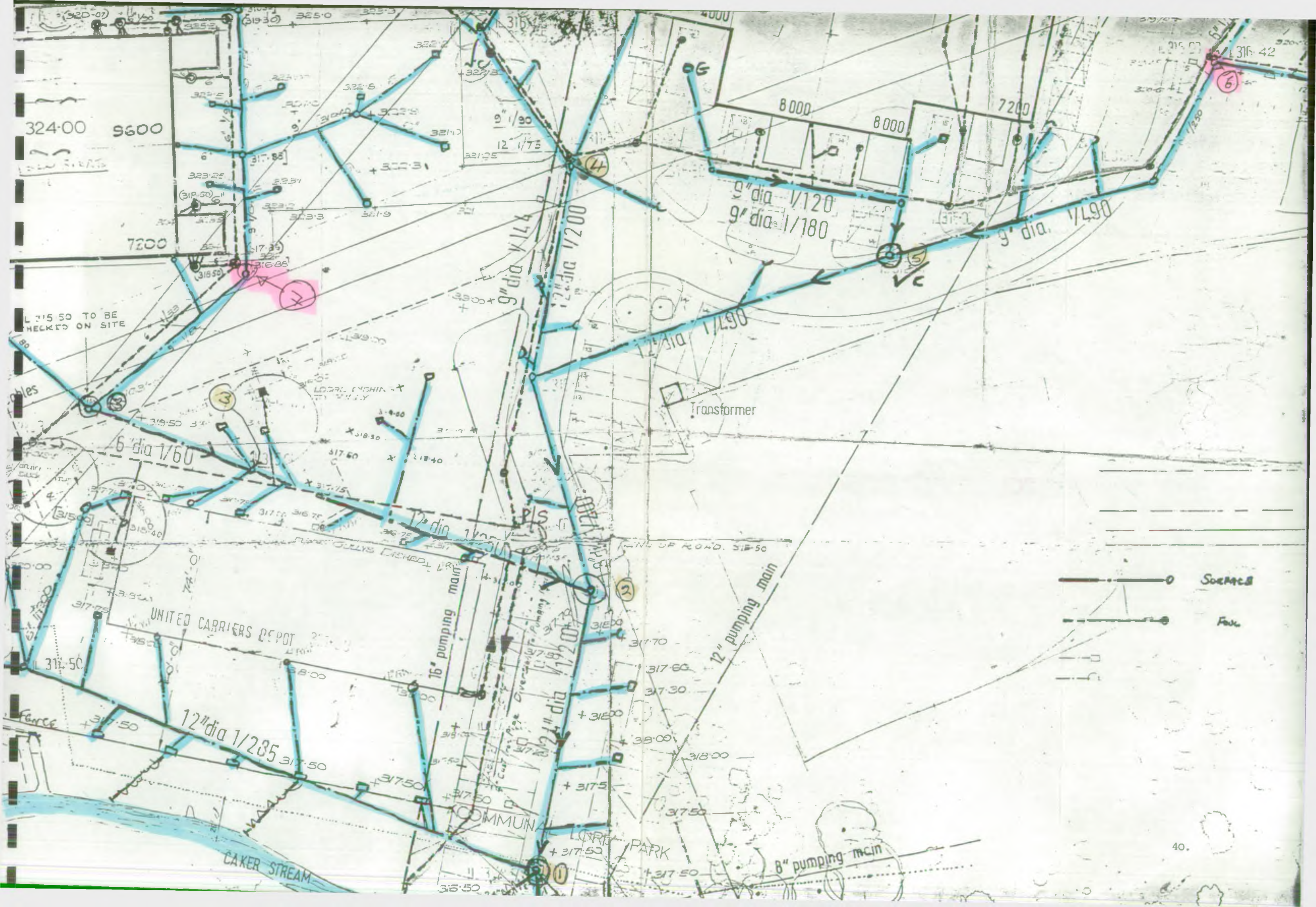
Harcross Engineering Co. Ltd.

