

Compliance Audit of

Lanstar Ltd

Liverpool Road, Cadishead, Manchester

Waste Management Licence Number WML/0169/M12



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1.	EXECUTIVE SUMMARY.....	1
2.	INTRODUCTION.....	1
2.1	History of the Cadishead Site	1
2.2	Regulation of Waste Management Activities on the Site	1
2.3	Waste Treatment Operations	2
3.	AUDIT PLANNING AND METHODOLOGY	5
3.1	Audit Scope.....	5
3.2	Audit Team	5
3.3	Audit	5
4.	RESULTS & DISCUSSIONS.....	6
4.1	Waste Reception	6
4.2	Waste Storage	7
4.3	General Site Infrastructure	9
4.4	Sampling and Analysis	10
4.5	The Bulk Treatment Plant.....	12
4.6	The Solvent Plant	16
5.	OVERALL CONCLUSIONS.....	23
5.1	Waste Reception Procedures.....	23
5.2	Waste Storage	23
5.3	Site Infrastructure	23
5.4	Waste Sampling.....	23
5.5	Laboratory Facilities and Analytical Techniques	23
5.6	Bulk Treatment Plant	23
5.7	Solvent Plant	24
6.	COMPLIANCE WITH LICENCE CONDITIONS & RECOMMENDATIONS	25

ANNEXES

- | | | | | | |
|---|-------------|--------------------------------------|---------------------------------------|---|----------------------|
| A | Site Plans | - | Plan P1 | - | Site Location |
| | | | Plan P2 | - | Site Layout Plan |
| | | | Plan P3 | - | Solvent Plant Tanks |
| | | | Diagram 1 | - | Bulk Treatment Plant |
| | Photographs | - | SW/0169/001, SW/0169/002, SW/0169/003 | | |
| | | | SW/0169/004, SW/0169/005, SW/0169/006 | | |
| | | | SW/0169/007, SW/0169/008, SW/0169/009 | | |
| | | | SW/0160/010, SW/0169/011, SW/0169/012 | | |
| | | | SW/0169/013, SW/0169/014. | | |
| B | - | Audit Notification Letter and Agenda | | | |
| C | - | Weighbridge Records | | | |
| D | - | Waste Storage Logs | | | |
| E | - | Waste Audit Trail | | | |
| F | - | Bulk Waste Held in Storage | | | |
| G | - | Bulk Load Reception | | | |
| H | - | Assessment of Bulk Storage Tanks | | | |

1. EXECUTIVE SUMMARY

A compliance audit of Lanstar Ltd was undertaken by the Environment Agency on Monday 20 and Tuesday 21 April 1998. The objective of the audit was to measure compliance with recently modified Waste Management Licence conditions.

In general terms, the audit team were impressed by the diversity of treatment processes on site and the dedication of the company to invest in, and develop, effective treatment processes.

Aside from a few minor criticisms, reception procedures, waste sampling and analytical work were all carried out effectively by competent staff.

However, the audit did uncover problems with regard to waste storage, site infrastructure, and environmental monitoring and controls.

Timescales for the implementation of recommendations have been discussed with the licence holder and are detailed within this report. The majority of non-compliance is to be addressed through the service of enforcement notices under Section 42(5) of the Environmental Protection Act 1990.

2. INTRODUCTION

The Environment Agency was formed on 1 April 1996. It holds the responsibility under the Environment Act 1995 for the regulatory controls previously exercised by Local Authority Waste Regulation Authorities (WRA), the National Rivers Authority (NRA) and Her Majesty's Inspectorate of Pollution (HMIP). Under the former regulatory structure, the WRAs were responsible for the implementation and enforcement of the Waste Management Licensing system as set out under the Environmental Protection Act

1990 and enacted by the Waste Management Licensing Regulations 1994.

2.1 History of The Cadishead Site

Lanstar Ltd was founded as a specialist waste treatment company based at the site on Liverpool Road, Cadishead, Manchester. The site is operated by Lanstar as a solid and aqueous waste treatment plant. Prior to being run by Lanstar Ltd, the site was operated by Lancashire Tar Distillers Ltd who, from the 1920's, operated a coal tar distillery.

The facility was adapted for waste treatment throughout the 1970's and 1980's by Lancashire Tar Distillers Ltd.

The site is in close proximity to residential property in Cadishead and occupies an area of approximately 24 acres adjacent to the Manchester Ship Canal on Liverpool Road, Cadishead. Currently, 14 acres of the site is utilised for waste management operations, the remaining 10 acres available for future developments. The location of the site is shown on the location Plan P1 (Annex A).

2.2 Regulation of Waste Management Activities on the Site

A Waste Disposal Licence for the site was issued to Lancashire Tar Distillers Ltd by Greater Manchester County Council (Licence Number RD/LIC/0169/79) on 7 December 1979. The Licence authorised the operation of a chemical waste treatment plant.

Since the licence was originally issued the conditions have been modified twelve times. The most recent modification (Waste Management Licence Number WML/0169/M12) issued by the Environment Agency on 15 December 1997, involved the licence being

completely re-written to bring the conditions up to date with current waste management standards. The modified licence is different from its predecessors in a number of ways and includes controls over many areas that were not covered by previous licence conditions. These areas include sampling and laboratory analysis, waste reception procedures, waste storage, environmental monitoring and process controls. The modified Waste Management Licence also places restrictions on the treatment of a number of hazardous and difficult wastes, requiring the licence holder to demonstrate safe and effective treatment prior to any full scale processing being agreed with the Environment Agency.

Although the Licence has been recently modified, the site Working Plan requires review to bring it up to current standards.

The site holds a consent to discharge surface water to the Manchester Ship Canal, however, this has not been used for a number of years.

The site also holds two current IPC Authorisations for solvent recovery, which are currently under review. It is anticipated that a number of waste streams which are at present treated under IPC, will soon come under the control of the Waste Management Licence.

2.2.1 Previous Incidents

Over the past two years there have been a number of incidents on the site that have been investigated by the Environment Agency including:

- 1) A fire in one of the mixing pits on 23 September 1997. This occurred during drum shredding operations. It was later determined that the fire was caused as a result of third party error.
- 2) An emission of a dense white cloud from the site on 21 November 1997

- 3) An emission of Formaldehyde gas from the site on 20 January 1998.

2.2.2 Day to Day Compliance with Licence Conditions

Prior to the issue of the latest licence modification WML/0169/M12 in 1997, the site has had a reasonable record of day to day compliance with licence conditions. The current licence conditions are a great deal more comprehensive now. There are requirements that, up until this audit, had yet to be fully assessed by the Environment Agency.

2.3 Waste Treatment Operations

The area on site plan P2 (Annex A) outlined in blue is the area covered by the Waste Management Licence.

The area on site Plan P2 outlined in red is where waste treatment is permitted to take place.

Waste Management operations on site are split between seven major plants; the Drum Handling Plant, the Trial Composting Plant, the Bulk Treatment Plant, the SAF Plant, the Solvent Blending Plant, the STR Plant and the Small Packages Facility, as detailed on site Plan P2.

All waste enters the site via the weighbridge. Bulk waste in tankers is inspected and sampled outside the main site laboratory, while waste in drums is transported to the relevant plant for inspection and sampling.

2.3.1 The Drum Handling Plant

Although once used for the treatment of the majority of solid waste received on the site, the Drum Handling Plant is now only used for the shredding and crushing of nominally empty drum and IBCs prior to

off-site landfill disposal. The area is also being utilised as storage space for waste in drums, which either require specialist off-site disposal or are awaiting transfer to an in-house plant.

2.3.2. The Trial Composting Plant

The composting plant is currently being operated on a trial basis to treat organic waste streams that can be broken down by microbial activity. The composting process involves the addition of a catalyst to a nitrogen rich media, followed by the addition of the waste stream which is to be treated. Ambient conditions including oxygen levels and temperature are correctly regulated in order to encourage microbial activity. Monitoring of biodegradation is carried out on a regular basis.

The plant consists of a number of bulk containers which are used for the storage of the composting mass. Each container is connected to an extraction system which vents through an activated carbon scrubber. The area directly next to the containers is used for storage of composting feedstock. Drums of waste destined for the composting plant are also stored in the 'Powder Shed' next to the Solvent Blending Plant.

As stated, the Agency has only agreed to the trialling of the composting process. Agreement for full scale processing is dependent on the submission of comprehensive and conclusive process monitoring data.

2.3.3. The Bulk Treatment Plant

The Bulk Treatment Plant is the largest and most complex plant on the Cadishead site, consisting of approximately thirty storage tanks and six reaction vessels. The plant can treat a wide variety of

aqueous waste types through a number of different treatment processes, including redox reactions (cyanides/hypochlorites), neutralisation/precipitation (for example pickling acids), acid splitting (oil/water mixtures) and filtration/dewatering (sludges). Soluble solids can be slurried and treated through the plant.

Filter cake is taken for off-site landfill disposal, while aqueous effluent is disposed of via a number of disposal routes including sewer discharge.

2.3.4. The Solidification and Fixation (SAF) Plant

The newest plant on the site was officially opened in 1997, however, it is still covered by a temporary trial Working Plan. The SAF (Solidification and Fixation) Plant has been designed for the treatment of solid and semi-solid hazardous wastes. The main function of the plant is to solidify and fix wastes to a pre-defined specification, thus reducing the leachability of hazardous components. The blended waste is then transported for off-site landfill disposal.

2.3.5 The Solvent Plant

The Solvent plant operates to physically blend solvents to a pre-defined specification so as to produce a high CV (Calorific Value) 'product' for cement kiln fuel. Low quality solvents with a high aqueous component are also blended on site prior to off-site disposal.

2.3.6. The STR Plant

Operations carried out on the STR plant include the processing of Antimony Pentachloride and the hydrolysis of various organic acids. This area of the site is regulated under Integrated Pollution Control.

2.3.7. The Small Packages Facility

The Small Packages Facility accepts laboratory chemicals and small packages (less than 25kgs) of various wastes. Following sorting, waste is either bulked together for off site disposal/recovery or treated through one of the plants on the site.

3. AUDIT PLANNING AND METHODOLOGY

The primary objective of the audit was to assess compliance with modified licence conditions, and suitability of procedures and processes as documented in the site Working Plan, with a view to making recommendations for improvements. It was also felt that a greater understanding of site operations would help to maintain the working relationship between the Agency and the Licence holder.

3.1 Audit Scope

Given resource limitations, it was determined from an early stage that the audit would not be able to cover all of the operations on the site. With the primary objective of the audit in mind, it was decided that those areas covered by the recently modified Waste Management Licence would have to take precedence over other areas of the site. It was also realised that not all areas regulated by the Waste Management Licence could be covered due to resource limitations.

Each of the areas that are regulated on the site by the Waste Management Licence were listed. From this list, a number of common themes and areas were identified which were deemed worthy of detailed audit and which would allow assessment of the majority of the licence conditions:

- 1) Waste Reception
- 2) Waste Storage
- 3) Site Infrastructure
- 4) Laboratory Facilities and
Procedures: Sampling of Wastes
Analysis of Wastes

Resources were also available to be able to carry out detailed audits of the Solvent Blending Plant and the Bulk Treatment Plant.

3.2 Audit Team

The audit team was made up of eleven Environment Agency Officers from the NW region, South area. They comprised three Hazardous Waste Officers, two Operational Monitoring Officers and six Environmental Protection Officers.

The Hazardous Waste Officers were given the role of assessing waste reception, the Operational Monitoring Officers looked at sampling and analytical techniques, while the Environmental Protection Officers examined waste treatment and storage. The role of audit team co-ordinator was taken on by one of the Environmental Protection Officers.

3.3 The Audit

Notification of the audit was served on the Licence holder five days prior to the event. This notification consisted of a letter and an audit agenda (Annex B).

The site was visited by two members of the audit team on Wednesday 16 April 1998 in order to obtain baseline information and brief the site management prior to the beginning of the audit.

The audit commenced at 7:00am on Monday 20 April 1998, with a Health & Safety briefing given by the company's Compliance Manager. An office was set aside by the licence holder for the auditors to use for meeting and compiling/reviewing paperwork.

The audit was completed by 6:30pm on Tuesday 21 April 1998.

4. RESULTS & DISCUSSION

4.1 Waste Reception

For each day of the audit a list was supplied by site personnel for incoming loads; load notification sheets were produced for daily incoming loads. The completed white copy was attached to the relevant documents (S62/Controlled Waste Transfer Notes), the blue copy kept by relevant plant, the pink retained by the laboratory and yellow copy retained by sales department to match the completed white copy. Only one load was noted arriving without pre-notification and as stated in the Working Plan the vehicle was weighed and parked until one was raised.

All vehicles arriving or leaving the site were weighed and allocated a sequential weighbridge ticket number. Consequently drum loads received/stored on the SAF Plant/Drum Handling Plant have this number stencilled on each drum for identification purposes.

Each of the completed tickets contained all of the required information :

Carrier; Customer; Destination; Consignment No; Waste Type; Storage Area; Net Weights.

4.1.1. 20 April 1998 08:00 - 17:00 hrs.

During the period 31 loads were received at the weighbridge (Annex C):

21 Special Waste (S62) Incoming
1 Internal Movement
3 Controlled Waste Transfer Notes
6 Outgoing Loads 4 Special Waste
2 CWTN

The 21 Special Waste loads consisted of:

13 Tankers
7 Drum Loads including laboratory chemicals
1 Flat bed containing batteries (16)

No particular problems with receipt of the above loads were noted. The site clerk discussed five minor problems relating to :

- a) three loads arrived at the facility with incorrect paperwork. The waste had originated from Northern Ireland. The carrier arrived at the site with the Consignee, Carrier and Consignor copies and not the Deposit copies as required. It was agreed that a photocopy of the Consignee copy could act as a substitute for the Deposit Copy in each case.
- b) two loads arrived at the facility on successions without the prenotice ('master') number. The acceptance of the loads was agreed.

4.1.2. 21 April 1998 07:15 - 16:30 hrs.

During this period 30 loads were received at the weighbridge (Annex C):

20 Special Waste
(Section 62) (incoming)
4 Special Waste
(Section 62) (outgoing)
1 Internal
5 Controlled Waste Transfer Note

No particular problems with receipt of the above loads were noted.

4.1.3. Actions

Producers in a) and b) above were contacted by the Environment Agency to discuss the problems. An evaluation of the reasons for the problems showed that they were mainly paperwork omissions and as such unless repeated would not require enforcement actions. The problems have been recorded on the SPECIAL WASTE OFFENCE DOCUMENTATION to monitor any further problems.

4.1.4. Conclusion

The site operators complied with the licence conditions and Working Plan with regard to waste reception.

Over the two day period 61 loads entered/left the site:

41	Special Waste Section 62s (incoming)
10	Special Waste Section 62s (outgoing)
2	Internal Movements
8	Controlled Waste Transfer Notes

Apart from a single carrier round, all the Section 62 prenotifications were on the Environment Agency's Special Waste Tracking (SWaT) System.

4.2 Waste Storage

Waste storage areas as designated by the Washing Plan are situated within each of the seven plants on the site.

Over the two day period, storage of waste on the site was assessed in detail to measure compliance with licence requirements. Due to the size of the site, not all of the designated storage areas could be audited. The areas inspected during the audit were:

Drum Handling Plant – Areas 3 & 9.

Bulk Treatment Plant – Storage Bays 1 to 9 and 11 to 15

SAF Plant – Storage Bays 1 to 9 and 13 to 14

All containers within these areas were logged, as were details of storage location, waste description, hazard classification, and date of arrival (Annex D). For the purposes of this audit a container is to be defined as either a drum (ranging in volume from 5 litres to 230 litres), an IBC, a shrink-wrapped pallet or any other medium used to contain waste.

4.2.1 Drum Handling Plant Areas 3 & 9

In Areas 3 & 9 a total of 2161 containers were logged. 621 of these containers were nominally empty while 1540 contained waste.

Bays were labelled with their appropriate number, however, the boundaries of each of the bays were not marked as specified in the Waste Management Licence making them difficult to distinguish. 298 full containers were noted as being stored outside of the designated bays in storage area 3.

The secure stacking of containers was an issue that gave rise to concern during the auditing of the Drum Handling Plant. A total of 28 containers had fallen off pallets (photo refs. SW/0169/005 and SW/0169/006) and one drum had actually fallen into a drainage catchpit (photo ref. SW/0169/007).

A number of containers were broken (mainly plastic 25 litre) in bay 7, spilling their contents out onto the site surface (photo ref. SW/0169/003). One cardboard container in bay 10 was weathered to the extent that its bottom half had almost disintegrated (photo ref. SW/0169/009). Four containers were noted as being open to the air, without either lids or bungs. Two large pools of dark coloured sludge were noted on the floor of storage area 3.

Examples of incompatible waste types being stored together were evident. These mainly consist of the storage of flammable liquids next to oxidising agents (photo ref. SW/0169/008). It was noted that in Bay 5 of storage area 3, a 25 litre container marked up as containing lead sulphide was stacked on top of drums labelled as sulphuric acid and oleum (photo ref. SW/0169/002).

4.2.2. Bulk Treatment Plant – Storage Bays 1 to 9 and 11 to 15

A total of 1499 containers were logged on the Bulk Treatment Plant. 67 of these containers were nominally empty whilst 1432 contained waste.

None of the bays inspected on the Bulk Treatment Plant were demarked as required by the Waste Management Licence.

Twelve containers were noted as being open to the air, without either lids or bungs.

Generally, containers were stacked securely, no more than two high.

One container being stored in bay 13 marked as 'ammonia' was identified as leaking.

4.2.3. SAF Plant – Storage Bays 1 to 9 and 13 to 14

1482 containers in total were logged on the SAF Plant. All of these containers held waste.

Each of the bays were labelled up with their relevant number and could generally be distinguished by the construction of the storage areas.

Four containers were noted as being open to the air, without either lids or bungs, however the majority of containers were sealed satisfactorily.

Generally, containers were stacked securely, no more than two high.

Two containers were noted as leaking in bay 1. These were labelled up as 'amines developer' and 'sulphuric acid'.

Examples of incompatible waste types being stored together were evident. These mainly consist of the storage of flammable liquids next to or in the same bay as oxidising agents.

4.2.4. Labelling of Containers

Of the 4415 containers logged that held waste, 330 carried no visible description of the waste that they contained. A further 731 were labelled with an inadequate waste description, usually either a generic term such as 'Plant Acid' or 'Mother Liquors', or a trade name such as 'Heat Treat 41 Houseman' or 'Antox'. A small number of drums were labelled with contradictory waste descriptions, an example being a badly corroded 205 litre drum in the cyanide compound on the drum handling plant (photo ref. SW/0169/001). The labelling on the side of the drum indicated that it contained a 'waste corrosive acidic solid'. However, upon further inspection, a label was found on the top of the drum which identified it as a cyanide. Acids and cyanides should be segregated away from each other so as to minimise the risk of a Hydrogen Cyanide emission.

811 of the 4415 containers were without a hazard classification label. It is possible that a number of these could have been non-hazardous wastes, but the majority were described as wastes which exhibit hazardous properties such as 'Ammonium Bifluoride', 'Sulphonic Acid' and 'Chromic Acid'.

3751 of the 4415 containers were marked with the weighbridge ticket number (OLAN number).

270 of the 4415 containers were inaccessible for examination of labelling.

4.2.5. Waste Types

All of the 3354 containers that carried an adequate waste description are permitted for storage on site by the Waste Management Licence. However, an accurate assessment cannot be made on the 1061 containers that couldn't be classified.

4.2.6. Audit Trail of Waste in Storage

In order to assess the traceability of waste in storage on the site, a number of drums were randomly picked for further audit. The paperwork for each of these drums was then checked. Examples of some of the loads audited are as follows:

1) 2 x 205 litre Drums Labelled as Phosphorus Oxychloride

2 x 205 litre drums labelled as containing Phosphorus Oxychloride were being stored in bay 2 of area 3 on the Drum Handling Plant. Upon inspection it was noted that these drums contained waste. Using the OLAN number on the drums (34809) it was determined that the waste had been received on site on 10 October 1997. Details of the waste producer were also available. The load had been consigned as Special Waste.

2) 16 x 205 litre Drums Labelled as Acid Chloride

16 x 205 litre drums labelled as containing Acid Chlorides were being stored in the storage area for the Solvent Plant. The OLAN number marked on these drums was 01603. However, when this OLAN number was cross referenced against the incoming load book, it related to 10 x 205 litres drums of 'wool grease'. This load had been received on the site on 29 July 1994.