EFCO

BORDON TRADING ESTATE

Letter "H" Sent 05.04.90

<u>COMPANY NAME</u>	<u>REPLY LETTER/FORM</u>
Plasplant Marchinery Ltd.	
Chessington Tyres	12.04.90
J.R.M.	23.04.90
Smiths Packaging	
Reid Manufacturing	11.04.90
Yuthane Ltd.	
Sealspure Electrical Ltd.	
B. & B. Services (Bordon) Ltd.	
Anderson Tapes	
Bomar Manufacturing	23.04.90
Sabre Filtration	19.04.90
Printed Motors Ltd.	12.04.90
Modern Reinforced Plastics Ltd.	
Exclusive Foods/Imports	
Harrison & Co.	
Wessex Farm Machinery Sales Ltd.	



324.00 9600

7200

8000

8000

7200

L 315.50 TO BE CHECKED ON SITE

Transformer

UNITED CARRIERS DEPOT

COMMUN

PARK

CAKER STREAM

—○— Soc. M.C.S.

- - - - - Fauc.

ANALYSIS RESULTS OF SAMPLES FROM MANHOLES IN
S.W. SYSTEM, MILL LANE INDUSTRIAL ESTATE

(mg/l)

	<u>BOD</u>	<u>S/Solids</u>	<u>NH₄</u>	<u>Chloride</u>	<u>P</u>	<u>pH</u>
1. Manhole before S.W.O.	6.3	6.0	0.05	22.0	0.02	7.0
2. Manhole No. 2	12.0	16.5	0.05	23.0	0.02	6.9
3. Manhole No. 3	6.3	206.0	0.05	21.0	0.06	7.0
4. Manhole No. 4	6.9	12.0	0.05	21.0	0.02	7.0
5. Manhole No. 5	165.0	166.0	0.05	31.0	1.30	6.7
6. Manhole No. 6	854.0	1190.0	3.06	108.0	5.90	5.9
7. Manhole No. 7	1.0	7.0	0.05	22.0	0.15	7.0

THE UNIVERSITY OF MICHIGAN LIBRARY
 400 TAPSCOTT DRIVE, ANN ARBOR, MI 48106-1000

1994

DATE	DESCRIPTION	AMOUNT	BALANCE	REMARKS
01/01/94	OPENING BALANCE	100.00	100.00	
01/15/94	PAYROLL	50.00	150.00	
01/30/94	RENT	25.00	125.00	
02/15/94	SALES	75.00	200.00	
02/28/94	UTILITIES	15.00	185.00	
03/15/94	PAYROLL	50.00	235.00	
03/31/94	CLOSING BALANCE		235.00	

ANALYSIS RESULTS OF DISCHARGES FROM
MILL LANE INDUSTRIAL ESTATE S.W.O.

(mg/l)

	<u>BOD</u>	<u>S/SOLIDS</u>	<u>NH₄</u>	<u>COD</u>	<u>Chloride</u>	<u>pH</u>
23.07.74	14.6	44.5	0.45	24.5	27	3.61
11.10.74	1.2	22.2	0.06		27	7.25
05.11.74	3.9	7.2	0.04		28	7.21
24.02.75	1.2	1.9	0.01		24	7.33
13.08.75	2.2	2.2	0.05		25	7.22
12.03.87	1.0	6.0	0.05		26	7.10
11.05.88	1.0	1.6	0.05		19	7.10
23.03.90	6.7	9.5	0.05		23	6.80
1.05.90	1.0	2.5	0.05		25	7.00

	<u>Zn</u>	<u>Cr</u>	<u>Ni</u>	<u>Cu</u>	<u>Cn</u>	<u>Phenol</u>	<u>Cd</u>
23.07.74	0.1	2.5	0.74	0.14	0.01	0.026	0.003
11.10.74	0.6	0.39	0.11	0.03	0.01		0.004
05.11.74	0.04	0.29	0.66	0.11			0.002
24.02.75	0.03	0.02	0.03	0.01			0.003
13.08.75	0.02	0.01	0.06	0.01			0.003
12.03.87	0.01	0.01	0.01	0.01			0.005
11.05.88							
23.03.90							
01.05.90							

THE UNIVERSITY OF CHICAGO

Faint, illegible text, possibly bleed-through from the reverse side of the page.



ORNAMENTAL FOWL MORTALITY ON THE RIVER WEY (NORTH) 1979

One female Barheaded Goose
One pair Shelduck
One pair Mandarin Ducks
One pair Bahama Pintail
One female Common Pintail
One male Shoveler
One male Red-crested Pochard
Two pairs Tufted Ducks
One female Falcated Teal
One pair of Mallard
One Bittern
Seventeen Coots
Five Dabchicks
Three Wild Mallard
Three Wild Tufted Ducks

In addition, there are ten Indian Runner Ducks and one pair of Barnacle Geese which, although still alive, are in very poor condition and unlikely to survive.

PART III

(6) The Secretary of State may by regulations provide that any reference to inland waters in subsection (1) or (2) above shall be construed as including a reference to such coastal waters as may be prescribed.

Requirements to take precautions against pollution.

Bandings of oil tanks etc.

110. (1) The Secretary of State may by regulations make provision—

- (a) for prohibiting a person from having custody or control of any poisonous, noxious or polluting matter unless prescribed works and prescribed precautions and other steps have been carried out or taken for the purpose of preventing or controlling the entry of the matter into any controlled waters;
- (b) for requiring a person who already has custody or control of, or makes use of, any such matter to carry out such works for that purpose and to take such precautions and other steps for that purpose as may be prescribed.

*oil v
Band ?*

(2) Without prejudice to the generality of the power conferred by subsection (1) above, regulations under that subsection may—

- (a) confer power on the Authority—
 - (i) to determine for the purposes of the regulations the circumstances in which a person is required to carry out works or take any precautions or other steps; and
 - (ii) by notice to that person, to impose the requirement and to specify or describe the works, precautions or other steps which that person is required to carry out or take;
- (b) provide for appeals to the Secretary of State against notices served by the Authority in pursuance of provision made by virtue of paragraph (a) above; and
- (c) provide that a contravention of the regulations shall be an offence the maximum penalties for which shall not exceed the penalties specified in subsection (6) of section 107 above.

POLLUTION PREVENTION DEPT.
INDUSTRIAL PREMISES SURVEY

(IN CONFIDENCE)



Company Name:

Address:

Telephone Number:

Manager:

Engineer or
Responsible Person

Type of Oil or
Chemicals on Site

Nos & Capacities of
Bunded Tanks

Nos & Capacities of
Unbunded Tanks

Cooling Water Discharge?
Boiler Blowdown Water?

Yes/No

To S/W

To F/W

Other Trade Wastes &
Means of Disposal

Yes/No

To S/W

To F/W

Plating & Chemical
Treatment?

Yes/No

Rinse Water
Discharge:

To F/W

To S/W

Heating Systems

Yes/No

Electric

Gas

Oil

External Storage incl.
Waste Products

Car Park for 20
or More Vehicles

Yes/No

Oil interceptor on
S/W System?

Yes/No

Type:

Vehicle Wash Bay

Yes/No

To S/W

To F/W

Steam/High Pressure
Cleaner (Mobile)

Yes/No

Refuse Compactor

Yes/No

Foul Sewage

Main Drainage
Yes/No

Septic Tank
Yes/No

Cesspool
Yes/No

Remarks

45.

S/W = Surface Water Sewer
F/W = Foul Water Sewer





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A GUIDE TO THE POLLUTION PREVENTION MEASURES REQUIRED BY THE NATIONAL RIVERS AUTHORITY

SURFACE WATER DISPOSAL

(1) An oil interceptor may be required depending on type of development. A copy of guidelines for interceptor provision and design is available.