3) 1 x 25 litre drum marked as Microtreat 2020

A 25 litre container labelled as 'Microtreat 2020' was being stored in bay 11 on the Bulk Treatment Plant. Upon inspection, it was evident that the container was full. Using the OLAN number on the drum (30843) it was determined that the waste had been received on site on 7 May 1997. The producer was also identified. The description on the Section 62 note confirms that the waste stream is a water treatment chemical, either hydrochloric acid, amine or organobromide based.

4) 1 x 50kg container marked as 'Antox'

A 50kg container labelled as 'Antox' was being stored on the SAF Plant in storage bay 1. Using the OLAN number on the drum (38981) it could be determined that a load arrived on a Section 62 note on 23 March 1998. Attached to the note was a list of all the components of the load, however 'Antox' was not on the list.

5) 4 x 205 litre drums labelled as Chloroform Waste

4 x 205 litre drums labelled as containing Chloroform Waste were being stored in bay 6 of the SAF Plant. Upon inspection it was noted that these drums contained waste. Using the OLAN number on the drums (39194) it was determined that the waste had been received on site on 31 March 1997. The producer was identified. The load had been consigned as Special Waste on a Section 62 Note.

Full results of the waste audit trail can be found in Annex E

4.3 General Site Infrastructure

As part of the site audit, the provision of relevant site infrastructure was assessed. A

further in-depth study of site infrastructure on the Solvent Blending and Bulk Treatment Plants can be found in sections 4.5. and 4.6.

All of the areas of the site where waste is kept and treated were noted to be covered with a concrete surface. However, certain areas, especially on the Drum Handling Plant and Bulk Treatment Plant contained cracks and corrosion, rendering the surface permeable. Not all of the edges of the concrete pavement were found to be bunded or kerbed so as to contain any potentially contaminated surface water run-off. Areas that require bunding or kerbing include the tanker reception area where samples are taken and the area between the drum shredder and the site road (in front of tank K).

The majority of surface water arising on the site is collected within catchpits provided on each of the plants. Water from these catchpits, along with process effluent, drains to a large interceptor on the Drum Handling Plant. From the interceptor, effluent is pumped to holding tanks where it is sampled, analysed and treated as necessary prior to consented sewer discharge. The Environment Agency currently has no up to date plan of the site drainage infrastructure.

The site is kept secure with a mixture of chain-link and concrete fencing which is of a minimum height of 2 meters. Fencing generally appeared to be in good condition around the perimeter of the site. There is also a guard who maintains a 24 hour security presence on the site.

Fuel storage was not assessed during the audit.

4.4 Sampling and Analysis

4.4.1. Waste Sampling at the Operations Laboratory

All tankers entering the site are sampled outside the Operations Laboratory. The driver is allocated a ticket number at the weighbridge and proceeds to the Laboratory where he presents his paperwork to the chemist, who completes a load notification sheet and transfers the relevant details to a daily record sheet.

The chemist samples the tanker using a 2 metre long metal tube capable of being closed at the bottom end with a valve actuated by a rod attached to a lever at the top of the tube. The device can take a column of liquid that represents the tank contents from top to bottom. Prior to collecting the sample the tube is flushed out with one volume of the liquid. About 1 litre of the sample is discharged into a plastic jug and taken for analysis.

After analysis approximately 250ml of the sample is transferred to a 500ml wide necked glass jar, labelled with the weighbridge ticket number and stored in the Laboratory for at least seven days. The plastic sample jug is washed out with water after use and placed under the fume hood near the door for future use. The sampling tube is allowed to drain by standing on a pile of oily rags outside the Laboratory.

It was noted that on a number of occasions the chemist allowed the driver to take a sample from his tanker. (Vehicle Reg.: M575 NND/OLAN 39643, Vehicle Reg.: H493 FEM/OLAN 39644, Vehicle Reg.: J537 LTS/OLAN 39652, Vehicle Reg.: P675 PLK/OLAN 39678). In each case, the driver was directed to collect a composite sample in the plastic jug from the sight glass drain cock and the rear drain valve. Whilst it is acceptable that the driver prepares his vehicle for sampling and gives directions to the chemist with regards to the safe use of ladders and platforms, it should be the chemist who personally collects the sample so that a repeatable procedure can be followed with

every load. The sampling of a tanker via the sight glass drain cock or other valve may be acceptable for homogeneous, single phase liquids, but where there is a possibility of two or more phases in a liquid waste, for example a thin layer of oil or solvent on top of an aqueous phase, then the use of the sampling tube should be the preferred technique.

4.4.2. Laboratory Facilities and Analytical Techniques

The Laboratory receives samples on incoming and outgoing waste and ascertains the general suitability for disposal and conformity to the waste description on the documentation. When the checks have been assessed as satisfactory by the chemist, he enters the results on a record sheet and issues documentation which contains the analytical details. This is given to the vehicle driver as a permit to unload at the bulk Treatment Plant.

The licence holder has documented laboratory methods in a manual which deals comprehensively with topics such as waste materials in bulk and containers, sample evaluation and analytical methods.

The Operational Laboratory contains adequate instruments and apparatus to carry out rapid and simple tests which avoid delays in the vehicle reception area. Those instruments which are used routinely are calibrated on a daily basis.

COD analyses are carried out using a Hach spectrophotometer and every determination is recorded in a results book. A pH meter is dedicated for exclusive use with the effluent discharge to sewer.

The Lower Instrument Laboratory contains more sophisticated instruments for the analysis of waste materials. Metals are determined using an atomic emission

spectrometer with an inductively coupled plasma source (ICP-AES). The instruments accuracy is checked with every batch of samples analysed by running a 10ppm standard of the metals of interest.

Outgoing waste in tankers is also checked prior to leaving the site. Two bulk loads were observed being sampled and analysed. Both were flammable solvents; one for recovery and the other for incineration.

Calorific value was determined using a bomb calorimeter, the bomb washings being subsequently analysed for chloride by titration and the other halogens (F', I', Br') by ion chromatography in the Upper Instrument Laboratory. Metals were determined on the residual ash after digestion in hydrofluoric/nitric acids.

A criticism is levelled against the method of determining the flammability of bulk solvents. The use of the sample vessel of the Setaflash apparatus placed on an open bench is contrary to the function for which this equipment was designed and raises the question as to whether the integrity of the apparatus has been impaired by burning solvents, preventing its correct use to determine flash point. The flammability test on bulk solvents and other waste should be carried out in a fume cupboard using a porcelain basin.

Another problem noted was that a number of the standard solutions used for the calibration of equipment and the carrying out of laboratory tests had passed their expiry date. The shelf life for the HCl used for both the acid and alkali strength tests had expired in December 1995. Buffer solutions used to calibrate the pH meter were also found to have passed their shelf life date:

pH9 (10litre) expired 1/8/97
pH9 (5litre) expired 1/12/95
pH4 (10litre) expired 1/1/97
pH4 (5litre) expired 1/9/95

All the results of analysis are entered onto Sample Analysis Sheets which are stored in files.

The Lanstar laboratory personnel carried out their sampling and analysis functions in an efficient and professional manner.

4.4.3. Sampling of Mixed Waste Loads

Incoming loads of mixed waste are received and unloaded at the SAF Plant for inspection and sampling. Over the audit period, the sampling and analysis of two loads of mixed waste were monitored. Within the two loads, packages varied from laboratory smalls (weighing less than 250kg) to 205 litre drums.

Upon unloading, 100% of each waste stream was inspected against its accompanying paperwork. Samples of no less than 10% were taken from each of the loads using either a glass sampling pole, or where more appropriate by hand. Each sample is designated a unique number. Supportive sampling was used in determining the final treatment route of each waste stream.

4.5 The Bulk Treatment Plant

Treatment through the sites 'Bulk Plant' was assessed against compliance with the requirements of the Waste Management Licence and Working Plan. Assessment against the 'day to day' operational requirements and associated infrastructure were made on site.

Details on the treatment of waste streams, and associated records were requested from Lanstar Ltd to be assessed at a later date.

4.5.1. Operation of the Bulk Treatment Plant

The operation of the Bulk Treatment Plant is on a dynamic basis. There are potentially a number of differing waste streams being treated simultaneously, by a variety of treatment methodologies.

4.5.2. Bulk Loads

On arrival Bulk loads are initially assessed, via sampling and analysis, prior to being designated a suitable treatment 'route' through the plant.

Annex G shows the incoming bulk loads over the period of the Audit. Column 22 indicates the initial destination of the waste stream and hence it's the start of its treatment. The designated 'treatment route' is based on the laboratories assessment of the individual waste stream (tanker load) and the relative cost of the treatment required to meet one of the off site disposal specification (detailed below).

Diagram 1 in Annex A summarises the route a waste stream may take through the plant prior to off site disposal.

Once a treatment route has been designated, the load is transferred to the bulk plant together with a unloading notification sheet. At the plant office the relevant information (Date, Tank input, Olan reference) is entered into to a bulk plant booking in sheet, enabling the load to be tracked back to its origin. The unloading notification sheet is then given to a site operative who supervises the discharge into the relevant tank or reaction vessel.

4.5.3. Drum Loads

Drums designated for the plant go directly into the associated drum storage. Relevant

details being recorded on a 'bulk plant drum sheet'.

The drums are then stored for a maximum of two days prior to analysis being carried out. All relevant analytical information is attached to the initial 'Drum sheet' together with the determined treatment.

Once drums have entered the 'treatment system' (diagram 1) it is recorded on a sheet. This sheet details the drum reference, input tank and quantity enabling the waste to be tracked back to initial reception.

4.5.4. Treatment Process

The Waste Management Licence authorises the treatment of controlled waste including Special wastes as defined by regulations in force under Section 62 of the Environmental Protection Act 1990, subject to permitted treatment operations. No other waste treatment operation is permitted, except in accordance with the written agreement of the Environment Agency. Waste treatment may include the mixing of different categories of Special waste and the mixing of Special waste with waste which is not Special. The following treatment methodologies, associated with the Bulk Plant were detailed over the audit:

Oil/Water Separation:

This may include the following processes: heating, filtering, settlement, centrifuging and the addition of de-emulsifying agents. Following treatment, recovered oil is transferred with the aqueous phase being further treated through the bulk plant or removed for off site disposal.

Neutralisation: (Reaction Tanks. RT/T tanks 2-5. capacity 35m³).

Acids and bases are neutralised to a pH of between 8 to 12 to ensure heavy metals

and sulphate is removed by the corresponding hydroxide or calcium sulphate precipitation. Precipitate is removed via filtration and scrubbers are operation to neutralise acid emissions.

Redox: (Reaction Tanks. RT/T tanks 1-5. capacity 35m³).

Where possible waste is matched up for treatment based on its oxidation oxidising or reducing capacity. Product hypochlorite is often used for the treatment of cyanides.

For the treatment of cyanide a designated reaction vessel is equipped with a separate scrubber and temperature cut off to prevent 'runaway' exothermic reactions (RT/T1).

Prohibited waste streams under the working Plan: Flash point <32°C, Free chlorinated solvents and those containing complexing agents (for example EDTA). Flocculation: (Thickener, M10, capacity – 20m³)

Aqueous effluents are treated through the thickener to remove contaminants and reduce Chemical Oxygen Demand (COD). The process may include the addition of flocculating agents (eg. CaSO₄).

Dewatering: (Thickener. M10. capacity – 20m³)

Sludges are dewatered via input through the thickener. The thickener's main function being settlement prior to removal of aqueous components via siphoning and/or filtration.

Prohibited waste streams under the Working Plan: Flash point <32°C, Free chlorinated solvents and those containing complexing agents (for example EDTA). Filtration (X3 Vacuum Filter Belts).

Dewatering of effluent, post thickener, via vacuum/gravity filtration belts. Filter cake is bulked prior to off site disposal under a prior agreed specification. Filtrate is removed to settling tanks prior to disposal via foul sewer.

Slurrying of Solids: (Thickener. M10. capacity – 450m³)

The catchpit by the filter house is used for the slurrying of solids prior to transfer to the reaction tanks.

Temporary storage of Bulk Effluent

A number of tanks are designated for the storage of effluent prior to their removal off site. There is a restriction as regards waste containing low flash solvents with permitted treatment being restricted via the Working Plan to pH adjustment and settling.

4.5.5. Off Site Disposal Specification

There are a number of disposal routes for effluent and filter cake from the Bulk Treatment plant. These disposal routes include landfill, deep borehole disposal and consented sewer discharge.

4.5.6. Permitted Waste Types

The Waste Management Licence permits the treatment of various waste types. A number of these waste types are only permitted for treatment subject to specific restrictions. No other wastes apart from those listed in the licence are permitted for treatment.

Over the two day period no loads which should have been subject to treatment restrictions were received and processed through the bulk plant.

4.5.7. Management and Operation of Treatment Facilities

The management and operation of the treatment facilities are required to be carried out in accordance with the Working Plan. In addition to this the licence requires that appropriate care is taken in the day to day operation of the facilities as detailed below.

4.5.8. Waste Treatment Compatibility Checks

After acceptance, prior to being bulked or mixed together, the licence specifies that checks on waste inputs must be carried out to ensure their compatibility. All subsequent reactions must only be carried out under controlled conditions. All waste input checks are carried out at the sites laboratory.

4.5.9. Supervision of Waste Inputs

The Waste Management Licence requires that all inputs into the treatment systems are supervised by suitably trained and qualified members of site staff. The capacity of reaction vessels must be checked prior to discharging waste and not overfilled. Any spillage resulting from the operation of the treatment facilities must be contained and dealt with.

Throughout the audit all waste discharges were conducted under the direction from the bulk plant office and supervised by designated staff.

A minor spillage was observed caused by overfilling of an open topped tank (ODP5, 11.20, 21/04/98, photo ref: SW/0169/010). The spillage was contained within the designated bund.

4.5.10. Utilisation of Abatement Equipment

The Waste Management Licence requires that effective extraction and abatement equipment must be in place for all tanks, and open reaction vessels, treating waste which may give rise to noxious or polluting gases, odours and/or other emissions.

Abatement equipment is currently in place for reaction tanks RT 1 to 5 (photo ref. SW/0169/011). At present there is no mechanism in place for monitoring its effectiveness.

The thickener has no emissions controls (photo ref. SW/0169/012), however, malodorous substances are not permitted for treatment under the Waste Management Licence.

4.5.11. Turnaround of Treated Wastes

Unless prior agreement has been obtained in writing from the Environment Agency, waste treatment must be completed within three months from the date of initiation.

Specific compliance cannot be assessed as individual waste streams are being discharged into a dynamic system. Once a waste has entered the system it's individual characteristics are effectively lost and can no longer be tracked.

A written record is required to be kept of all wastes held in bulk at the end of each shift (end of the working day). The record should document details of the storage point, nature and quantity of the appropriate wastes within the treatment system.

Details of wastes held in bulk within the treatment system (at the end of the working day) are currently not recorded.

The Working Plan currently specifies the production of a 'Bulk Storage log' on a weekly basis (Annex G).

4.5.12. Monitoring Treatment, Quality Control, & Auditing

The licence requires that following the initial compatibility checks, all waste treatment reactions are monitored to ensure satisfactory completion. A written record should be kept of all processes monitoring results.

The operation of the reaction tanks (T or RT tanks) is currently monitored by information recorded on to the 'Reaction Tank Batch Sheets'. Details of contents, inputs/outputs and testing are given.

The operation of the cyanide oxidation (RT1) is currently monitored by a specific Reaction Batch Sheets (as per Working Plan). Cyanide waste was not being treated during the Audit.

Outputs of waste from the plant are currently checked against the disposal criteria (as above) and recorded.

The discharge of aqueous effluent to foul sewer is continuously monitored and recorded.

4.5.13. General Observations

The day to day operation of the Bulk Plant is supervised by suitably trained and qualified members of staff. However, it is apparent that the Working Plan is out of date with regard to the plants operation. The standard of operation and monitoring of the treatment processes is currently better than detailed in the working plan. It would be beneficial if an updated version of the Working Plan addressed the dynamic nature of the plant and detailed the control and tracking methods that are currently in place.

During the audit it was stated that filtrate from the plant is often allowed to pond on the plants associated drum storage. Under Licence condition 8.1 all wastes must be effectively contained within a facility designed and constructed for this purpose. As this area is being utilised for drum storage this activity would breach licence condition 8.1.

4.5.14. Bulk Plant Storage

Table 1 (Annex H) summarises an assessment of the bulk plants associated 'Bulk' storage. Associated 'drum storage' is covered elsewhere in this report.

Out of a total of 82 Bulk Storage tanks assessed 72 were deemed to be effectively bunded to 110% of capacity. (82% Compliance). Although not visibly contained within physical bunds, it is believed that a number of tanks are effectively bunded by the impermeable site infrastructure. This issue is to be discussed further with the licence holder.

- B tank was not deemed to be situated on a impermeable base (<1% non-compliance)
- Nine tanks were deemed in need of repair (12% non-compliance, photo ref. SW/0169/013).
- All bunds that were required to be 'Acid Resistant' were (100% compliance).
- The bunding of four tanks to 110% capacity had been deemed to be compromised by a build up of rainwater (5% non-compliance).

Two discharge points were observed to be outside the bunded area (1% non-compliance, photo ref. SW/0169/014).

4.5.15. Designation and Identification of Storage Tanks

Out of a total of 82 Bulk Storage tanks assessed 41 were marked adequately. (50% compliance).

Out of a total of 82 Bulk Storage tanks assessed all discharge point were deemed to be inadequately marked (100% non-compliance).

Details of wastes stored in bulk differ from those specified in the Working Plan for a number of tanks.

4.6 The Solvent Plant

The Solvent Plant is situated in the South Eastern corner of the site (see site plan P2).

The plant consists of two tank compounds known as the T compound and P compound and associated drum storage areas. These storage areas are also used for the storage of materials awaiting processing through the IPC controlled STAR (Special Treatment and Recovery) Plant.

Details of tank locations are highlighted on site plan P3 (annex A).

Activities on this area are described in Section 14 of the Working Plan which was last revised in 1996. The Working Plan relates the designated storage area on drawing C6L7407T/00741. This is now superseded by drawing number C9L9801C/1516, Rev A dated 12/2/98.

4.6.1. Waste Reception

Material for processing on Solvent Plant and Special Treatment and Recovery is received in accordance with Section 7 Material Receipt identified as issue 96/1 in the current working plan.

On Monday 20 April a load was observed being delivered to STAR. This was recorded in the log book for the STAR plant.

The load arrived with the load notification sheet giving details material, treatment, quantity and haulier. The form is

completed by the receiving plant and returned to the sales department.

On arrival at the site the load was given a weighbridge ticket number after being weighed on the site weighbridge.

As the load consisted of organic solvents with flash points of less than 21°C, it had arrived with Special Waste Consignment Note and had been pre-notified in accordance with the Special Waste Regulations 1996.

4.6.2. Testing Procedures

These take place after the drums description has been matched with the drums number. Sampling takes place by dipping a length of glass tube to the bottom of the drum. Covering the tube by hand and lifting the sample from the drum. This allows visual inspection of the composition of the liquid in the drum. This is discharged into a plastic mixing jug. The purpose of this is to see if there are any reactions between the solvents which will result in the mixture polymerising or reacting adversely. It also allows some opportunity to assess the odour potential of the material.

A lot of responsibility is placed on the operator carrying out the assessment. This is due to the lack of clear assessment criteria and also the potential for operators to become desensitised by daily exposure to a wide range of compounds.

4.6.3 Material Handling

A large proportion of the solvents received at the facility arrive in drums. Operations at the site involve a significant proportion of transfers.

Once the drum has been checked and designated a disposal route, it will be bulked up. This will be one of two routes. Solvents which have a low halogen content and are either cross contaminated with other solvents or water beyond the point when re-distillation is uneconomical, are blended to meet a specification suitable for use as Secondary Liquid Fuel. To achieve this specification drums of solvent are sucked up by a tanker unit. The tanker unit when full is then checked before going off site. Or alternatively transferred from the Tanker unit into storage tanks. These are later discharged back into a tanker and then checked before leaving site.

Solvents unsuitable for Secondary Liquid Fuel go for merchant incineration. These are usually halogenated solvents and most commonly contain relatively high levels of chlorine. As with the solvents designated for Secondary Liquid Fuel, drums are sucked up by tanker and then taken off site after checking or discharged into storage tanks prior to reloading onto tankers and checking before being taken off site.

Drums which are less than 205 litres are usually bulked up manually by being poured into a cut down IBC and then sucked up by tanker to go on to storage or removal off site.