(2) Multi-Storey Carparks

The roof parking area is rain-washed as in the case of a normal surface car park and drainage from this may be connected to the surface water drainage system. Intermediate covered floors are not rain-washed and oil/grease accumulation may eventually be removed using emulsifiers so this drainage should not be passed to the surface water drains.

All drainage from covered areas should pass to the local foul sewer. The formal approval of the Thames Water Trade Effluent Officer may be required.

(3) Petrol Filling Station

Spillage of petrol and oil and the use of detergents for cleaning the forecourt area require that all covered areas should drain to the foul sewer. Where this is not practicable then connection to a surface water drain may be permitted subject to conditions including the provisions of an oil interceptor and the prohibition of emulsifiers discharging to the surface water system.

(4) Vehicle Wash:-

Vehicle wash waters should not be discharged to the surface water drains. Developers should consult the Thames Water Trade Effluent Control staff regarding the acceptability of discharging this drainage to the foul sewer.

OIL STORAGE

(1) Any oil storage tank should be sited on an impervious base and surrounded by an oil-tight bund wall. No drainage outlet should be provided. The bunded area should be capable of containing 110% of the volume of the tank and all fill pipes, draw pipes and sight gauges should be enclosed within its curtilage. The vent pipe should be directed downwards into the bund. No damp course should be provided in the bund wall structure.



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- (2) Fuel delivery areas should be provided with a raised kerb surround, any drainage from within this area should pass through a suitable oil interceptor. The NRA should be consulted regarding the type of interceptor required (0483 577655).

OIL PIPELINES

Developers are required by the Pipelines Act, 1962, to notify the NRA of any centralised fuel distributions systems where oil is supplied by oil pipeline from a central oil storage tank. Underground oil pipelines may be subject to corrosion in certain ground conditions and above ground pipelines are preferred. When this is not practicable appropriate protective measures against corrosion should be provided.

SEWAGE DISPOSAL

All foul sewage from the development should pass to the local foul sewer.

In exceptional cases other arrangements may be agreed with NRA Thames Region 0483 577655.

OTHER GENERAL POINTS

- (1) All drainage manhole covers which lie within a flood plain should be of screwdown cover design. All sink waste gullies should be built up above flood level.
- (2) All roof drainage should pass through sealed shoes.

NOTE: Where site dewatering is involved during construction work the prior approval of the NRA should be obtained. Any discharge must be free from solids in suspension, oil, or other polluting materials.

WATER ACT 1989

The formal consent of the NRA Thames Region is required for any discharge to a watercourse, into or onto land.

In the first instance informal advice should be obtained from the Guildford office on 0483 577655 during normal office hours.



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GUIDELINES FOR THE PREVENTION OF POLLUTION
FROM ABOVE GROUND OIL STORAGE TANKS

These guidelines are produced to assist those responsible for the design, construction, operation and ownership of above ground oil storage tanks. They should be complied with in order to avoid oil pollution of surface water or groundwater, sewers and drains.

1. GENERAL

All tanks, pipework, gauges and structures should be constructed to recognised engineering standards in accordance with the appropriate British Standard Institution specification, Codes of Practice or Petroleum licence.

2. THE STORAGE TANK

- (a) This should be located where it can be inspected externally for corrosion or leaks.
- (b) It must be provided with firm foundations to avoid settling.
- (c) The storage tank should be protected internally and externally against corrosion and marked with the product type and capacity.
- (d) Water from within a tank must be drawn off to prevent freezing and splitting of the drain valve/cock in very cold weather.

3. THE BUND

- (a) The tank should be sited within a bund consisting of a firm base and surrounded by a wall both of which must be constructed or lined with a material impermeable to the oil stored.
- (b) Bund walls should not be provided with a damp proof course.
- (c) Material used for sealing around any pipework passing through a bund must not be attacked by the oil stored.
- (d) The capacity of the bund should be at least 10% greater than the capacity of the storage tank or, if more than one tank is involved the capacity of the largest tank within the bund area.
- (e) There should be no outlet directly connecting the bund to any drain, sewer, stream or ground.
- (f) Normally rainwater evaporates from within the bund. Should there be a need to remove accumulated rainwater it can be removed by tanker or by a semi rotary hand pump discharging through an oil interceptor.

4. PIPEWORK

- (a) All pipework should be protected against corrosion and be sited above ground so it may be easily seen and leaks quickly noticed.
- (b) Separate filling pipes should be provided for each tank unless the tanks are interconnected by a balance line of greater flow capacity than the filling pipe.
- (c) Fill pipes should be clearly marked with the product type and a tank number where more than one tank is involved and should also be situated within the confines of the bund. Fill pipes should be fitted with a suitable lockable dust cap with chain.
- (d) Air vent pipes should be positioned so they can be seen easily and directed so that any discharge from them (e.g. in the event of the tank being overfilled) is retained within the confines of the bund.
- (e) Pipework should be above ground, well supported and sited in positions where the danger of accidental damage is minimised or alternatively suitably guarded.
- (f) Where it is unavoidable and a pipeline has to be laid underground it should be placed in a protective sleeve or ducting with open grating covers for inspection purposes, or, if this is not appropriate, where possible be of non-ferrous material and proper consideration should be given to its protection from third party damage and corrosion.
- (g) Remote fill points are not recommended, but where these are unavoidable the surface drainage from such areas should pass through a suitable oil interceptor.

5. TANK CONTENTS MEASUREMENTS

Adequate means of measuring the quantity of oil should be provided.

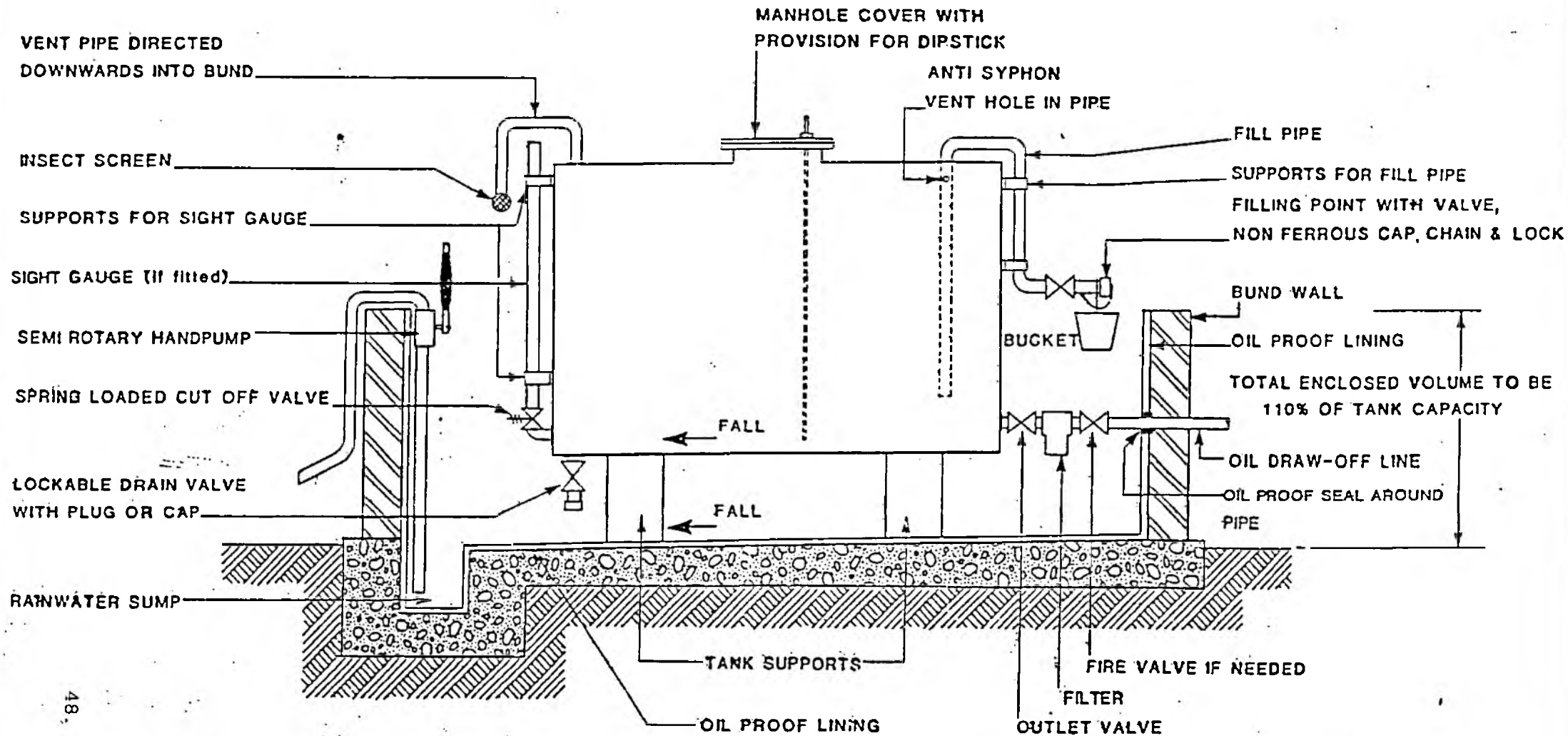
- (a) Dip sticks should be properly calibrated and only used in the tank for which they are calibrated.
- (b) Sight gauge tubes should be well supported and fitted with vandal/tamper proof valves. The valve should automatically be in the off position except when level readings are being taken.
- (c) Dial gauges should be in a prominent position and regularly checked for accuracy.
- (d) The use of high oil level audible alarms is recommended.