The Working Plan identifies that bulking operations are carried out using a vacuum tanker whose exhaust may be scrubbed. At no time during the audit were exhaust fumes observed as being scrubbed. Drivers were approached during the audit. They were driving commercial tankers and were in the employ of other companies. Whilst the barrels do have outlet pipes to back vent into tanks when being filled these were not used on the Lanstar Site. Solvent was observed as a fine spray being discharged from the exhaust vent onto the

road surface, during the transfer of solvent from drum to tanker.

During operation the tankers maintain a vacuum condition to provide the suction to empty the drums. This results in a constant stream of vapour laden air being discharged from the exhaust vent.

Condition 5.7 of the Waste Management Licence 0169/M12 for the site requires effective measures to be taken to control the emission of noxious or polluting gases, odours or other aerial emissions which may cause nuisance. This condition specifically includes mobile tanks used to handle waste. Effective in this condition is defined as using the best available techniques not entailing excessive costs.

Current practice of bulking solvents into cut down IBC containers and direct exhausting to atmosphere of tanker exhaust ventilation whilst bulking drums of solvent does not comply with this condition.

4.6.4. Tank Storage

T Tank Compound

T Tank compound consists of sixteen tanks. Each tank is 30 feet high and has a 54 tonnes capacity. Tanks 13, 15, and 16 have agitators installed but were reported to have a limited ability to mix constituents due to the height of the tank. All tanks are in use in the T compound, although due to deterioration, tank T12 is now only used for storage of bund water. Bund water is stored and checked prior to discharge to the Bulk Treatment Plant.

The compound has a large capacity concrete bund around the tank and a shallow brick lined bund surrounding the valves pipework pumps and filter.

Tanker loads of solvent are discharge through two filters. The first of these is a

basket filter designed to take out coarse material. The second is a two pass duplex filter where flow can be directed down one of two filters to allow cleaning of the other filter. Filter debris is transferred to an open top drum which is stored within the pipework bunded area.

The pump unit installed within the bund works on principle of being lubricated by liquids passing through the unit. This lead to a constant leakage from the pump unit along with spillage from coupling and uncoupling tankers. These accumulated spillages are scraped into a corner of the bund where there is a small sump. This is then periodically sucked out by tanker.

There is potential for evaporative losses of solvent from the pump, the bunded area and the drums used for filter screenings.

A number of the T Tanks show evidence that they have overflowed.

One of the tanks reported to have a hole one foot from the top which had caused the leak down the side wall. None of the tanks have gauges which indicate their capacity. Non of the tanks have high level alarms to prevent overfilling. Levels are tested to by use of Stanley Ultrasonic Estimator. On the basis of the reading taken, usually daily, tankers are discharged into the storage tanks. It would appear this system has failed on a number of occasions resulting in overfilling.

Condition 2.11 of the Waste Management Licence requires storage tanks to be provided with a contents gauge or level monitoring device. This condition is not currently complied with.

During the audit the top of the tank farm was inspected. Although the ambient temperature was relatively cool at the time, a strong odour of solvent could be detected.

All tanks had sampling hatches which were open to use the ultrasonic estimator. Those tanks that were closed had a small diameter flip cap which vented direct to atmosphere. There is considerable potential for evaporative loss from these tanks as well as the discharge of solvent vapour during filling.

This situation is contrary to condition 5.7 of the Waste Management Licence which requires effective measures to be taken to control emission odours or aerial emissions for all tanks. The condition requires best available techniques not entailing excessive costs to be used.

Although the Working Plan details the tanks are used for blending, much of this is controlled by waste description and by a simple physical test of mixing to ensure compatibility.

Certain types of solvent pose difficulties in blending, such as difficulties in handling due to odour. The current Working Plan does not detail any clear guidelines of how odorous compounds are controlled.

The only reference in the Working Plan to controlling odours is that bulking is carried out using a vacuum tanker whose exhaust may be scrubbed through water or caustic. Scrubbing of exhaust emissions was not observed during the audit and it was determined this practice is rarely carried out.

Complaints have been linked to the practice of shredding and crushing drums that have previously been used to store odorous solvents. This is carried out on the Drum Handling Plant after the drums have been emptied on the solvent bay. In correspondence Lanstar have indicated these drums will be washed prior to shredding. This should be recorded in the Working Plan as an essential element of controlling odour.

P Tank Compound

Tanks in the P compound are linked to a number of activities on site:

Tank P1 was used to store liquid for use on the SAF plant. This holds non hazardous water used for binding in the solidification and fixation processes.

Tank P2 was reported to be empty.

Tank P3 was reported to contain chlorinated solvents in storage prior to merchant incineration.

Tank P4 was reported to contain neutralised acid chloride and excess caustic. The contents were awaiting incineration.

Tanks P5 and P7 were used for bulk storage of sodium naphenate. This is stored prior to pumping into reaction vessels. This is an I.P.C controlled process.

Tank P8 was reported to be empty.

Tank P9 has a hole 5 feet from the bottom and is not used.

Tank P10 contains contaminated Dichloromethane stored prior to being sent off site for redistillation.

Tanks P11 and P12 contained chlorinated water and sludge.

In the current Working Plan only tanks P4 and P6 are detailed in terms of capacity and use.

Tanks P3 and P10 were storing materials related to Solvent Plant and their usage should be incorporated into the Working Plan.

The tanks were noted to be venting directly to atmosphere. Most of the tanks were open to allow the use of the estimator.

None of the tanks had high level alarms or contents gauges contrary to condition 2.11 of the Waste Management Licence.

The filling of tanks is likely to give rise to emissions due to them being open and is contrary to condition 5.7 which requires effective measures to be taken to control odours and emissions.

4.6.5. Tanks – General Observations

Condition 4.22 of the Waste Management Licence requires a tank survey to be carried out.

This should show the location and identify of all fixed tanks. For those in regular use they should be referenced to the drawing, and provide details of their uses, and for those not in regular use they should be referenced to the drawing and give details about its previous use. It should give full details of the nature and quantity of the tank contents or residual contents or details of any tank decontamination and the condition of the tank.

This condition is not currently being complied with. The plant manager did not have any details of when the tanks were last tested. The tanks were reported to have been decontaminated within the last seven years but no details were recorded.

Tank T12 is known to be weaker than the other and is now used for bund water only.

Condition 9.4 of the Waste Management Licence requires all storage tanks and reaction vessels to be inspected at period not exceeding five years since previous inspection. There were no records available of the tanks being inspected when requested during the audit.

4.6.6. Drummed Waste Storage

Waste storage areas have currently been revised by plan C9L9801C/1516 dated 27/1/98. The main storage is labelled on the plan as Solvents and SPU Low Flash Material and is detailed as having a moving boundary between solvents and STAR material. Discussion with the Agency has confirmed that it is appropriate to include materials stored awaiting treatment under IPC control to be inspected in accordance with the Waste Management Licence.

Materials awaiting treatment in this area were known to have been stored in excess of six months. This is contrary to licence condition 1.8. These wastes are currently classed as a priority for treatment.

The drums containing highly water reactive acid chlorides are badly corroded. Many of these have had to be put in overdrums due to the bad condition of the drums. During routine inspections drums have been noted to be fuming.

Condition 4.8 of the Waste Management Licence requires waste contained in damaged, significantly corroded, or leaking drums to be repackaged by the end of the working day. Drums were identified in this condition.

A significant number of water reactive compounds were found stored on the bay, these included sulphonic acids, acid chlorides, thionyl chlorides and phosphoric acid. Condition 4.9 of the Waste Management Licence requires waste which may react adversely with water shall be kept dry and stored under cover. This condition is not currently being complied with.

Condition 4.7 of the Waste Management Licence requires all drums to be stored in a secure manner. It was noted during the

audit that pallets used to support the double stacked drums had in some cases collapsed causing the top layers of drums to lean. Condition 4.7 was not complied with.

Although the storage areas have been identified on an amended plan, condition 4.2 requires designated storage areas to be clearly marked and identified, this condition is complied with on the bay but not on the other storage areas identified on the plan.

4.6.7. Site Surface and Drainage

Examination of the back wall of the solvent bay showed water percolating through the brick work. This indicates that the integrity of the impermeable base has been breached, possibly due to chemical attack. Condition 2.13 of the Waste Management Licence requires that appropriate action to be taken to deal with any defects in the construction of an impermeable surface.

Examination of the fall of the impermeable surfaces below the T compound and P compound confirm the area falls away to unprotected ground at the side of the compost drum store. The area in front of the T compound is used extensively for bulking from drums into the tank or tanker and is also in use for storing IBCs. As the drain in front of compost drum store has been noted to flood in wet weather, it is unlikely this would be capable of dealing with a large scale spillage. It is recommended that the unprotected ground at the side of the compost drum store be protected by kerbing and the capacity of the drain in front of the compost store be increased to provide more effective drainage and containment of this large operational area.

4.6.8. Environmental Monitoring

The current copy of the Working Plan identifies that airborne solvent levels in the vicinity of the plant are checked. When the plant manager was asked for data relating to this it was confirmed that he was not aware of any.

During the audit no photographs were taken in this area at the request of the licence holder who consider the area to be a low flash area.

Clearly the licence holder needs to carry out environmental monitoring to determine the level of exposure to Volatile Organic Compounds of operatives carrying out sampling, bulking and cleaning of bunds and spillages. Without any monitoring the licence holder cannot satisfy that effective measures are being taken to control emissions under the requirements of licence condition 5.7.

There is a need to determine the level of evaporative loss from the storage tanks under a range of conditions. There is also a need to determine the level of volatilisation during operations such as sucking drums and pumping from tanker to storage tank and storage tank to tanker.

Levels of evaporative losses should be established from bulking operations via cut down IBC's.

There is a need to establish evaporative losses from the pump and fugitive emissions from the pipework.

It is also important to establish if explosive conditions occur in any areas within the solvent storage and handling plant.

4.6.9. Conclusions

Lanstar is a member of the Chemical Industries Association Responsible Care Programme. In their document RC103A

June 1998 they report the chemical industry reduced its release of VOC from site by 23%. As an individual company Lanstar have the potential to make a significant contribution to this reduction.

In the Secretary of State's Process Guidance notes PG6/10(97) and PG6/14/97 limits are established for processes using Volatile Organic Compounds. Operations on the Solvent Plant should be consistent with the standard set in these Documents.

Further advice and guidance are established in the Environmental Technology Best Practice Programme which are provided free via the Environmental Helpline on 0800 585 794. These would include Cost Effective Reduction of Fugitive Solvent Emissions (GG71), Solvent Capture for Recovery and Re-use from Solvent Laden Gas Streams GG12, Cost Effective Solvent Management GG13 and Good Housekeeping Measures For Solvents GG28.

Examination of Salford Environmental and Consumer Services Department Complaint Data Base indicate a significant number of complaints which relate to solvent or amine type odours. Current practices in the Solvent Area have the potential to produce odours and allow significant volumes of volatile organic compounds to be released.

The current Waste Management Licence places a clear responsibility on Lanstar to use BATNEEC to control noxious or polluting gases, odours and other aerial emissions. To achieve this a Best Practicable Environment Option assessment should be carried out. Guidance on carrying this out is given in Technical Guidance Note E1. Best Practicable Environmental Option Assessments for Integrated Pollution Control.

The current Working Plan does not reflect the nature of operations currently being carried out on site. Environmental monitoring should be an integral part of operations carried out in this area.

The non-compliances identified should be resolved as a matter of urgency.

5. OVERALL CONCLUSIONS

The audit highlighted a number of non-compliances with licence conditions as detailed in section 6. Many of these breaches are considered to be serious, and thus warrant the service of enforcement notices under Section 42 (5) of the Environmental Protection Act.

5.1 Waste Reception Procedures

Throughout the audit period, the licence holder demonstrated that they were in compliance with conditions relating to reception procedures. All paperwork was completed as required and incoming loads were inspected as detailed in the site Working Plan.

The only problems noted were criticisms with regard to paperwork levelled at the producers of incoming waste. These producers were contacted and informed of the problems.

5.2 Waste Storage

The Agency expresses grave concern over the storage of waste on the site.

The majority of the storage areas were not constructed, marked or labelled as required under the Waste Management Licence. Many drums were not secure and in a number of cases had fallen off pallets, sometimes spilling their contents over the floor. Labelling was also poor in many cases, drums being unidentifiable.

Examples of incompatible waste storage were noted, as were examples of water reactive materials being stored outdoors. A number of containers were being stored in excess of the six month time limit specified by the Waste Management Licence.

Problems were also encountered with the

keeping of records relating to waste being stored on the site.

5.3 Site infrastructure

The majority of infrastructure problems and inadequacies noted during the audit relate to the bunding of tanks and the state of the site's concrete surface.

Site security was in good order and the provision of office facilities were impressive.

5.4 Waste Sampling

In the majority of cases, sampling of incoming tankered waste was observed being carried out appropriately by the licence holder's own staff. Sampling methods were generally adequate, with a core sample being taken from most tankers upon reception.

However, on a number of occasions, the tanker driver was allowed to take his own sample by one of the site chemists. This sample was in each case taken from the tanker's sight glass drain cock.

5.5 Laboratory Facilities and Analytical Techniques

Laboratory facilities were found to be well equipped with appropriate analytical equipment. All test methods were documented within a laboratory manual.

The only criticisms made were that the flammability test was being carried out incorrectly, and that a number of the standards used to calibrate equipment had passed their expiry dates.

5.6 Bulk Treatment Plant

The standards of operation and monitoring of the treatment processes on the Bulk

Treatment Plant are currently significantly different than the standards stipulated in the Working Plan.

However, many infrastructure problems were noted including damaged and inadequate bunds, unmarked discharge points and lack of suitable facilities to control removal of filtrate from settlement tanks.

5.7. Solvent Plant

A number of problems were highlighted with regard to the operation of the Solvent Plant. It appears that there is currently no monitoring of, or control over the potential emission of VOC's to atmosphere during bulking operations and storage within open tanks. Tanks were also not fitted with any form of level monitoring device.

Areas were identified which require infrastructure improvements and problems with storage were noted.

6. COMPLIANCE WITH LICENCE CONDITIONS & RECOMMENDATIONS

SECTION I - GENERAL CONSIDERATIONS				
Condition	Status	Comments	Recommendations	Compliance Date
1.1 - Site Boundary	Compliance	All operations were carried out within the licensed area		
1.2 - Licence Holder	Compliance	All operations were carried out under direct control of the licence holder.		
1.3 - Permitted Operations	Compliance	All operations observed on the site during the audit were permitted in Annex A of Waste Management Licence WML/0169/M12, except for the composting of hazardous waste. The licence holder has temporary written agreement with the Environment Agency until 1 January 1999 for trialing of the plant.	1) The submission to the Environment Agency of a detailed Working Plan for the composting plant. The Working Plan is to include details of all waste streams trialled through the plant, the success rates achieved during trialing and all monitoring data collected throughout the 3 year trial period. The licence holder is required to justify that the treatment process is effective prior to implementation into the Waste Management Licence and/or any further trial extension period being agreed.	1 March 1999
1.4 - Interface with IPC Agency Controls	Compliance			
1.5 - Operational Areas	Compliance	Keeping and treating of waste was confined to the area outlined in red on drawing number C9L9401C/0054 (site plan P2).		
1.6 - Waste Types	Compliance	All waste types observed during the audit were permitted under the licence for either treating or keeping.		
1.7 - Waste Input Rates	Not Assessed	Compliance with this Licence Condition was not assessed over the audit period.		
1.8 - Duration of Storage In Packages	Non Compliance	The audit trail of waste in storage identified packaged waste that had been on site for longer than the permitted six month period.	2) A system is to be introduced so as to ensure that packaged waste is not stored on site for a period of more than six months from the date of arrival. Details of this system are to be submitted to the Environment Agency for inclusion into the Working Plan.	Compliance required within one month from date of service of Section 42 Notice
1.9 - Duration of Storage of Treated Residues in Skips	Not Assessed	Compliance with this condition was not assessed over the audit period.		

SECTION 1 - GENERAL CONSIDERATIONS (Cont'd)

Condition	Status	Comments	Recommendations	Compliance Date
1.10. - Duration of Storage of Empty Drums	Not Assessed	Compliance with this condition was not assessed over the audit period.		
1.11 - Maximum Duration of Treatment and Storage in Bulk	Not Assessed	Compliance with this condition was not assessed over the audit period.		
1.12. - Current Issue of the Working Plan	Non Compliance	Operations carried out on both the Solvent and Bulk Treatment Plants differed in places from what was stated in the respective Working Plans.	3) Updates to the Solvent Plant & Bulk Treatment Plant Working Plans to be submitted to the Environment Agency as specified within the audit text.	1 May 1999
1.13. - Variations to the Working Plan	Not Assessed	Compliance with this condition was not assessed over the audit period.		
1.14. - Review of the Working Plan	Not Assessed	Compliance with this condition could not be assessed over the audit period as the current Waste Management Licence had only been in place for a period of four months.		
1.15. - Display of Site Licence and Working Plan	Not Assessed	Compliance with this condition was not assessed over the audit period.		
1.16. - Emergencies	Compliance			
1.17. - Contact Details	Compliance	The licence holder has submitted the details required by this condition.		
1.18. - Supervision of Site Operations	Compliance	During the audit period, the site was under the control of responsible management and appropriately qualified, trained & experienced operating staff.		
1.19. Hours of Operation	Compliance			
1.20. - Lighting	Not Assessed			
1.21. - Complaints	Not Assessed	Compliance with this condition was not assessed during the audit as no complaints were received over the two day period.		

SECTION 2 - SITE INFRASTRUCTURE

Condition	Status	Comments	Recommendations	Compliance Date
2.1. - Site Identification Board	Not Assessed	Compliance with this condition was not assessed over the audit period.		
2.2. - Office Facilities	Compliance	Office facilities are provided on the site for the purposes of site management and control.		
2.3. - Weighbridge	Compliance	A weighbridge is provided and during the audit was maintained in effective working order.		
2.4. - Laboratory Facilities	Compliance	Laboratory facilities were generally adequately provide, equipped and staffed to permitted effective controls as required by the licence. However a number of minor issues were picked up during the auditing of the laboratory test methods that require attention.	<p>4) Ensure that the expiry dates of laboratory standards are regularly checked and replaced when they become out of date.</p> <p>5) All samples should be taken by site staff following standard sampling procedures.</p> <p>6) All flammability tests should be carried out using a recognised procedure (eg in a fume cupboard using a porcelain basin) rather than carried out in the setaflash sample vessel. The setaflash apparatus is not designed for such use.</p>	<p>1 March 1999</p> <p>1 March 1999</p> <p>1 March 1999</p>
2.5. - Site Security	Compliance	The site boundary is fully enclosed by gates, walls and fencing constructed to a minimum height of two metres.		
2.6. - Fuel Storage Tanks	Not Assessed	Compliance with this condition was not assessed over the audit period.		

SECTION 2: SITE/INERAS STRUCTURE (Cont'd/.....)				
Condition	Status	Comments	Recommendations	Compliance Date
2.7. - Vehicle Discharge Points	Non Compliance	None of the discharge points assessed on the Bulk Treatment Plant were adequately marked	7) All vehicle discharge points are to be adequately marked	Compliance required 1 st April 1999
2.8. - Site Surface and Drainage	Non Compliance	Areas of the site were identified as requiring bunding/curbing so as to prevent potentially contaminated surface water from draining to uncontained ground (see sections 4.3. & 4.6.7.) B tank within the Bulk Treatment Plant is not situated on an impermeable base	8) Bunding/kerbing work to be carried out on those areas as detailed in sections 4.3 & 4.6.7. 9) Impermeable base to be provided for all site tanks	Schedule for works to be submitted by the 1 st June
2.9. - Location of New Pipework	Not Assessed	Compliance with this condition was not assessed over the audit period.		
2.10. - Design and Construction of Plant and Equipment	Not Assessed	Compliance with this condition was not assessed over the audit period.		
2.11. - Tank Facilities	Non Compliance	Only 50% of tanks assessed on Bulk Treatment Plant were adequately marked. None of the tanks on the Solvent Plant were fitted with contents gauge or level monitoring device	10) All waste storage and treatment tanks on site to be marked with a unique identification number. 11) A contents gauge or level monitoring device to be fitted to all tanks on the Solvent Plant.	Compliance required within three months from date of service of Section 42 Notice Compliance required within six months from date of service of Section 42 Notice

Condition	Status	Comments	Recommendations	Compliance Date
2.12. - Bunding of Tanks	Non Compliance	A number of tanks on the Bulk Treatment Plant were identified as either not being bunded to 110% capacity or having damaged bund walls.	<p>12) A schedule for the bunding of all tanks and reaction vessels to be agreed in writing with the Environment Agency. Every storage tank/reaction vessel is to be bunded to a capacity of 110% of its volume. The Schedule should also include proposals for repair of damaged bund walls.</p> <p>13) The provision to the Environment Agency of a written justification of why tanks M10, OS2, OS3, CV1, CV2, CV4 and CV5 are deemed to be bunded to the satisfaction of licence condition 2.12.</p>	<p>Schedule for works to be submitted by 1 June 99</p> <p>1 June 1999</p>
2.13 - Inspection of Impermeable Surfaces and Bunded Compounds	Non Compliance	<p>A daily inspection of bunding by staff is currently not being carried out.</p> <p>Impermeable surface on Solvent Plant Storage bay appeared to be damaged.</p>	<p>14) Daily inspections of impermeable surfaces and bunds used for waste handling, drainage or containment in the event of a spillage to begin. Written records of the results of these inspections to be made.</p> <p>15) Impermeable surface on Solvent Plant storage bay to be examined & any remedial work carried out</p>	31 March 1999

SECTION 3 - Waste Acceptance

Condition	Status	Comments	Recommendations	Compliance Date
3.1. - Waste Pre-Acceptance	Compliance	In accordance with this condition all loads that arrived had been pre - booked, and arrived with the relevant CWTN or S62 document. Pre-acceptance samples are also provided by the waste producers for testing to ensure suitability for treatment.		
3.2. - Waste Rejection	Compliance	No loads were rejected during the audit period.		
3.3 - Bulk Waste Reception Procedures	Compliance	Quality control checks were being carried out on representative samples of each load received. A 250 millilitre sample was taken for storage on the site for a period exceeding 7 working days.		
3.4 - Packaged Waste Reception	Compliance	Observations indicated that the staff were fulfilling the requirements under this condition.		

SECTION 4 - STORAGE OF WASTE

Condition	Status	Comments	Recommendations	Compliance Date
4.1 - Waste Storage Areas	Non Compliance	Drummed and packaged wastes were being stored in non-designated areas	16) All drummed waste must be stored within the areas designated for storage by the working plan.	Compliance required 1 st April 1999
4.2 - Marking of Storage Areas	Non Compliance	None of the designated waste storage areas on the Drum Handling Plant and Bulk Treatment Plant that were inspected during the audit could be clearly identified by painted boundary markings or their physical construction.	17) The boundaries of each of the storage areas are to either be marked by painted lines or constructed so as to be easily identified.	Compliance required within three months from date of service of Section 42 Notice
4.3 - Vehicular Access Routes and Building Access	Compliance	All routes were kept clear during the audit period.		
4.4 - Labelling of Drums	Non Compliance	A large proportion of drums inspected during the audit were inadequately labelled.	<p>18) Labelling of drums must be improved. A system is required so that the following information can be readily identified from every drum or package of waste stored on site:</p> <ul style="list-style-type: none"> a) Producers name b) Waste type c) Appropriate hazard classification d) Date of arrival e) Status i.e. whether: rejected; approved for treatment/off site transfer; or empty and decontaminated. <p>The current OLAN number system is flawed in that the numbers are not marked up on every container or package. Drums with the OLAN number on them could not be readily identified in many cases due to records being archived.</p>	Compliance required within one month from date of service of Section 42 Notice

SECTION 4 - STORAGE OF WASTE (Cont'd/....)

Condition	Status	Comments	Recommendations	Compliance Date
4.5 - Storage of Drums	Non Compliance	Access could not be gained to a number of drums on the Drum Handling Plant.	19) All containers must be stored in rows so that they are easily accessible for identification and inspection purposes.	Compliance required within one month from date of service of Section 42 Notice
4.6 - Sealing of Drums	Non Compliance	A small number of containers in storage were noted as not being securely sealed.	20) A system is to be introduced so as to ensure that all containers awaiting processing/off site disposal are securely sealed, stacked securely and effectively containing the waste held within them. Any problem noted should be rectified immediately.	Compliance required within one month from date of service of Section 42 Notice
4.7 - Stacking of Drums	Non Compliance	A number of drums were identified as having fallen off pallets, some of which had split open.	As recommendation 20	
4.8 - Repackaging of Faulty Containers	Non Compliance	Generally, overdrums were being used to repackage any faulty containers, however a number of leaking drums were noted that required repackaging.	As recommendation 20	
4.9 - Water Reactives	Non Compliance	A number of water reactive waste types were noted on the Solvent Plant and Drum Handling Plant. These were not being stored under cover.	21) All water reactive wastes and wastes which are not packaged in weatherproof containers are to be stored undercover immediately following receipt on the site.	Compliance required within one month from date of service of Section 42 Notice
4.10 - Storage Under Cover	Non Compliance	Weathered cardboard containers were noted being used to store waste on both the Drum Handling Plant and the Bulk Treatment Plant.	As recommendation 21	
4.11 - Storage of Empty Drums	Compliance	All empty drums logged during the audit were being stored securely.		
4.12 - Storage of Flammable Liquids	Non Compliance	A number of drums containing waste which had been classified as flammable were being stored directly next to drums labelled as oxidising agents on the Drum Handling Plant, thus increasing the risk of an outbreak of fire.	As recommendation 22	

SECTION 4 - STORAGE OF WASTE (Cont'd/....)

Condition	Status	Comments	Recommendations	Compliance Date
4.13 - Storage of Waste in Skips	Not Assessed	Compliance with this condition was not assessed over the audit period.		
4.14 - Asbestos Wastes	Not Assessed	Compliance with this condition was not assessed over the audit period.		
4.15 - Clinical Wastes	Not Assessed	Compliance with this condition was not assessed over the audit period.		
4.16 - Storage of Pressurised Gas Cylinders	Not Assessed	Compliance with this condition was not assessed over the audit period.		
4.17 - Incompatible Wastes	Non Compliance	A number of examples of incompatible waste storage was noted on site, especially on the Drum Handling Plant. These examples included the storage of lead sulphide drums directly on top of sulphuric acid/oleum drums and the storage of oxidising agents next to flammable liquids.	22) Details of the system for ensuring that incompatible wastes are stored separately from each other needs to be introduced. Details of this system are to be submitted to the Environment Agency.	30 April 1999
4.18 - Tanks of Open Construction and Pits	Compliance	Tanks of open construction were not observed as being filled to within 15 centimetres of the top.		
4.19 - Tank Capacity	Non Compliance	The filling of a tank on the Bulk Treatment Plant resulted in a minor spillage which was contained within the bund area.	23) Documented tanker unloading procedures to be introduced for site operatives so as to help prevent overfilling of tanks.	28 February 1999
4.20 - Tank Decontamination	Not Assessed	Compliance with this condition was not assessed over the audit period.		
4.21 - Redundant Tanks, Equipment and Pipework	Not Assessed	Compliance with this condition was not assessed over the audit period.		

SECTION 4 STORAGE OF WASTE (Cont'd/....)				
Condition	Status	Comments	Recommendations	Compliance Date
4.22. - Tank Survey	Non Compliance	At the time of the audit, none of the information required by this licence condition had been submitted to the Environment Agency.	<p>24) Following a comprehensive tank survey, the following information is to be submitted to the Environment Agency:</p> <p>a) A drawing showing the location and identity of all fixed tanks at the site.</p> <p>b) The identity of each tank referenced to the drawing provided.</p> <p>c) Details of the use of each tank (if not in regular use, then details of the previous use of the tank, full details of the nature and quantity of the tank contents or details of any tank decontamination).</p> <p>d) The condition of the tank.</p>	Compliance required 1 st April 1999

SECTION 5 - WASTE TREATMENT

Condition	Status	Comments	Recommendations	(Compliance) Date
5.1. - Methods of Treatment	Compliance	All treatment methods observed were in accordance with methods as detailed in the Working Plan		
5.2. - Internal Waste Transfers	Compliance	Internal transport was suitable for the purpose for which it was employed		
5.3. - PCB Containing Wastes	Compliance	No wastes containing PCBs or PCTs were treated on site during the audit.		
5.4 - Mixing of Wastes	Compliance	No evidence of uncontrolled reactions resulting in fire, damage to property or the emission to atmosphere of noxious or polluting gases, odours or other aerial emissions were noted during the audit		
5.5. - Monitoring of Treatment Processes	Compliance	The completion of reactions was monitored where possible.		
5.6 - Treatment of Flammable Liquids	Not Assessed	Compliance with this condition was not assessed over the audit period.		
5.7 - Emission Control	Non Compliance	No evidence of emission control measures on Solvent Plant contrary to Working Plan.	25) BATNEEC principle to be applied to emission control on the Solvent Plant through the use of a BPEO assessment. Results of assessment to be submitted to the Environment Agency.	Activities on the Solvent Plant are currently being investigated by the Agency

SECTION 6- WASTE RECORDS

Condition	Status	Comments	Recommendations	Compliance Date
6.1 - Records Availability	Non Compliance	Waste receipt records archived despite the waste still being in storage awaiting treatment.	26) All records required to be made under the terms and conditions of the licence must be kept on the site so that they are readily available. These records should not be archived until, at the very least, the waste is no longer on the site.	Compliance required 1 st April 1999
6.2 - Audit Trail/Stock Keeping	Not Assessed	Compliance with this condition was not assessed over the audit period.		
6.3 - Drum Records	Compliance	Records were being kept of all the drums in storage on the site		
6.4 - Tank Records	Not Assessed	Compliance with this condition was not assessed over the audit period.		
6.5 - Transfer of Wastes to IPC Processes Within the Site	Not Assessed	Compliance with this condition was not assessed over the audit period.		
6.6 - Records of Wastes Removed	Compliance	The required records were being kept by the licence holder		
6.7 - Waste Returns	Non Compliance	The required information is currently not being forwarded to the Environment Agency	27) Monthly returns dating back to 1 April 1997 to be submitted to the Environment Agency.	

SECTION 7 - PREVENTION OF WATER POLLUTION

Condition	Status	Comments	Recommendations	Compliance Date
7.1. - Drainage Survey and Plan	Non Compliance	Compliance with this condition was not assessed over the audit period.	28) A Drainage plan & method statement is to be submitted to the Environment Agency as specified in licence conditions 7.1. & 7.2.	Compliance required 1 st April 1999
7.2. - Drainage Method Statement	Non Compliance	At the time of the audit, the drainage method statement had not been submitted to the Environment Agency	As recommendation 28	
7.3. - Inspection of Site Drainage Systems	Not Assessed	Compliance with this condition was not assessed over the audit period.		
7.4. - Effluent Discharges	Not Assessed	Compliance with this condition was not assessed over the audit period.		

SECTION 8 - ENVIRONMENTAL CONTROLS

Condition	Status	Comments	Recommendations	Compliance Date
8.1. - Containment of Wastes	Compliance	Throughout the audit, there was no evidence of any contamination to unprotected ground or the water environment.		
8.2. - Contaminated Debris	Compliance	All contaminated debris remained within the site boundary. Any contaminated debris that built up on the site was cleared at the end of each working day.		
8.3. - Cleanliness of Vehicles	Compliance	No waste was noted as having tracked out of the site gates onto the public highway.		
8.4. - Spillages and leakages	Non Compliance	A spillage of sludge was noted on the surface of the Drum Handling Plant on the first day of the audit. This spillage had not been cleared by the end of the second day of the audit.	29) The licence requires that all spillages are dealt with by the end of the working day. All site operatives need to be aware of the spillage procedure, which should be adhered to in the event of any spillage, wherever it is on the site.	1 March 1999
8.5. - Discharges	Not Assessed	Compliance with this condition was not assessed over the audit period.		
8.6. - Noise	Compliance	Noise was kept to a minimum and did not cause any detriment to the amenity of the area during the audit.		
8.7. - Fire	Compliance	There was no evidence of any waste being burnt on the site during the audit.		
8.8. - Weather Station	Non Compliance	Weather conditions as specified by the licence condition are not being monitored.	30) Monitoring of weather conditions to begin as specified in condition 8.8. (ie wind speed and direction at intervals not exceeding 15 minutes during site operations). Results to be recorded.	1 March 1999

SECTION 9 - SITE AUDIT				
Condition	Status	Comments	Recommendations	Compliance Date
9.1. - Olfactory Check	Compliance	The licence holder carries out the required assessment daily. The results of each check are recorded in a file which is stored in the main site office.		
9.2. - Inspection of Below Ground Pits and Sumps	Non Compliance	The Environment Agency has not yet been notified of any inspection of below ground pits or sumps.	31) All below ground pits and sumps used for wastes or water contaminated by waste are required to be inspected as specified in licence condition 9.2.	Compliance required 1 st April 1999
9.3. - Inspection of Below Ground Pipes and Drains	Compliance	The licence holder is currently in the process of carrying out the work required by this licence condition		
9.4. - Tank Inspection	Not Assessed	Compliance with this condition was not assessed over the audit period.		

SITE LOCATION PLAN P1
WML/0169/M12



LICENCE HOLDER: Lanstar Ltd

SITE ADDRESS: Liverpool Road, Cadishead, Manchester

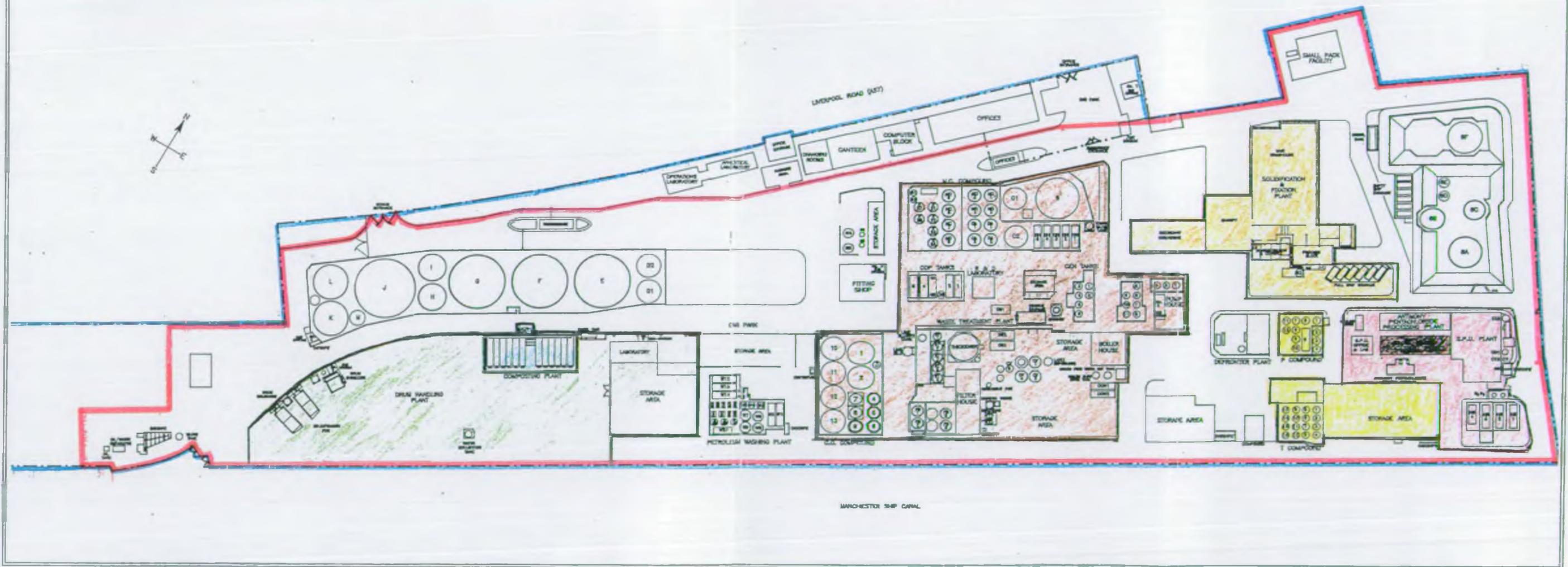
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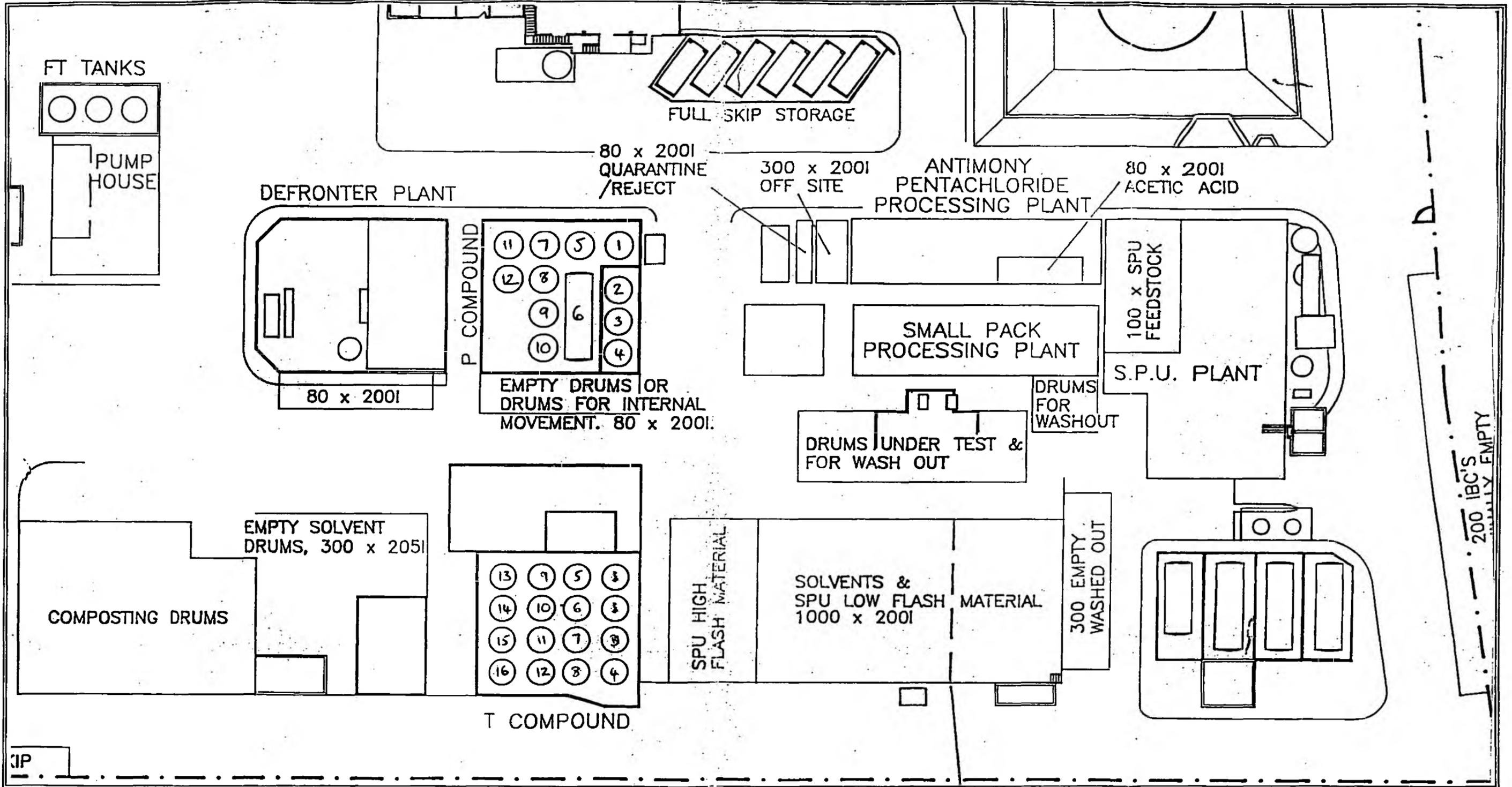
Environment Agency
SITE PLAN P2- SITE LAYOUT PLAN P2
WML/0169/M12

- DRUM HANDLING PLANT
- TRIAL COMPOSTING PLANT
- BULK TREATMENT PLANT
- SOLIDIFICATION & FIXATION (SAF) PLANT
- SOLVENT PLANT
- STR PLANT
- SMALL PACKAGES FACILITY



LICENCE HOLDER: Lanstar Ltd
SITE ADDRESS: Liverpool Road, Cadishead, Manchester
NGR: SJ 706 915