6. VALVES OR COCKS

- (a) These should be as vandal/tamper proof as possible having lockable or removable hand wheels.
- (b) They should be of bronze or steel and arranged so that there can be no discharge outside the bund wall. They should be marked to show whether they are open or closed, kept locked when not in use and fitted with a blank plug or cap.

The attached drawing gives outline details of a typical storage tank installation.

Outline of a Bunded Oil Tank





GUIDELINES FOR THE USE AND DESIGN OF OIL INTERCEPTORS IN SURFACE WATER SEWERAGE SYSTEMS

These notes are intended for guideline purposes only. Each site will be considered according to the individual circumstances. Further advice can be obtained from the District Pollution Control Office of National Rivers Authority detailed below:-

1. SITES NORMALLY REQUIRING INTERCEPTORS

- a. Oil storage and handling area.
- b. Industrial yard areas.
- c. Areas where vehicle maintenance is likely to take place.
- d. Commercial vehicle parks.
- e. Large car parks.
- f. Certain lengths of motorway and trunk road which may be designated by NRA (Thames Region) as high risk.

2. SITES NORMALLY NOT REQUIRING INTERCEPTORS

- a. Small car parks involving less than 20-30 cars.
- b. Most normal stretches of highway.

3. INTERCEPTOR DESIGN CRITERIA

- a. The maximum flow received by the interceptor should be given at least six minutes retention. The maximum flow should be calculated in accordance with the design criteria used for the drainage system which, in many cases, will be based on a rainfall rate of 50mm per hour.
- b. Conventional interceptors (i.e. those without integral by-passes or separate oil storage compartments) should be of single chamber construction.
- c. If multi-chamber units are used six minutes retention should apply to each chamber or to the largest chamber only. The total capacity should not be used for calculating retention times.