Environment Agency
SITE PLAN P3 - THE SOLVENT PLANT
 WML/0169/M12



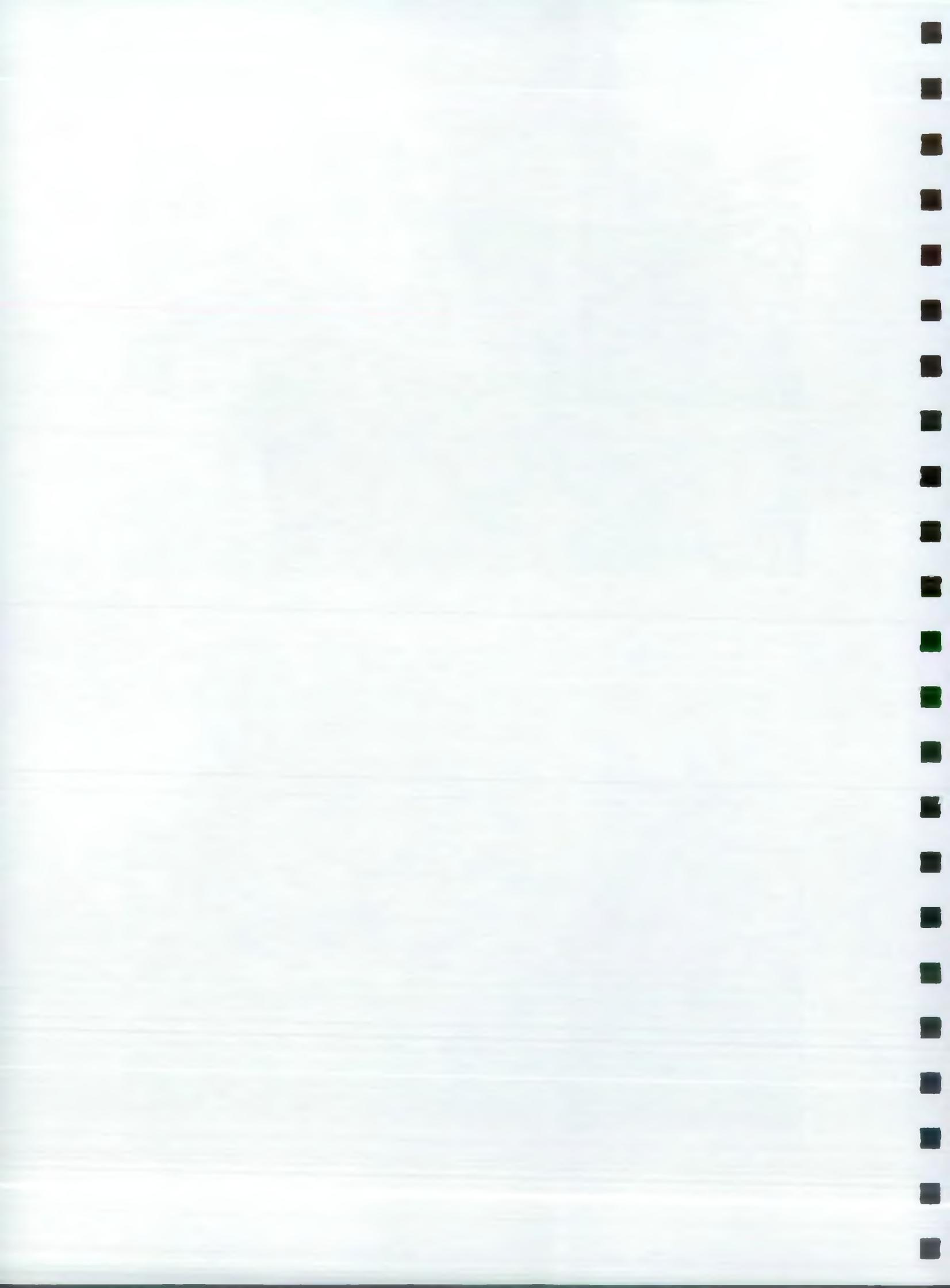
LICENCE HOLDER: Lanstar Ltd
SITE ADDRESS: Liverpool Road, Cadishead, Manchester
NGR: SJ 706 915

PHOTOGRAPH REF: SW/0169/003:
DRUM HANDLING PLANT AREA 3 - EXAMPLE OF PACKAGED WASTE STORAGE



PHOTOGRAPH REF SW/0169/004:
DRUM HANDLING PLANT AREA 3 - STORAGE OF PACKAGED WASTE



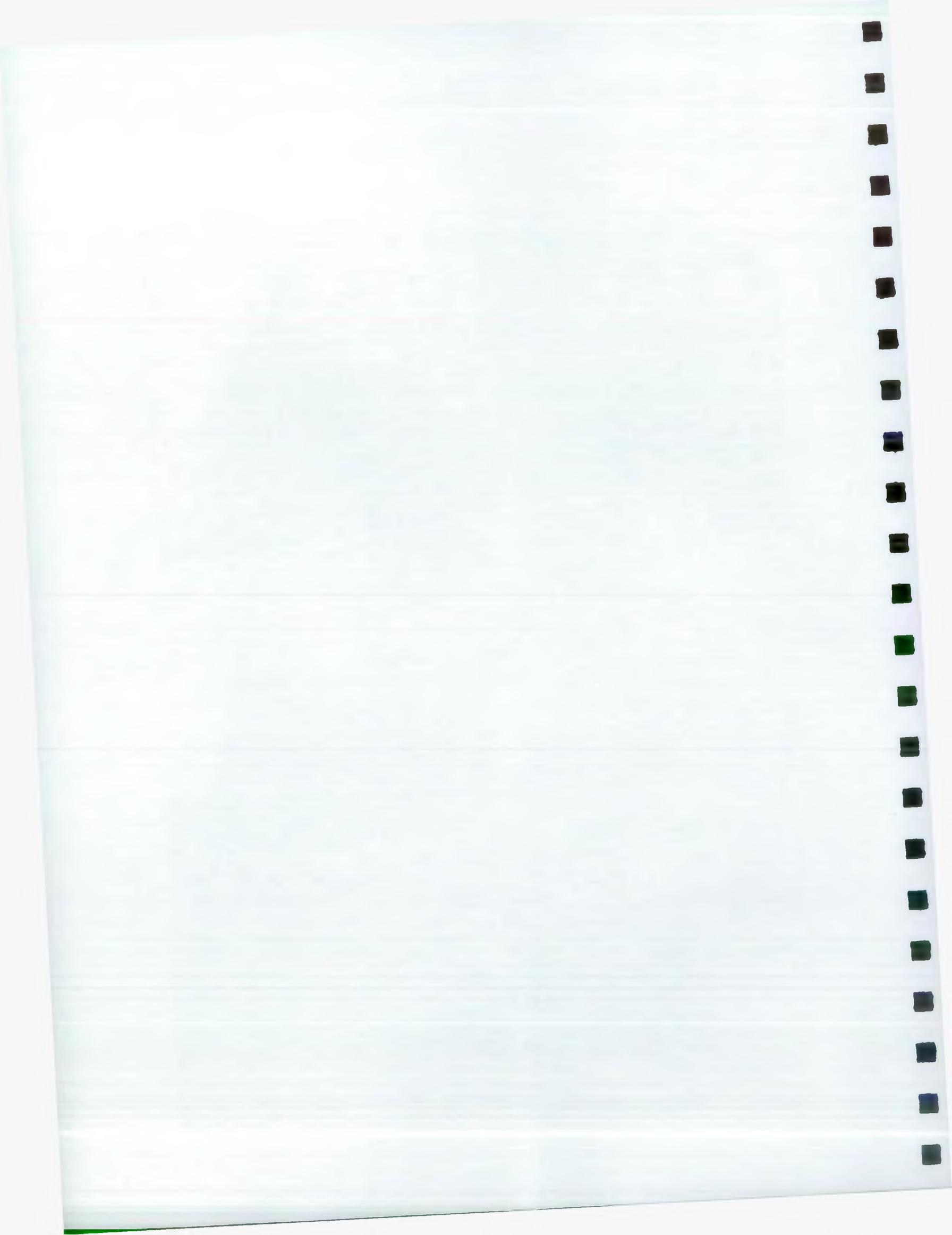


PHOTOGRAPH REF: SW/0169/005:
DRUM HANDLING PLANT AREA 3 - POOR STACKING OF CONTAINERS



PHOTOGRAPH REF SW/0169/006:
DRUM HANDLING PLANT AREA 3 - POOR STACKING OF CONTAINERS



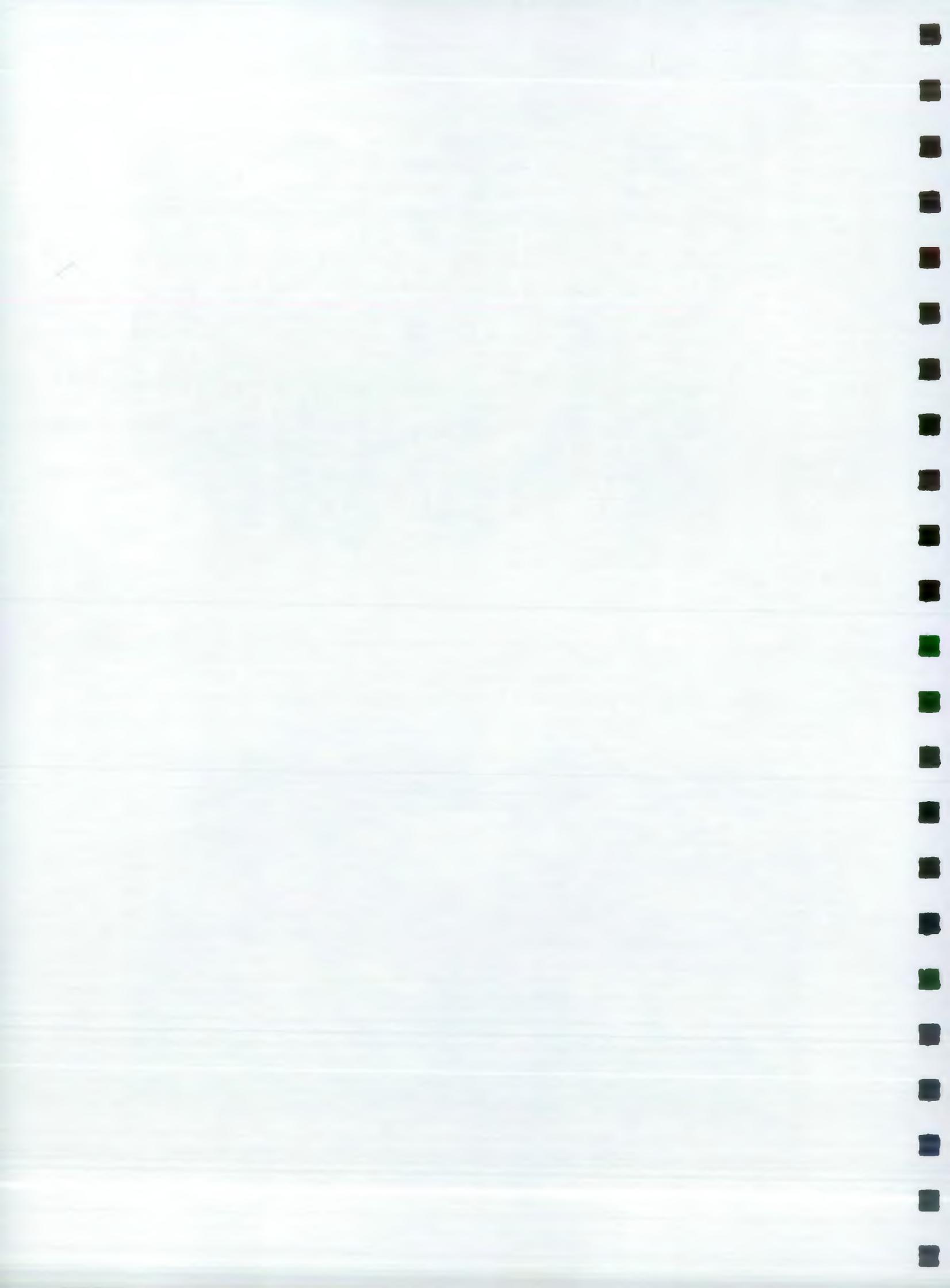


PHOTOGRAPH REF: SW/0169/007:
DRUM HANDLING PLANT AREA 3 - DRUM FALLEN DOWN DRAINAGE CATCHPIT



PHOTOGRAPH REF SW/0169/008:
DRUM HANDLING PLANT AREA 3 - INCOMPATIBLE WASTE STORAGE





PHOTOGRAPH REF: SW/0169/009:
DRUM HANDLING PLANT AREA 3 - EXAMPLE OF WEATHERED CONTAINER



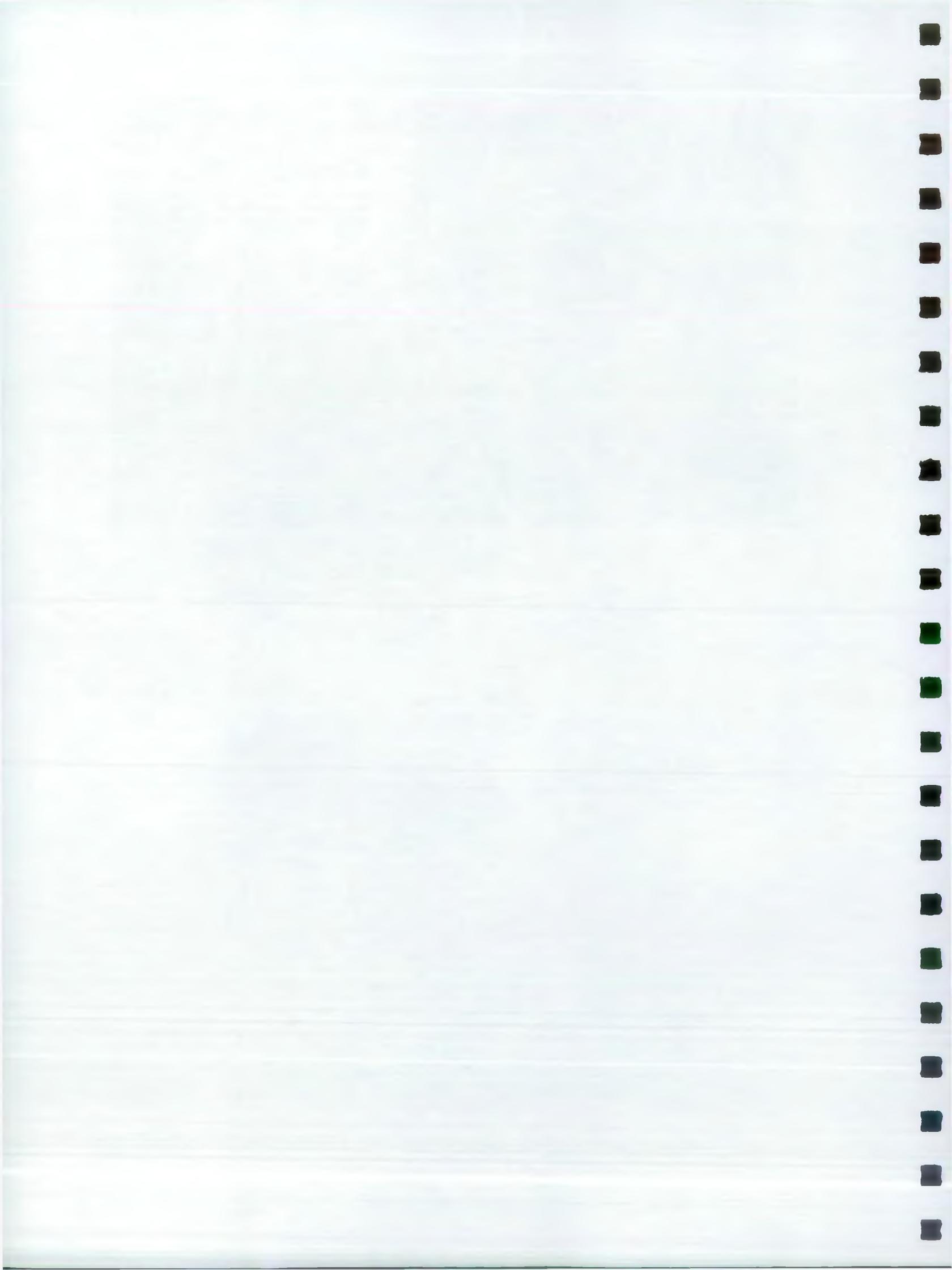


PHOTOGRAPH REF: SW/0169/010:
BULK TREATMENT PLANT: TANK ODP 5



PHOTOGRAPH REF SW/0169/011:
BULK TREATMENT PLANT - CAUSTIC SCRUBBER





PHOTOGRAPH REF: SW/0169/012:
BULK TREATMENT PLANT: THICKENER TANK



PHOTOGRAPH REF SW/0169/013:
BULK TREATMENT PLANT - DAMAGED BUNDING





PHOTOGRAPH REF: SW/0169/014:
BULK TREATMENT PLANT: EXAMPLE OF DISCHARGE POINT



ANNEX B - SITE NOTIFICATION

Site Notification Letter - 6 April 1998

Audit Agenda - 20 and 21 April 1998

Your Ref:
Our Ref: SW/0169/98/01
Date: 6 April 1998



**ENVIRONMENT
AGENCY**

Mr J Campbell
Lanstar Ltd
Liverpool Road
Cadishead
Manchester
M30 5DT

Dear Mr Campbell,

**ENVIRONMENTAL PROTECTION ACT 1990
WASTE MANAGEMENT LICENCE NUMBER WML/0169/M12
LANSTAR LTD, LIVERPOOL ROAD, CADISHEAD, MANCHESTER**

I am writing to give notification that the Environment Agency plans to conduct an audit of the above site on the dates of Monday 20 April 1998 and Tuesday 21 April 1998.

The objective of the audit will be to measure compliance with licence conditions and procedures detailed in your operational Working Plan. Specific areas that will be addressed include waste reception, sampling and analysis techniques, bulk and drummed waste storage and record keeping.

Following the audit, the Agency will produce a report outlining findings and recommending any required working plan amendments.

I will forward a copy of the audit agenda in due course.

If you require further information regarding the above, then please do not hesitate to contact John Christey on extension number 3665

Yours Sincerely

A handwritten signature in black ink, appearing to be 'D Percy'.

Mr D Percy
Environmental Protection Officer (Croal/Irwell)



TREATMENT PLANT AUDIT



ENVIRONMENT AGENCY

Lanstar Ltd, Liverpool Road, Cadishead, Manchester

M30 SDT

Monday 20 April 1998 & Tuesday 21 April 1998

Audit Team:	J Christey	Environmental Protection Officer
	S Walters	Environmental Protection Officer
	S Molyneux	Environmental Protection Officer
	D Percy	Environmental Protection Officer
	M Crouch	Environmental Protection Officer
	R Hilton	Operational Monitoring Officer
	B Stringer	Operational Monitoring Officer
	Ian Blair	Hazardous Waste Officer
	Matt Williamson	Hazardous Waste Officer
	B Cook	Hazardous Waste Officer

Agenda

Aspect	Activity	Location	Timescale	Officer(s)
1. Waste Reception	Assessment of compliance with waste reception procedures as required by licence conditions & as detailed in the Working Plan	Weighbridge Analytical Laboratory SAF Laboratory	20/04/98 & 21/04/98	I Blair M Williamson B Cook
2. Waste Input/Output	Logging of all waste movements to and from the site	Weighbridge	20/04/98 & 21/04/98	I Blair M Williamson B Cook
3. Waste Storage Assessment	Assessment of waste types and quantities.	Waste Storage Areas	20/04/98	S Walters M Crouch
4. Waste Storage Audit	Audit of paperwork for stored waste	Office	21/04/98	S Walters M Crouch
5. Waste Treatment	Monitoring of inputs/outputs to/from Bulk Treatment Plant. Assessment of Bulk Treatment Plant operation	Bulk Treatment Plant	20/04/98 & 21/04/98	D Percy S Molyneux
6. Waste Sampling	Assessment of sampling procedures for incoming and outgoing waste.	Waste Reception Areas	20/04/98	R Hilton B Stringer
7. Analysis	Assessment of laboratory equipment and analytical techniques	Wet, Analytical & SAF Laboratories	21/04/98	R Hilton B Stringer
8. Solvent Blending	Assessment of Solvent Blending Process	Solvent Plant	20/04/98 & 21/04/98	J Christey

ANNEX C - INCOMING LOADS 20/04/98

No	date	time	vehicle	Consignor	Note/No	Ticket	Description	Comments
1	20-Apr-98	08:0	D174 CUT			39639	Mixed Solvents	
2	20-Apr-98	08:1	K24 REA			39641	Nitric Acid 35%	
3	20-Apr-98	08:2	J256 NVM			39642	Laboratory Chemicals	
3	20-Apr-98	08:2	J256 NVM			39642	Xylene /Toluene	
3	20-Apr-98	08:2	J256 NVM			39642	Laboratory Chemicals	
3	20-Apr-98	08:2	J256 NVM			39642	Laboratory Chemicals	
4	20-Apr-98	08:3	M575 NND			39643	Leachate	
5	20-Apr-98	08:4	H493 FEM			39644	Leachate	
6	20-Apr-98	08:4	P675 HLG			39646	Caustic Wash 5--20%	
7	20-Apr-98	09:3	P609 RNW			39648	Oil/Water	
8	20-Apr-98	10:2	H344 AHG			39649	Bund/Sump waste	
9	20-Apr-98	11:0	L423 SKF			39650	Various "as list"	
10	20-Apr-98	11:1	F102 CDB			39651	Lead Acid Batteries	
11	20-Apr-98	11:5	J537 LTJ			39652	Effluent Treatment Sludge	
12	20-Apr-98	12:1	MTK 112			39653	Lagoon Sludge	
13	20-Apr-98	12:3	F320 ABG			39654	Process Washings	
14	20-Apr-98	13:0	P142 BLS			39655	Sheep Dip Non Organo Phosphorous	
15	20-Apr-98	13:0	L429 SKF			39656	Oil/Water Mixture	
16	20-Apr-98	14:2	H344 AHG			39659	Bund/Sump Water	
17	20-Apr-98	13:5	MTK 112			39658	Lagoon Sludge	
18	20-Apr-98	15:5	N151 ERH			39664	Laboratory Chemicals	
19	20-Apr-98	15:5	K24 RGA			39665	Ammonium Hydroxide	
20	20-Apr-98	15:5	K24 RGA			39665	Methyl Ethyl Ketone	
21	20-Apr-98	16:2	E131 VMK			39663	Laboratory Chemicals	
22	20-Apr-98	16:2	J764 LCN			39667	Aqueous Emulsion Methanol	
23	20-Apr-98	08:0	F886 SSF			39640	Stabilised/ Solidified Waste	
24	20-Apr-98	08:0	M917 MVR			39648	Solvents	
25	20-Apr-98	13:1	N806 CNC			39657	Solvents	

ANNEX C - INCOMING LOADS 21/04/98

Load	date	time	vehicle	Consignor	Note No	Ticket	Description	Comments
1	21-Apr-98	07:3	H493 FEM			39669	Leachate	
2	21-Apr-98	07:5	P75 HNA			39671	Acidic Washings Draining Bund Area	
3	21-Apr-98	08:1	H669 HSM			39674	Tank Washings- Brown Oily	
4	21-Apr-98	09:2	P219 KVM			39676	Crushed Drums	
5	21-Apr-98	10:0	A6 WDL			39677	Contaminated Gloves/Cloths 3%	
6	21-Apr-98	10:2	P675 PLK			39678	Caustic Washings	
7	21-Apr-98	10:3	VCK 194			39679	Caustic Soda Solution Sodium	
8	21-Apr-98	11:0	D981 UHG			39680	Oil/Water	
9	21-Apr-98	11:1	R809 THH			39681	Laboratory Chemicals	
10	21-Apr-98	11:3	R392 BJA			39682	Waste Neutralised Cyanide Effluent	
11	21-Apr-98	12:4	MTK 971			39684	Gas Oil-- Clearance of oil spillage.	
12	21-Apr-98	13:2	J537 LTJ			39687	Sodium Hydroxide Water Chromate	
13	21-Apr-98	13:2	P450 MVU			39688	Sulphuric Acid/Chromic Acid	
14	21-Apr-98	13:5	A292 MCL			39690	PVC Plastisol/Sawdust	
15	21-Apr-98	13:4	H675 WCK			39689	"As List"-- Redundant Materials	
16	21-Apr-98	14:2	G983 OFL			39691	Fly Ash Municipal Waste Incineration	
17	21-Apr-98	14:3	H493 FEM			39692	Leachate	
18	21-Apr-98	14:4	D981 UHG			39693	Bulk Liquid-cooling down components	
19	21-Apr-98	15:3	J764 LCM			39694	Contaminated Water Methanol 2%	
20	20-Apr-98	16:1	J256 NVM			39695	Oil/Water Mixture Forane	
21	21-Apr-98	16:1	J256 NVM			39695	Machine Coolant	
22	21-Apr-98	16:1	J256 NVM			39695	"As list" Photolithographic Waste	
23	21-Apr-98	09:3	G161 NEC			39668	Stabilised /Solidified Waste	
24	21-Apr-98	11:2	F896 SSF			39675	Stabilised/ Solidified Waste	
25	21-Apr-98	12:1	L137 TKB			39670	Mixed Solvents	
26	21-Apr-98	15:4	F896 SSF			39685	Stabilised/Solidified Waste	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
Drum Handling Plant - Area 9	400x205 ltr empty drums	Empty Drums	Various	Various		
	86x1000 ltr empty IBC's	Empty IBC's	Various	Various		
Drum Handling Plant - Area 9 Cyanide Bay	11x205 ltr drums	"Liquid Cyanide"	Toxic	31718 30583 31756		
	3x205 ltr drums	"Trichloroethylene"	Harmful	35291		
	8x205 ltr drums (salvage drums)	"Solid Cyanide"	Toxic	35291		
	2x25 ltr cardboard kegs	"Chlorine Release NADCC Agent ' East Lancs 1992'"	None	None	Poor Waste Description No Hazard Classification No Olan Number	
	2x205 ltr drums	"Waste Corrosive Solid, Acid, Inorganic"	Corrosive	20797	Top of Drums Actually Labelled as Solid Cyanide	SW/0169/001
	8x205 ltr drums	"Liquid Cyanide"	Toxic	30585		
	6x205 ltr drums	Labels Obscured	Toxic	Obscured	OLAN & Description Obscured From View	
	34x205 ltr drums	Various Cyanides (Zinc, Nickel, Sodium)	Toxic	35291 36157		
	10 x 50 ltr drums	Various Cyanides	Toxic	32881		
	3x205 ltr drums	"Zinc Cyanide"	Toxic	None	No OLAN Number	
	2x205 ltr drums	"Zinc Carb"			No OLAN Number No Description Label No Hazard Classification Drum Lids Open	
	2x205 ltr drums	"Solid Cyanide Waste"	Obscured	38647	Hazard Code Obscured From View	
	2x170 ltr containers	"Solid Cyanide Waste"	Obscured	38647	Hazard Code Obscured From View	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	1xpallet containing 6 containers (mixed sizes - up to 205 ltr)	Organics (Chloroform) Containing Cyanide	Toxic Flammable	34673		
	20x205 ltr drums	Various Cyanides	Toxic	31756 35635		
	5x80 ltr drums	"Copper Cyanide 5% NaOH 2%"	Toxic	37275		
	7x80 ltr drums	"Spent Cyanide Treatment Salts"	Poison	38786	Drums Burnt	
	Mixture of various sizes of container (up to 205 ltr)	Various Cyanides (Silver, Sodium Cyanide)	Toxic	31756, 16236, 36747	Drum (OLAN Number 16236) Rusting.	
	7x1000 ltr IBCs	Labels Obscured	Toxic	OLAN Numbers Obscured	Labels & OLAN Number Obscured	
Drum Handling Plant - Internal Transfer Area 3 - Before Bay 1	11x205 ltr drums	"HNO ₃ -	Corrosive	30469	Bays Not Demarked Not a Designated Storage Bay	
	17x205 ltr empty overdrams	Various	Various	Various	As Above	
	56x205 ltr empty drums	Various	Various	Various	As Above	
	62x10 ltr empty drums	Oxidizing Agents	Oxidizing Agents	None	As Above	
	7x25 ltr drums	"H ₂ SO ₄ " On Top of Drums, However Labelled As "Hydrochloric Acid"	Corrosive	25001	Labels Contradict What is Written on Top of The Drums.	
	2x25 ltr drums	"Waste Hydrazine Hydrate"	Corrosive	26503		
	1x150 ltr drums	"Metholene Acryamide"	Toxic	34990		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	2xpallets of mixed scrap waste + various small containers (<100 ltrs)	Oxidizing Agents, Scrap Metal, Electrical Equipment, Acids	Oxidizing Agents	23464		
	2x205 ltr solid powder	"P.E."	None	27479	Poor Waste Description No Hazard Classification	
	2x205 ltrs	"Solid Powder"	None	29650	Poor Waste Description	
	2x205 ltrs	"P.E. Acid"	None	25165	Poor Waste Description No Hazard Classification	
	1xpallet (6 bags)	"Potassium Persulphate"	Oxidiser	None	No OLAN Number	
	1x100 ltr drum	"Sulphuric Acid 98%"	Corrosive Toxic	None Visible	OLAN Number Not Visible	
	1xpallet of mixed sized Small (<100 ltrs) Containers	"Sodium Hydroxide"	Corrosive, Oxidizing Agent	21699 9507	Top Missing from One Container	
	2x205 ltr drums	"Sodium Dichromate Waste"	Toxic	27310		
	2x100 ltr	"HCl"	Corrosive	25245	Top Missing from One Container	
	11x25 ltr drums	"Phosphoric Acid Waste" "Formic Acid Waste"	Corrosive	None	No OLAN Number	
	6x205 ltr drums	None	Corrosive	26553	No Waste Description	
	3x205 ltr drums	"Waste Ferric Chloride, Anhydrous"	Corrosive	24392	Top Missing from One Container	
	15x25 ltr containers	Water Treatment Chemicals	Corrosive Irritant	33451	OLAN Number only on one drum	
	1x205 ltr drum	"H ₂ O ₂ "	Oxidizing Agent	34212		
	3x205 ltr drums	"Poly Aluminium Chloride Slurry"	Corrosive	38608	Top Missing from One Drum	
	6x205 ltr drums	"Acid Chloride"	Flammable Corrosive	34310		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	1x1000 ltr IBC	"Ammonia, Acetic Acid & Mercaptopyradine"	Corrosive Toxic	34307		
	9x25 ltr drums (on pallets)	None	None	None	Drums not Labelled	
	2x205 ltr drums	"P.E. Acids"	None	41593	Sludge on Floor of Bay	
	1x205 ltr drums	"H ₂ O ₂ "	Oxidizing Agent	25253	"	
	4x205 ltr drums (packed in over drums)	"P.E. Acid"	Corrosive	16017/22597	Poor Waste Description	
	1x205 ltr drum	"Alkamide PK (Product of Fatty Acid & Alkyloamine)"	Irritant	28884	"	
	10x25 ltr drums	Various Acids	Corrosive	26098/26136		
	6x205 ltr drums	Various Acids	Corrosive	28895/29945		
	3x205 ltr drums	"P.E."	None		Poor Waste Description No Hazard Info	
	1x205 ltr drum	"Compost"	None	31960	Poor Waste Description	
	9x25 ltr drums	Water Treatment Chemicals (Oxidizing Agents)	Oxidizing Agent	33451		
	4x50 ltr drums	"Sulphuric Acid"	Corrosive	30705		
	2x80 ltr drums	"Hydrochloric Acid"	Corrosive	33258/30553		
	1x25 ltr drums	"Solvents"	Flammable Liquid	36747	Stored on Top of Oxidizing Agents	
	3x25 ltr drums	"Oxidiser"	Oxidizing Agent	35338	Stored beneath container marked 'Solvents'	
	17x25 ltr drums	"Glacial Acetic Sodium Carbonate" "Perchloric Acid"	Corrosive	None Visible	No OLAN Number Visible	
	4x205 ltr drums	"Hydrochloric Acid & TEA"	Corrosive	27533		
	4x205 ltr drums	Various Acids	None	29750/32176	No Hazard Classification	
Drum Handling Plant - Internal Transfer Area - Bay 1	3x205 ltr drums	None Visible	None Visible	None Visible	No Waste Description No Hazard Classification No OLAN Number	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	4x205 ltr drums	"Colour Developer - "Triethanolamine Potassium Hydroxide & Acetic Acid"	None Visible	None Visible	No Hazard Classification No OLAN Number	
	2x205 ltr drums	"Chromium Waste"	None Visible	33461	No Hazard Classification	
	1xpallet (containing 4x205 ltr shrink wrapped drums)	None Visible	None Visible	None Visible	No Waste Description No Hazard Classification No OLAN Number	
	4x205 ltr drums	"Fluoroboric Acid"	Corrosive	32700		
	1 pallet containing a mixture of small containers (5/25 ltrs)	Phosphoric/Hydrochloric Acids	Corrosive	35000		
	1 pallet containing a mixture of small containers(5/25 ltrs)	"Developer Wastes (Diethanolamine)"	Corrosive	35685		
	5x100 ltr drums	None Visible	None Visible	None Visible	Drums Stored high up on pallet - No Labels Visible	
	1x205 ltr (stored in overdum)	"Plant Acid"	None Visible	34432	Poor Waste Description No Hazard Classification	
	1x1000 ltr IBC	"Ammonia Solution"	Corrosive	33499		
	1x1000 ltr IBC	"Hydrogen Peroxide"	Corrosive Oxidizing Agent	33499		
	3x205 ltr drums	"Potassium Dichromate"	Toxic	32762		
	2x205 ltr drums	"Acetic Acid"	Corrosive Flammable	32762		
	1x205 ltr drum	"Ammonium Iron Sulphate"	Irritant	32762		
	6x205 ltr drums	"Methyl Adipoyl Chloride"	None Visible	32762		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	2x205 ltr drums	"Solids Containing Flammable Liquids (Benzene)"	Flammable Solid	None Visible	No OLAN Number	
	1x205 ltr drum	"Acid (SPU)"	None Visible	32762		
	4x205 ltr drums	None Visible	Toxic/Flammable	33102		
	2x205 ltr drums	None Visible (Half of Label Missing)	None	32762	No Waste Description No Hazard Classification	
	1x205 ltr drum	"Potassium Dichromate"	None	32762	No Hazard Classification	
Drum Handling Plant - Internal Transfer Area - Bay 2	17x25 ltr drums	"Waste Acid Etch (Sulphuric Acid)"	None	33349	No Hazard Classification	
	1x80 ltr drum	"Hydrogen Peroxide"	Oxidizing Agent	28522		
	1x80 ltr drum	"Sulphuric Acid 50%"	Corrosive	None Visible	No OLAN Number	
	2x50 ltr drums	"Ammonia"	Corrosive	33461		
	2x205 ltr drums	"Potassium Persulphate"	Oxidizing Agent	31891		
	1x25 ltr drum	"Sodium Hydroxide"	Corrosive	33163		
	1x205 ltr drum	"Dilute Sulphuric Acid/Resin"	Corrosive	32124		
	1xpallet (12 containers - various sizes <100 ltr)	Various Oxidising Agents	Oxidizing Agents	34614		
	3x205 ltr drums	"Copper/Sulphuric Acid Solution"	Corrosive	34559		
	1x205 ltr (overdrummed)	"Sulphuric Acid"	Corrosive	28441		
	1x1000 ltr IBC	"Acid/Oxidizing Agent"	Corrosive	34694		
	5x25 ltr kegs	"Acetodiphosphoric Acid"	Corrosive	None Visible	No OLAN Number	
	1xpallet containing various small packages	Various Oxidising Agents	Oxidizing Agents	34544		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	2x1000 ltr IBCs	"Waste Nitric Acid (containing Tin, Lead & Copper)"	Oxidizing Agent	34544		
	1xpallet containing 8x25 ltr containers	"Chromium Trioxide"	Oxidising Agent Corrosive	35539	Being Stored Next to Drum Marked as 'Flammable'	
	2x205 ltr drums	"Phosphorus Oxychloride"	Corrosive	34809	Water Reactive	
	2x205 ltr drums	"SPU ACI - Incin"	Flammable liquid	34310	Being Stored Next To Oxidizing Agent	
	1xpallet containing various sizes of small (<100 ltr) container	Oxidizing Agents Flammable Liquids	Oxidizing Agent Flammable liquid	None	No OLAN Number Oxidizing Agents being stored next to Flammable Liquids	
	1x205 ltr	"2,2 Dibromo-3-Nitrilopropionamide, 20%"	Toxic	37204		
	2x1000 ltr IBCs	"Acid Waste"	Corrosive	37438		
	1x205 ltr drums	"Ethylene Diamine"	Corrosive Flammable	Not Visible	OLAN Number Not Visible	
	3x205 ltr drums	"Hydrogen Fluoride"	Toxic/Corrosive	Not Visible	OLAN Number Not Visible	
	4x205 ltr drums	Not Visible	Flammable	30684	Waste Description Not Visible	
	4x205 ltr drums	"Chromic Acid"	Oxidising Agent Corrosive	29945		
	3x205 ltr drums	Not Visible	Not Visible	30078	Waste Description & Hazard Code Not Visible	
	2x205 ltr drums (over drummed)	"Sodium Permanganate & Caustic"	Oxidiser	33399		
	8x50 ltr containers	"Toxic Liquid 'As Listed'"	Toxic	33716	Waste Description Poor	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	16x25 ltr containers	"As Listed"	Toxic	33716	Waste Description Poor	
	24x25 ltr containers	"Acetone/Methanol"	Toxic/Flammable	32927		
	7x25 ltr containers	"Sodium Nitrite/Sodium Hydroxide"	Toxic Flammable	33832		
	4x205 ltr drums	"Alkyl Pyridines"	Corrosive	27675		
	8x205 ltr drums	"NH ₃ "	Corrosive	Not Visible		
	8x205 ltr drums	"Sulphuric Acid/Resin"	Corrosive	32124		
	126x25 ltr drums	"Zinc Chloride/HCl"	Corrosive	31957		
	8x205 ltr drums	"Sodium Hydroxide/Sodium Bisulphite"	Corrosive	32124		
	4x80 ltr drums	"Diatrizoic Acid"	Non-dangerous	32757		
	3x205 ltr drums	"Pharmaceutical Waste"	Non-dangerous	32757		
	7x205 ltr drums	"Chloroform Contaminated Water"	Toxic	32148		
	4x205 ltr drums	"Aqueous Ammonia"	Corrosive	33800		
	2x205 ltr drums	"Glutoral Dehyde"	Corrosive	37204	Drum Fallen off Pallet	
	2x205 ltr drums	"Hydrogen Peroxide"	Oxidizing Agent	33400		
	1x205 ltr drum	Label Missing	Corrosive	30958	No Waste Description	
	1x205 ltr drum	"Ammonium Salt of Erytherbic Acid"	Corrosive	30958		
	46x1000 ltr IBCs	Various	Corrosive	Various		
	1xpallet containing 12x small (<80 ltrs) Containers	Various Flammable Solids & Liquids	Flammable	26618	Some of the containers rusting	
	2x205 ltr drums	"Acrylic Acid"	Corrosive	None Visible	Drum Rusting	
Drum Handling Plant - Internal Transfer Area - Bay 5	1x80 ltr drum	None	Corrosive	None Visible	Top Open	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	12x30 ltr containers	"Nitric Acid/Sodium Hydroxide"	Corrosive	34188		
	11x25 ltr containers	"Detergent Sanitiser"	Corrosive	35068		
	13x30 ltr container	"Sodium Hypochlorite"	Corrosive	35068		
	4x30 ltr containers	"Hydrofluoric Acid Solution"	Corrosive	35068		
	8x100 ltr drums	"Fuming Sulphuric Acid (Oleum)"	Corrosive Toxic	Not Visible		Photo Ref SW/0169/02
	1x25 ltr drum	"Lead Sulphide"	Toxic	34490	Container being stored on top of Sulphuric Acid drums	Photo Ref SW/0169/02
	3x25 ltr	"Sodium Hydroxide"	Corrosive	34964		
	1 pallet containing various small containers (<80 ltrs)	Various Acids	Corrosive	33538		
	3x100 ltrs	"Nitric Acid"	Corrosive	Not Visible	OLAN Number Not Visible	
	1x205 ltrs	Label Not Visible	Corrosive	33080	No Waste Description	
	2x25 ltr	"Mercury"	Toxic	Not Visible	OLAN Number Not Visible	
	5xsmall containers (<80 ltrs)	Not Visible	Not Visible	Not Visible	No Waste Description No Hazard Classification No OLAN Number	
	1xpallet containing approx 24x25 ltr containers)	"Formaldehyde Solution"	Toxic	37007		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	5xPallets Containing various sizes of container (<80 ltr)	Various Oxidizing Agents	Oxidizing Agents	37007/34054		
Drum Handling Plant - Internal Transfer Area - Bay 6	38x205 ltr drums	Not Visible	Not Visible	Not Visible	No Waste Description No Hazard Classification No OLAN Number	
	9x205 ltr drums	"Acid/Formaldehyde"	Not Noted	Not Noted		
	5x25 ltr drums	"HCl 36%"	Not Noted	Not Noted		
	2x205 ltr drums (overdrummed)	Not Visible	Not Noted	Not Noted		
	5x205 ltr drums	Various	Not Noted	Not Noted		
	4x50 ltr drums	"Caustic"	Not Noted	Not Noted		
	6x30 ltr drums	"Corrosive Liquid, NOS"	Not Noted	Not Noted	Poor Waste Description	
	37x1000 ltr IBCs	Mixture of Waste Types - Mainly "Caustic" & "Ammonia"	Not Noted	Not Noted		
	37x205 ltr drums	Mixture of Waste Types	Not Noted	Not Noted		
	17x50 ltr drums	"Chromic Acid"	Not Noted	Not Noted		
	10x25 ltr drums	"4,5-Dichloro-2-N-Octyl-4-isothiazolin-3-one "	Not Noted	Not Noted		
	19x25ltr	"Triethanolamine"	Corrosive	35156		
Drum Handling Plant - Internal Storage Area - Bay 7	26x25 ltr containers	Not Visible	Not Visible	24466	Badly Damaged Drums fallen off pallet	Photo Ref SW/0169/03
	39x205 ltr drums	"Tin Lead Stripper (25% Nitric Acid)"	Corrosive	Not Noted		
	1x1000 ltr IBC	"Cyanogen Bromide Residues"	Toxic	34078		
	1x205 ltr drums	"Benzyl Cyanide"	Toxic	36875		