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- d. Flows generated by rainfall rates in excess of 5mm per hour may be allowed to by-pass the interceptor provided that the overflow device is of an approved design.
- e. The inlet to the main intercepting chamber should not be direct to the the water surface.
- f. Clean uncontaminated water such as roof drainage should preferably be discharged downstream of the interceptor.
- g. Adequate facilities must be provided for inspection of the interceptor and tanker access must be available for cleaning purposes.
- h. Where an interceptor is provided in a drainage system, trapped gullies are not necessary unless required to satisfy any other regulations.
- i. Where it is anticipated that large quantities of silt may jeopardise the efficient operation of an interceptor, a separate upstream silt trap should be incorporated in the system.
- j. Adequate venting arrangements should be incorporated in the structure. In many cases ventilated covers will be sufficient.

NOTE:

To determine the minimum interceptor capacity required for single chamber units, based on 6 minutes retention, multiply the catchment area in sq.m. by a factor of 5 to give an interceptor volume in litres.

e.g. for catchment area 800 sq.m.

single chamber interceptor capacity = 800 x 5
= 4000 litres



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The following is a list of manufacturers who produce interceptors in accordance with these guidelines. Each manufacturer is aware of NRA requirements and can provide advice with regard to the correct choice of model in relation to the area to be drained.

A.S.P. Ltd, Shortmead Street, Biggleswade, Beds.
Tel. 0767 312619

Conder Pollution Control, Abbots Barton House, Worthy Road,
Winchester.
Tel. 0962 55250/63577

Entec (Pollution Control) Ltd., West Portway, Andover, Hants
Tel. 0264 57666

G.B.P. Ltd., Dial Glass Works, Audnam, Stourbridge
Tel. 0384 392074

Klargester Environmental Engineering Ltd., College Road,
Ashton Clinton, Aylesbury, Bucks
Tel. 0296 630190

Spel Products, Lancaster Road, Shrewsbury
Tel. 0743 51318/9

Accord Marine Ltd., Great Western Road, Martock,
Somerset TA12 6HB
Tel: 0935 823647