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	4x205 ltr drums	"Sodium Hydroxide"	Corrosive			
	2x80 ltr drums	"H ₂ SO ₄ "	Corrosive	Not Visible		
	1x25 ltrs	"Dilauroyl Peroxide 99%"	Oxidizing Agent - Do Not Stored Next to Reducing Agents, Acids & Metals	36289	Stored next to drums marked 'H ₂ SO ₄ '	
Drum Handling Plant - Internal Storage Area - Bay 8	126x205 ltr drums	"Lead Strip (Nitric Acid) " "NH ₃ " "Thional Chloride" "Caustic"	Various	Not Noted	Many Drums Inaccessible - Could Not Identify Majority D	
Drum Handling Plant - Internal Storage Area - Bay 9	80x205 ltr drums	Various - Drums Inaccessible	Drums Inaccessible	Drums Inaccessible	Many Drums Inaccessible - Could Not Identify Majority	Photo Ref SW/0169/004
	80x100 ltr drums	Various - Drums Inaccessible	Drums Inaccessible	Drums Inaccessible	Many Drums Inaccessible - Could Not Identify Majority Drums Falling off Pallets	Photo Ref SW/0169/005 Photo Ref SW/0169/006
Drum Handling Plant - Internal Storage Area - Bay 10	2x1000 ltr IBCs	"Contaminated Water - 0.6% Acid"	Corrosive	Not Visible	OLAN Number Not Visible	
	23x205 ltr drums	"H ₂ O ₂ "	Oxidizing Agent Corrosive	37171	Drum Noted Fallen Down Catchpit (OLAN Number 32317)	Photo Ref SW/0169/007
	30x205 ltr drums	Many Labels Not Visible - Some Marked Up "NH ₃ "	Various - Many Not Visible	36893	Many Drums Could Not Be Identified.	
	12x205 ltr drums	Various Acids	Various	26105 on 2 Drums - Others Not Visible	Drums Look Old - Labels Missing off Many.	

ANNEX D - WASTE STORAGE LOG - DRUM HANDLING PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
	2xpallets containing various small(<80 ltrs) containers	Water Treatment Chemicals Various Waste Descriptions Hypochlorites	Various	35322		
	7x25 ltr drums	"Carboxylic Acid"	Corrosive	36893		
	9x205 ltr drums	Various Acids	Corrosive	Not Visible		
	10x205 ltr drums	Labels Missing	Flammable Solid	33753	No Waste Description	
	12x25 ltr drums	"Steamate 6330 (2 Amino Methyl Propanol)"	Not Classified As Dangerous	None Visible	No OLAN Number	
	20x205 ltr drums	Many Labels Not Showing	None	26105	No Waste Descriptions No Hazard Classifications	
	5x205 ltr drums	"Solvents - Dirty Thinners"	Flammable	20509		
	1x205 ltr drum	"Oxidiser"	Organic Peroxide	33400	Being Stored Next To Drums Of Flammable Solvents Spillage of Sludge on Site Surface	Photo Ref SW/0169/008
	1 pallet containing various sizes of container	No Access To Pallet	No Access To Pallet	No Access To Pallet	No Access To Pallet Cardboard Drum Weathered	Photo Ref SW/0169/009
	14x25 ltr drums	"H ₂ SO ₄ " Based Cleaner	Corrosive	33499		
	8x205 ltr drums	"Caustic Soda"	Corrosive	33635		
	30x50 ltr drums	"Kevlar" Acid Yam Waste	Corrosive	None Visible	Pallet Inaccessible	
	Approx 25x205 ltr drums	No Access To Drums - Some Marked As "Dichloromethane"	Toxic	28588	Drums Inaccessible	
	1x1000 ltr IBC	Not Visible	Not Visible	Not Visible	IBC Inaccessible	
	4x50 ltr drums	Not Visible	Corrosive	Not Visible	Drums Inaccessible	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	3x205 ltr	Carbon + Acetone	Flammable	33753		
1	5x25 ltr	Corrosive Acidic liqs	Corrosive	not visible		
1	1x205 ltr	Waste oxidising liqs	Oxidiser	26503		
1	4x205 ltr	Acid/Nitrite	Corrosive	24021		
1	IBC (1/4 full)	Waste flammable liqs	Flammable	?		
1	2x205 ltr	?? Part only	???	?	Markings damaged 'waste corrosive liqs'	
1	2x25 ltr	Waste flammable liqs. solvent	Flammable	34188		
1	1x25 ltr	Corrosive liquid inorganic	Corrosive	30523		
1	8x25 ltr	Sulphuric acid	Corrosive	34905		
1	1x205 ltr	None	None	33932		
1	1x25 ltrs	H2SO4	Corrosive	25001		
1	1x25 ltrs	solvent'	Flammable	34188		
1	5 ltr ESTD	Phosphoric acid on container	none	?	Label missing	
2	2x205 ltr	Strong acid	Corrosive	30081		
2	3x205 ltr	Plant acid oxidiser	Oxidiser	32881		
2	5x205 ltr	Plant acid oxidiser	Oxidiser	32666		
2	4x205 ltr	Plant caustic	Corrosive	32052		
2	12x25 ltr	Plant acid	Corrosive	30553		
2	4x205 ltr	Plant oxidising	Oxidiser	33758		
2	IBC (1)	Plant weak acid	Corrosive	?	Can't read olan No	
3	IBC (12)	Waste flammable liquids	Flammable	?		
3	3x205 ltr	Cooltreat	None	38620	Waste on one package only	
3	2x205 ltr	Unmarked	None	?	One part lable only	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
3	1x205 ltr	De Acid coating solution	?	29705	Old drum. Plastic wrapped hole burner	
3	2x205 ltr	Ammonium hydroxide waste	Corrosive	?	Olan number not visible	
3	1x205 ltr	Drum marked "TRIKONE"	None	?	Olan number not visible	
3	7x IBC's	Chlorinated sludge	Toxic	?	Unable to check olan number top stack	
4	7x IBC's	Plant acid	Corrosive	29430		
4	4x205 ltr	? Not english	None	37697		
4	1x205 ltr	Plant ammonia	Corrosive	18935		
4	4x205 ltr	Dilute ammonia	Corrosive	24955	Not every drum marked with olan No	
4	1x205 ltr	Plant caustic	Corrosive	21233		
5	2x205 ltr	H2SO4	Corrosive	38387		
5	8x25 ltr	Nitric H/F	Corrosive Oxidiser	34188	Not all olan numbers visible	
5	7x205 ltr	Formaldehyde	Toxic	37007	Unable to see all olan numbers	
5	6x IBC's	Corrosive liquid	Corrosive	37204		
6	2x IBC's	Ammonium hydroxide	Corrosive	?	Olan No not visible	
6	1x205 ltr	?	?	31005		
6	1x205 ltr	NH3		30344		
6	1x205 ltr	NH3		?	Drum marked as 'fumes' olan number not visible	
6	5x205 ltr	Ammonium hydroxide		?	Olan number not visible	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
6	1x205 ltr	Hydrofluoric acid	Corrosive	?	Hazard label almost off drum	
6	7x205 ltr	Ammonium hydroxide waste	Corrosive	37517	Not every drum marked	
6	1x205 ltr	Ammonia	Corrosive	29164		
6	1x IBC	Oil Coolant	?	?	Different markings on IBC cover	
7	10x IBC's	Waste corrosive liqs	?	29750	Top Off IBC (front of bay)	
7	15 IBC's	Plant oxidiser	Oxidiser	39083	Unable to check each	
7	in total	Sulphuric acid	Corrosive	39046	IBC stacked	
7	1x IBC	Sodium nitrate sludge	Oxidiser	?	Could not find olan No (covered)	
7	6X205 ltr	Waste acid	Corrosive	37976		
8	6x205 ltr	Waste sulphuric acid	Corrosive	37818		
8	2x205 ltr	None	none	37541	Old castrol drums old markings not relative	
8	2x205 ltr	Plant acid	none	38116		
8	1x205 ltr	Acidic solution	Corrosive	37878	Number not clear	
8	1x205 ltr	Waste acid	Corrosive	37976		
8	4x205 ltr	Caustic	Corrosive	37217		
8	2x IBC's	None	none	37499		
8	2x205 ltr	None	none	?	Both bungs off both drum unable to check markings olan number not visible.	
8	1x IBC	Sodium sulphide		36679		
8	4x205 ltr	?	?	?	Marked 'put to one side' olan number not visible	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
8	1x200 ltr	Plant acid	Corrosive	22101		
8	1x204 ltr	Plant acid	Corrosive	22190		
8	est 25 ltr	Nitric acid	?	?	Container inside 205 ltr drum	
8	1x205 ltr	Zinc chloride	?	?	Olan number not visible	
8	1x205 ltr	Waste corrosive liquors	corrosive	?	Olan number not visible	
8	2x IBC's	Waste corrosive liquors	?	37104		
8	12x25 ltr	Phosphoric acid	Corrosive	no	Olan number not visible	
8	2x IBC's	Solvent DE Drum	Flammable	no	Olan number not visible	
8	1x IBC's	Plant acid	Corrosive	36379		
8	1IBC's	Plant	none	33196	No hazard info	
8	1x205 ltr	Waste flammable liquid	Flammable	no	Olan number not visible	
8	1x205 ltr	Waste liquors	None	39087		
8	25 ltr	Caustic plant	Corrosive	37489		
8	25 ltr	Acid plant	no	37489		
8	1x205 ltr	Waste flammable liquor	Flammable	37087		
8	1x205 ltr	Tippac waste liquors	None	38087		
8	4x205 ltr	Diethyl phosphate	Flammable	?	Olan number not visible	
8	2x205 ltr	Waste toxic liquor (nickel soln)	Toxic	?	Olan number not visible	
8	4x205 ltr	Waste oil		?	Olan number not visible	
9	10xIBC	Ammonia	None	37773		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
9	2x205L	Ammonium Hydroxide	Corrosive	None		
9	3x205L	NOS	Oxidising	None		
9	2x205L	Trichloroethylene	Toxic	None		
9	3x205L	NOS	Corrosive	None		
9	4x205L	Molybdenum Sulphide	Toxic	None		
9	1x100L	Organic Peroxide	Oxidising	35953		
9	24x25L	Caustic	Irritant	37806		
9	2x205L	Ethylene Glycol	Irritant	37552		
9	5x100L	Ammonia Soloution	Oxidising	38827		
9	4x25L	Phosphoric Acid	Corrosive	36864		
9	3x205L	Ammonia Soloution	Oxidising	38827		
9	4x205L	SAF Caustic	Corrosive	38474		
9	1x25L	Plant Acid	Corrosive	37858		
9	3x205L	Sodium Hydroxide	Corrosive	38199		
9	14xIBC	Caustic	Corrosive	37076		
9	7xIBC	Acid Washings	None	37929		
9	5X25L	Chromic Acid	None	None		
9	4x205L	Olive dab	None	None		
9	17xIBC	None	None	None	No info as obscured	
9	1xIBC	Chromic Acid	Oxidising	38370		
9	19xIBC	Mixed Acids	Corrosive	None		
9	5xIBC	Waste Water	None	None		
9	2x205L	Chrome Soln	Toxic	None		
9	2x205L	Toxic Liquid	Toxic	None		
9	8x25L	Lumor	Toxic	None		
9	3x200L	Sodium dichromate	Toxic	None		
9	1xIBC	None	None	None		
9	1xIBC	Ammonium Sulphate	Toxic	37103		
9	1xIBC	None	None	None		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
9	1xIBC	None	Corrosive	37104		
9	3xIBC	None	None	None		
9	1xIBC	Caustic	Corrosive	35991		
9	1xIBC	Caustic	Corrosive	37343		
9	6x205L	Potassium Silicate	None	None	Drums rusted	
9	2x205L	Cyclohexaline	None	None		
9	3x205L	Caustic	None	None		
9	1x205L	Caustic	None	None		
9	2x205L	Zinc Chloride	None	None	Lid missing	
9	3x205L	None	None	None	Drum corked with a rag	
9	1x205L	Chromic Acid	Corrosive	None		
9	2x205L	Nitric Acid	None	None		
9	2x50L	Plant Hypo	Corrosive	29199		
9	2x25L	Plant Hypo	Corrosive	27080		
9	4x25L	Plant Caustic	Corrosive	36661		
9	1xIBC	Pyridine	Corrosive	37343		
9	12x50L	Caustic Soda	Corrosive	37413		
9	4x205L	NOS	Toxic	37413		
9	8x25L	Hypochlorite Soln	Corrosive	37116		
9	2x205L	Alkaline Soln	Corrosive	37069		
9	1xOverdrm	Plant Acid	Corrosive	30924		
9	1x205L	None	None	29593		
9	1x205L	Ferric Nitrate	Oxidising	24013		
9	1x205L	None	None	24591		
9	1x205L	None	None	None		
9	1xIBC	Plant Acid	Corrosive	30835		
9	2x205L	Hypo	Irritant	38630		
9	1xIBC	Hydrogen Peroxide	Oxidising	33196		
9	5x205L	Corrosive Liquid	Corrosive	38994		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
9	2x205L	Mixed Oils	None	None		
9	4x205L	Cd Strip	Oxidising	None		
9	3x205L	Cd Strip	Oxidising	None		
9	3x205L	Zinc Acid	Corrosive	None		
9	11x25L	Lab chemicals	Various	None		
9	1xIBC	Alkalai Etch	Corrosive	34853		
9	4x205L	NOS	Corrosive	None		
9	3x205L	Cadmium Washings	Corrosive	None		
9	1x205L	Sulphite	Corrosive	36134		
9	8x205L	Sulphite	Corrosive	37804		
9	3x205L	Chrome Soloution	Corrosive	None		
9	10x25L	Solvent	Flammable	32161		
9	3x100L	Cadmium	Toxic	32106		
9	1x205L	Acid	Corrosive	21549		
9	1x205L	Caustic	Corrosive	17408		
9	2x205L	None	None	None		
9	2x205L	None	None	None		
9	5x100L	Soot Remover	None	None		
9	3x205L	Nitric Acid	None	37438		
9	2x205L	Plant acid	None	24238		
9	1x205L	Mandelic Acid	Flammable	15013		
9	1x205L	None	None	None	Drum lid off	
9	4x205L	None	None	None		
9	1x205L	Plant oxidiser	None	31718		
9	1xIBC	Oxidising Agent	Oxidising	33542		
9	1xIBC	Plant Washout	Corrosive	38320		
9	4x205L	Sodium Hydroxide	Corrosive	38199		
9	12x25L	Corrosive Liquid	Corrosive	38489		
9	6x205L	Sulphuric Acid	Corrosive	38387		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
9	4xIBC	None	None	None		
9	4x205L	Plant Acid	None	38199		
9	18x25L	NOS	None	37541		
9	26x100L	Mercury Soln	Toxic	38505		
9	1xIBC	Naptheneic Acid	Flammable	None		
9	2x205L	None	None	None		
9	2x205L	Acid	Corrosive	28420		
9	3x205L	Plant Acid	Corrosive	37473		
9	2x205L	Plant Sulphite	Corrosive	37713		
9	6x205L	Hypo	None	38230		
9	4x205L	Mixed Oils	None	None		
9	2x205L	Plant acid	None	27093		
9	4x205L	Sodium Hydroxide	None	23933		
9	2x205L	Sulphuric Acid	Corrosive	43221		
9	1x205L	Su;phuric Acid	Corrosive	38387		
9	1xIBC	None	None	None		
9	24x25L	Corrosive Liquid	None	38320		
9	4x205L	Plant Oxidiser	Oxidising	38786		
9	5x25L	Corrosive Liquid	Corrosive	38466		
9	2x205L	Cadmium Soln	Toxic	38299		
9	2x205L	Aqueous Emulsion	None	38116		
9	2x205L	Hypo	None	37196		
9	20x205L	Hypochlorite	None	37804		
9	1xIBC	Chromic Acid	Corrosive	38320		
9	24x25L	Corrosive Liquid	Corrosive	38320		
9	4x205L	Chromic Acid	Corrosive	37413		
9	1xIBC	None	None	None	2 Large holes in top	
9	4x205L	NOS	None	38186		
9	3x205L	Potassium	None	31602		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
9	4x205L	Sodium Hydride	Corrosive	38199		
9	3x25L	Plant Sulphide	None	32704		
9	6x205L	Plant Acid	Corrosive	33758		
9	2xIBC	Plant Acid	Corrosive	35259		
9	10x205L	Chromic Acid	Corrosive	37804		
9	2x205L	Plant Acid	Corrosive	36629		
9	1x205L	Sodium Hydroxide	Corrosive	37353		
9	6x205L	NOS	Corrosive	36635		
9	1x205L	Corrosive solid	Corrosive	24593		
9	1xIBC	Ammonia	None	None		
11	5x205ltr	None	Oxidiser	None	Drums Open	
11	10x205ltr	Acetic Acid Old Parafin Sulphite	None	36003 24013 32406		
11	7xIBC	Nitrate	Oxidiser	36527		
11	1x205ltr	Chromate	Toxic	None	No Olan	
11	14x25ltr	Polymate	Irritant	None	No Olan	
11	1X25ltr	Microtreat 2020	Corrosive	30843	Container Open	
11	22x25ltr	Nitrite	Oxidising Agent	30836 21015 28454		
11	5x205ltr	Nitrite	Corrosive	None	No Olan	
11	1xIBC	Acid	Corrosive	28353		
11	1x205ltr	None	None	38551	No Description	
11	10x25ltr	Nitrite	Corrosive	28361 30843 23050 26277		
11	9x25ltr	Polymate	Corrosive Oxidiser	36836	1 Container Open	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
12	1x205ltr	Caustic	Corrosive	32956		
12	1x25ltr	Sulphuric Acid	Corrosive		No Olan	
12	1x205ltr	Hypochlorite	Oxidiser	24995		
12	1xIBC	None	None	37085	No Description No Hazard Class	
12	3x205ltr	Alkali Dust Waste: Sodium Hydroxide	Corrosive	33349		
12	1xIBC	Waste Photographic Fixer	None	37085		
12	1xIBC	None	None	37103	No Description No Hazard Class	
12	2x205ltr	Sulphite	Corrosive	None	No Olan	
12	1xIBC	None	None	None	No Labels	
12	1x205ltr	Oil and Ammonia	Irritant	None	No Olan	
12	1x205ltr	Hypochlorite Solution	None	None	No Olan No Hazard Class	
12	1xIBC	None	None	None	No Labels	
12	1xIBC	None	None	20921	No Description No Hazard Class	
12	2xIBCs	Acidic Solvent Waste	Corrosive	None	No Olan	
12	1x205ltr	Sulphuric Acid	Corrosive	30681		
12	2x205ltr	None	Oxidiser	29677	No Description	
13	2x205ltr	Barium Peroxide	Poison	None		
13	1xIBC	Acid Waste	Corrosive	None	No Olan	
13	1x205ltr	Clean Acid	None	None	Poor Labelling	
13	3x205ltr	Acetic Acid Distillate	Flammable	21494	Drum Marked For SPU Treatment	
13	3x205ltr	Atoteca/Soldestrip Diphone	Corrosive	18395		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
13	2xIBC	None	None	None	No Labels	
13	8x205ltr	Sulphuric Acid	Corrosive	34490		
13	4x<80ltr	Bright Cu Acid	None	33539	No Hazard Class	
13	10x<80ltr	Sulphuric/Hydrochloric Acid	Corrosive	30018 29514 33339		
13	8x<80ltr	Sodium Hypochlorite Nitric Acid	Corrosive	33635 33776 33633		
13	7x25ltr	Tin Plating Formulation	Corrosive	30388 31071		
13	20x25ltr	Polymate	Corrosive	31808		
13	1x25ltr	Tin/Lead Stripper	Corrosive	33539		
13	6x25ltr	Waste Amines	Corrosive	29593		
13	6x<80ltr	Ammonia Solution	None	33539	No Hazard	
13	12x<80ltr	None	None	35220 34088 334819	No Labels	
13	2x205ltr	Zinc Chloride	Toxic	28190		
13	7x<80ltr	Acid	Toxic	36697		
13	7x<80ltr	Hydrofluoric Acid	Corrosive	29722	Lid not on drum	
13	8x<80ltr	Nitrating mix Ammonia	None	36106 30957 22140	1 drum leaking	
13	3x205ltr	Organic Peroxide	None	11959	No Hazard Label	
13	10x<80ltr	NH ₄	Corrosive	21404	Cardboard Drum	
13	7x<80ltr	Ferric Chloride	Corrosive	29722 32704		