NRA Thames Region
Ladymead
By-pass Road
Guildford
Surrey GU1 1BZ

0483 577655



NRA

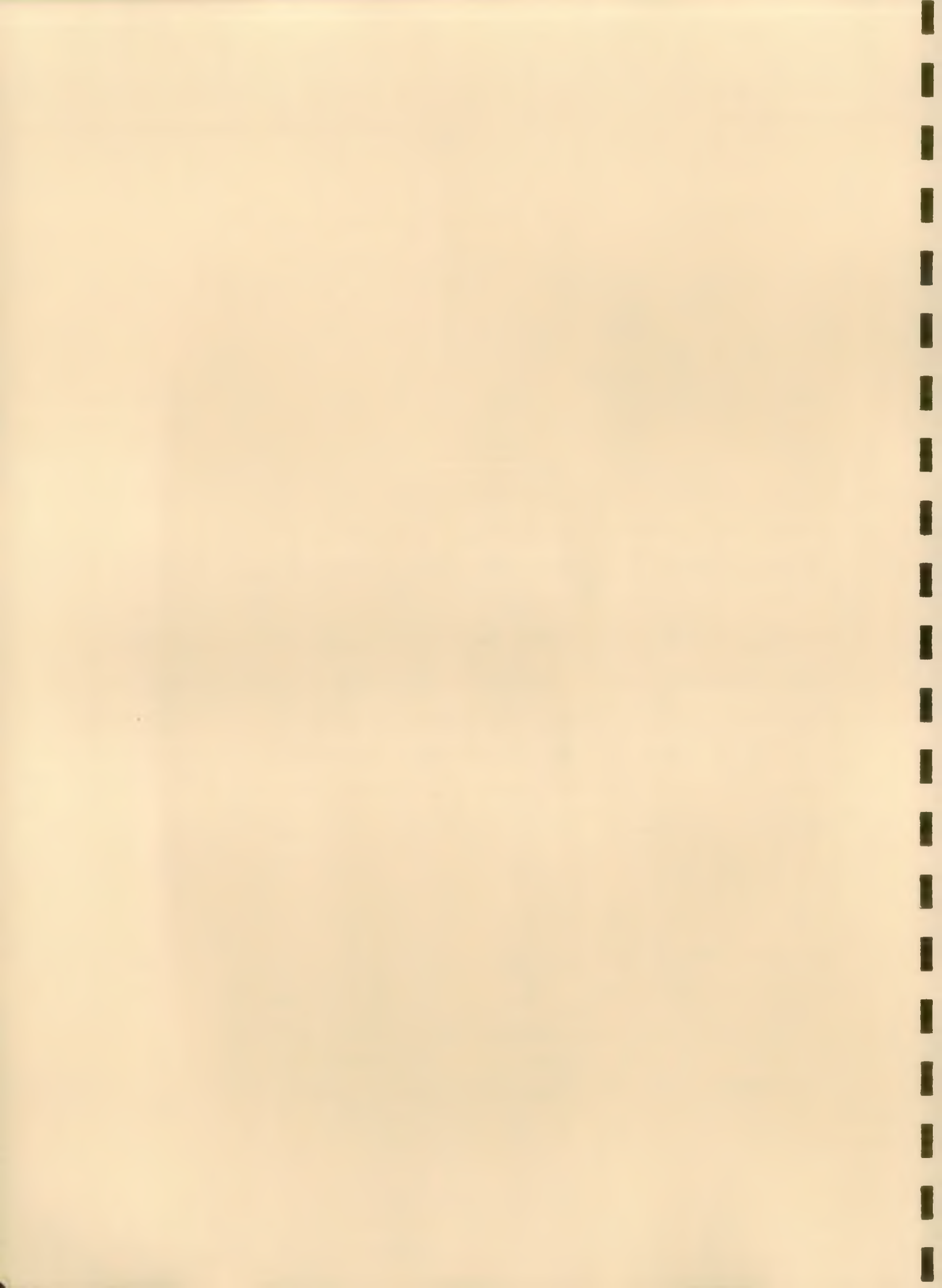
TANKER SERVICES

<u>Name</u>	<u>Area</u>	<u>Office Hours</u>	<u>Outside Hours</u>
Alder & Allan Ltd	(London)	01 555 7111	01 504 8565 01 304 6460
A . Hester & Sons Ltd	(Guildford)	0483 235115	
Bryant & Farmer	(Haywards Heath)	0444 248347	0444 248347
Cleanaway	(London)	01 648 4220	01 223 8393
Leigh Environmental	(St. Albans)	058285 4566/9	0860 377355
Hales Containers Ltd	(Guildford)	0483 224531	04867 4061
Halls Ltd	(Haywards Heath)	0444 24322	0273 503684
Hartley Services	(Hartley Witney)	94826 2554	
Raynure	(Horley)	034284 3344	
Richard Biffa Group	(High Wycombe)	0494 21221	
Rid-O-Rubbish	(Reigate)	073784 3935	
Round the Clock Services	(London)	01 671 2031	01 671 2031
Sharpe Recovery (Oils)	(London)	01 892 0502	
South Bucks Effluent Co	(Slough)	06286 63686/64288	(24 hr)
Cleansing Services Group	(Newbury)	04892 2232/6 0635 45357/31442	
S. Grundon	(Slough)	0753 683277	



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SEWAGE TREATMENT PLANT MANUFACTURERS, SUPPLIERS AND MAINTENANCE COMPANIES

N.B. Inclusion on this list does not indicate an NRA approval or recommendation

Manufacturers

Clearwater Systems Ltd	0483 33831
Entec Ltd	0264 57666
Klargester Ltd	0296 630190
Tuke & Bell Ltd	0543 414161
Waterwise	0252 711636

Supply and Maintenance

A.S.P. Armfibre	0767 312619
F.B.J. Installations	0252 23424
Independent Sewerage Inspection Services	0483 267185
Kee Services	0296 631818
Kirton	0509 504565
Mono Pumps Ltd	061 443 1333
Thames Water Services	0992 23611
Whitehead & Poole Ltd	0706 67555