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
13	8x<80ltr	None	Corrosive	36283 36106 21186 29283	No Description	
13	5x205ltr	Nitric Acid	None	30957 26274		
13	6x<80ltr	Ammonia Solution	Corrosive	32771		
13	7x25ltr	Stamais Chloride	Harmful	33230		
13	13xIBC's	Acetic Acid & Ammonia	Corrosive	None	Ammonium Acetate ? Strong Ammonia Smell.	
13	10x205ltr	None	Corrosive	34505 30584	No Description	
13	6x<80ltr	Chromic Acid	None	35965	Container Open	
13	5x<80ltr	None	None	None	Container Open	
13	5x205ltr	Chromium Trioxide	None	None	No Olan/Hazard Class	
13	1x205ltr	Nalco	None	77214		
13	2x205ltr	Acid	None	22190		
14	12x205ltr	None	Oxidiser	None	Poor Labelling	
14	6x205ltr	None	None	164231	Poor Labelling	
14	12X<80ltr	Heavy Metal Waste	Toxic	33530		
14	12x<80ltr	Battery Acid	None	34088 35345 35156		
14	8x<80ltr	Flowmate	None	30385	Plastic	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
14	11x<80ltr	Ferric Chloride Sodium Hydroxide Zinc Chloride	Irritant Corrosive	28361 18588		
14	11x<80ltr	Plant Acid	None	22948	No Hazard Class	
14	5x205ltr	Ammonia Solution	Oxidiser	None	No Olan	
14	10x<80ltr	Ferric Chems	Corrosive	2624112	Drum Open	
14	13x<80ltr	Sodium Hydroxide Ammonia Liquid	Corrosive	22339 111699	Containers Open Cardboard Corroded	
14	6x30ltr	Acid/Oxidiser	Corrosive	23349 19614		
14	6x30ltr	Chromic/Sulphuric Acid	Corrosive	None	No Olan	
14	1x30ltr	Penetrant	None	None	Poor Labelling	
15	8x<80ltr	Hydrogen Peroxide Acetic Acid	Oxidising Agent	32571		
15	8x<80ltr	Sulphuric Acid Sodium Hydroxide Soln	Toxic/Corrosive	29671		
15	17x<80ltr	Sulphuric Acid	Corrosive	None	No Olan	
15	4x205ltr	Chrome Solution	None	36356		
15	1xIBC	None	None	None	Top Open	
15	1xIBC	None	None	None	No Labels	
15	7x25ltr	Copper Sulphate	Irritant	37489		
15	2x205ltr	None	None	None	No Labels Drum Open	
15	4x205ltr	None	Toxic Corrosive	35854	No Description	
15	8x<80ltr	Nitrating Mix Bisulphide	Corrosive	28454 37604	Open Drum	
15	9x<80ltr	Silver Salts Peroxide Hydrofluoric Acid	None	28361	No Hazard Class	
15	9x<80ltr	Sulphate	None	28454	No Hazard Labels	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
15	6x<80ltr	Ferric Chromate Sulphate	None	28454 32704		
15	1x<80ltr	Kna Tartrate Rochelle Salts	Mimimum Hazard	None	No Olan	
15	16x30ltr	None	None	36441 37713	Taken to SAF Plant During Audit	
15	2x205ltr	Alkali Chromate Bisulphites	Corrosive	30359		
15	1x205ltr	Ammonium Bifluoride	Corrosive	None		
15	10x<80ltrs	Sulphuric Acid Etch	Corrosive	28139 36942		
15	1xBag	None	None	None	No Labels Ballanced on Top of Drum	
15	8x30ltr	Oxidising Agent	Oxidising Agent	28361	1 Open	
15	9x30ltr	Various Acids	Corrosive	37713		
15	11x25ltr	Microtreat	Corrosive Flammable Toxic	30843		
15	12x30ltr	Hypochlorite Solution	Irritant Corrosive	36441		
15	15x205ltr	Ammonium Hydroxide	Oxidising Agent	36391	Drum Open	
15	6x30ltr	Hydrogen Peroxide	Oxidising Agent	24128 29883 30546		
15	26x205ltr	Aqueous Peroxide	Oxidising Agent	13598		
15	29x205ltr EMPTY drums	-	-	-	Being Stored on the Site Road	

ANNEX D - WASTE STORAGE LOG - BULK TREATMENT PLANT - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
15	3xIBCs	Acid	Corrosive	36049	Being Stored on the Site Road	
15	38xIBCs EMPTY	-	-	-		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	8x205 ltr	Acid plant wash out	Toxic	39557	Not all olan numbers visible	
1	4x205 ltr	Plant acid	Corrosive	38987	Some number not visible not on outside of drums	
1	14x25 ltr	Plant hydrocarbons plant H2O2	Oxidising agent	38067		
1	4x25 ltr		Plant caustic corrosive. Also in packages marked 'oxidising substance'	39309	Some markings not visible without moving packages	
1	253 ltr	Tetramethyl ammonium hydroxide	Corrosive	39264		
1	2x25 ltr	Biosperce	Corrosive	37927	Numbers not readily visible	
1	5x25 ltr	Sodium hydroxide		39244	Numbers not readily visible	
1		Persulphate approx 5kgs	Oxidising agent	37196	Numbers not readily visible	
1	1 pallet x 25 ltr	Laminar	Corrosive	37689	1 box unidentified	
1	2x110 kgs	Sodium persulphate	Not marked	37789	Difficult to read all olan No's	
1	42 kgs	Acid butyl phosphate (quarantine)	none visible	?	Numbers difficult to read without moving packages	
1	x100 kgs	Ammonia	none visible	38184		
1	3x50 kgs estd	Plant Caustic	Corrosive	37489	Not all olan no's visible	
1	4x200 ltr	Mother liquors	Toxic	37818	Not all olan no's visible	
1	x20 kgs	Perolim	Peroxide Oxidising substance	38103		
1	5x25 kgs	Tin/lead waste	Toxic	39354	Not all olan numbers visible	

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	7x25 kgs	Acid oxidiser alocrom 100 waste		39354		
1	25 kgs	Weak chlorime soln		?	No olan number visibel a package	
1	8x25 kgs	Plant caustic	Corrosive	39264	Difficult to check olan no's without moving packages	
1	6x25 kgs		Toxic	38942	Numbers of tp of packages difficult to check	
1	12x25 kgs	Plant acid oxidiser	Harmful	39354	Not all packages have hazard markings	
1	1 bag, (25 kgs) 1 box + 1 drum	Ammonium nitrate	Oxidising agent		No olan No's visible on these packages	
1	4x205 ltr	Waste corrosive liquors (ph8)	Corrosive	38199	Difficult to read olan numbers	
1	6x205 ltr	Waste caustic liquors	Corrosive	39311		
1	6x205 ltr	? not shown	None	39449	Marking on top of packages difficult to read	
1	14+21=35 x 25kgs	Heat treat 41 House man	irritant	38620		
1	25 ltr	Sofnolime plant -oh	Corrosive	39194		
1	20 ltr	Plant acid. Sodium Hydroxide	Corrosive	39351	Note: Bag marked sodium hydroxide corrosive polycrate plant acid	
1	4x205 ltr	H2SO4	Corrosive	39125		
1	1x205 ltr	Plant acid oxidiser	Toxic	39354		
1	1x205 ltr	Anti-freeze and water	None visible	39194		
1	2x205 ltr	AL oxid sludge	Corrosive	not visible on side of drums (top pallet)		
1	15x25 ltr	Plant acid oxidiser	Corrosive	39620	Bottom pallet - numbers on top difficult to read	

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	15x25 ltr	None	Irritant	39198	Old hazard markings	
1	1x25 ltr	Plant nitrite	?	39178	Difficult to read numbers - middle pallet	
1	1x25 ltr	Plant acid (Cuprisol copper)	?	39354		
1	4x205 ltr	Waste flammable liquid	Flammable	37818		
1	1x25 ltr	Tetra methyl ammonium hydroxide	Corrosive	39264		
1	11x 25 ltr	Plant caustic waste	Missing	39449	No's on top of packages difficult to read	One drum on top to repack unable to read markings.
1	1x25 ltr	Waste ferric chloride	Corrosive	38871	Top missing/ RAG jammed into neck of container top pallet. unsafe	
1	ESTD. 25 kgs fibre keg	Plant caustic solid	none	37489	Keg damaged. should be repaired	
1	25 ltr	Col. developer liquid	none	37489	Same olan No as above	
1	3x25 ltr	Spray booth additive	none	39689?	Difficult to read numbers	
1	4x205 ltr	Waste toxic liquid	toxic	37331	Again on top of drums difficult to find	
1	4x205 ltr	Amines developer	corrosive	37473	Leaking drum to repack	Photos taken
1	2x205 ltr	Waste sulphuric acid	Corrosive	37974		
1	2x110 kgs	Waste sodium persulphate	Oxidising agent	38198		
1	3x205 ltr	Sulphuric acid	Corrosive	37541	One container leaking	
1	10205 ltr	Plant oxidising agent . Cadmium nitrate	Oxidising agent	38186	Above drum on top of this package	
1	4x205 ltr	Plant washouts	No info Toxic(old label){	38557		
1	4x205 ltr	Waste corrosive liquid	Label on drums	39004	Unable to read contents	
1	4x205 ltr	NO??	No????	38184		
1	4x40 kgs	Organic preoxide (b/s) solid	Oxidiser	38579	Weights estimated repacked B/S material	

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	34x205 ltr	Ammonium hydroxide liquor	Corrosive	39351		
1	1x205 ltr	Cadmium solution	Toxic	39488		
1	6x100 ltr	Tin/acid solution	Corrosive	?	Could not find olan No	
1	7x25 ltr	Hydrated calcium hypochlorite	Oxidiser	?	Could not find olan No	
1	IBC 1/4 full	Plant caustic	none	39029		
1	OBC	No	on side not visible from isle	37604	Olan No not clear on packages	
1	8x205 ltr	Waste corrosive liquids	corrosive	37604	Unable to read all labels	
1	4x205 ltr	Waste hypo solution	Oxidiser	37604	Unable to read all labels estd	
1	2xIBC's	Plant caustic	Corrosive	37604		
1	48x25 ltr	Plant acid, plant caustic	None	38981	3 pallets only one label visible on side of one container	
1	12x25 ltr	Ammonium thiosulphate	Corrosive	38578	Mixed pallet	
1	4x25 ltr	Hypochlorate ammonia	Corrosive	38578	not all containers labelled	
1	1x25 ltr	Ammonia	none	38578	not every container labelled	
1	11x25 ltr	Plant acid	none	38942		
1	50 kgs	Antox	?	38981		
1	205 ltr	Ammonium bifluoride	Corrosive	?		
1	4x205 ltr	Cadmium solution	Toxic	39111		
1	22x25 ltr	Phosphoric acid	Corrosive	39351		
1	4x205 ltr	Sodium bisulphite	?	39125		
1	3x25 ltr	Plant sulphite	Oxidiser	38981	not all olan No's visible estd	
1	3x25 ltr	Plant caustic	Corrosive	38981		
1	7x25 ltr	Chromium trioxide	Oxidiser	?	Olan no's not visible	
1	2x25 ltr	Pot permanganate	?	?	Olan no's not visible	

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
1	IBC	Sulphuric acid thiophthalate	Corrosive	?	Olan no's not visible	
1	2x50 kgs	Pot hydroxide flake	?	39039		
2	1xIBC	Xylene	Flammable	38067		
2	1xIBC	Unmarked	None	38543		
2	1xIBC	Unmarked	None	38543		
2	1xIBC	PE Caustic	Corrosive	38543		
2	1xIBC	Polymate	Irritant	38543		
2	11x25L	Caustic	None	39449		
2	2x50L	Chromic Acid	Corrosive	None		
2	8x25L	Sulphite	Corrosive	39537		
2	8x25L	Caustic	None	39537		
2	37x25L	Plant acid/caustic	Corrosive	39449		
2	6x205L	Cadmium Soloution	Toxic	39488		
2	1x25L	Mixed acids	None	39199		
2	2x25L	Sodium Hydroxide	Poison	39450		
2	1x25L	Sodium Hydroxide	Poison	None	Drum had burst put in a bag	
2	2x205L	Mixed Acids	Corrosive	39400		
2	3x205L	Sodium Sulphite	None	39125		
2	1xOverdrm	Chromic Acid	Corrosive	39199		
2	1x1000L	Hypochlorite	Corrosive	39169		
2	1xOverdrm	Trichlorothanaline	None	39400		
2	3x205L	Bichromate Solution	Corrosive	39489		
2	4x205L	Potassium Permanganate	Corrosive	39489		
2	1xIBC	Paint Thinners	None	None		
2	7x25L	Sulphonic Acid	None	39049		
2	1x100L	Ecocide	Irritant	39049		
2	Variousxcage	Mixed Oxidisers	None	None		
2	4x205L	Sodium Bisulphate	None	39125		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
2	50x205L	Sodium Sulphite	Corrosive	39480		
2	8x25L	Plant Oxidiser	Toxic	39351		
2	3x205L	Hydroquinone	Toxic	39587		
2	8x205L	ADH/KOH	Corrosive	None		
2	1x25l	None	Toxic	39539		
2	1x25L	Surfactant	Toxic	39169		
2	1x25L	Sodium Hydroxide	Corrosive	39229		
2	3x205L	Glycol	None	39169		
2	1x25L	Toxic Liquid	Toxic	39339		
2	1xIBC	None	None	None		
2	1xIBC	Plant Acid	None	39564		
2	1xOverdrm	Silicate	None	39400		
2	1xOverdrm	None	None	None		
2	1xOverdrm	Paint scrapings	Corrosive	36356		
2	1xOverdrm	Grease	None	39587		
2	1xOverdrm	Esther	None	None		
2	1xOverdrm	None	None	37421		
2	1xOverdrm	None	None	36923		
2	1xOverdrm	Sulphones	None	None		
2	1xOverdrm	None	None	39504		
2	1xOverdrm	Sulphones	None	37546		
2	1xOverdrm	Shreds	None	29646		
2	1xOverdrm	Sulphones	Flammable	38589		
2	1xOverdrm	None	None	None		
2	1xOverdrm	Sulphones	None	33943		
2	1xOverdrm	Sulphones	None	38045		
3	1xIBC	None	None	None		
3	1x205L	None	None	39506		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
3	1x205L	None	None	39473		
3	2x205L	None	None	None		
3	2x205L	Sodium Silicate	Corrosive	39587		
3	2x205L	Sodium Silicate	Corrosive	39352		
3	1x205L	None	None	39506		
3	1x205L	None	None	None		
3	1x205L	None	None	None		
3	1x205L	Silicone Fluid	None	None		
3	25x205L	Lutensol	Harmful	39626		
3	1x205L	None	None	39125		
3	1xIBC	Fatty Alcohol	None	None		
3	4x205L	None	Flammable	39537		
3	14x205L	Green Phosphor Washings	Irritant	39487		
3	3x25L	Organic NOS	Toxic	39642		
3	24x205L	Acidic Detergent	Corrosive	39564		
3	1XIBC	Obsolete Samples	None	None		
3	4x205L	Ammonium Sulphate	None	None		
3	8x205L	Sodium Hydroxide	Corrosive	39169		
3	1x25L	Formaldehyde	Toxic	None		
3	1x25L	Cutting Oil	Carcinogenic	39351		
3	1x25L	Silica Gel	None	39489		
3	1x205L	PVC	None	39506		
3	2x205L	Lead Sulphide	None	39067		
3	6x205L	PVC	None	39506		
3	1x205L	Phenolic Resin	None	39400		
3	2x205L	None	None	None	Lid Missing	
3	1x205L	Lutensol	Irritant	39626		
3	1x3by5ft cab	Toxic Solids	Toxic	39539		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
3	1xPackage	Toxic Solids	Toxic	39351		
3	1x5by3ft	Styrocolour	None	39609		
3	1x100l	Halogenated Solvent	Toxic	39169		
3	4x205L	Mixed Acids	Corrosive	39587		
3	3x205L	Sand + water	None	39169		
3	1x100L	Isocyanate Soln	Toxic	39539		
3	3x205L	Sodium Carbonate	Toxic	39169		
3	2x205L	None	None	39506	Drums in poor condition	
3	2x205L	Isopropanol	None	39587		
3	2x205L	Sodium Hydroxide	Corrosive	39587		
3	4x205L	Luviskol	None	39601		
3	48xbox	Lutonal	None	39609		
3	1x25L	Vitamin E	None	39609		
3	1x25L	Coagulant	None	None		
3	1xbox	Glass fibre	None	None		
3	1x25l	Panthenol	None	None		
3	1x25L	SFG Liquid	None	None		
4	32x205L	Ink Resin	Flammable	38830		
4	1x205L	Mixed solvents	Flammable	39111		
4	1x205L	None	Flammable	39597		
4	27x205L	Phenyl Mercury Acetate	Flammable	39067	Photo 11	
4	1xIBC	Lindane	Toxic	None		
4	4x205L	Trichloroethylene	Toxic	None		
4	1x25L	NOS	Flammable	None		
4	5x25L	Toxic Liquid	Flammable	39539		
4	1x25L	None	Toxic	36711		
4	2xOverdrm	Aliphatic Hydrocarbons	Flammable	39400		
4	3x25L	Toxic Liquid	Toxic	39539		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
4	2x50L	Non chlorinated	Flammable	39199		
4	4x205L	Kerosene	Flammable	39673		
4	4x205L	Halogenated Solvent	Corrosive	39169		
4	1x50L	Formalin	None	39539		
4	24x25L	Isopropyl Alcohol	Flammable	None		
4	4x205L	None	None	39351		
4	30x25L	Diethyl Ether	Flammable	38299		
4	8x50L	Ink	Flammable	39351		
4	12x50L	Acetone	Flammable	39199		
4	2x205L	Hydrofluoric Acid	Corrosive	39169		
4	12x25L	Waste Wax	Flammable	39351		
4	12x25L	Formaldehyde	Toxic	39264		
4	3x205L	Chlorinated Solvent	Flammable	39506		
4	3x20L	Phenyl Mercury Acetate	Toxic	39067		
4	1x420Kg	Sodium Carbonate	None	39315		
4	14xIBC	Oxidiser	Oxidising	38932		
5	16x205L	Oxygen Candles	Oxidising	37259		
5	8x205L	Agrochemicals	H9	37138		
5	2xOverdrm	Paint Solvents	Flammable	37238		
5	24x205L	Transformer Oil	Carcinogenic	38269		
5	4x205L	Transformer Oil	None	38981		
5	4x205l	Batteries	Corrosive	39160		
5	4x205L	NiCd Batteries	Corrosive	37804		
5	4x205l	Chlorinated Solvents	Flammable	39199		
5	4x205L	Irritant Liquid	Irritant	None		
5	1x25L	Paint	Irritant	39251		
5	14x205L	Leaded Waste	Toxic	37320		
5	16x25L	Halogenated Solvents	Toxic	39488		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
5	25x25L	Diethyl Ether	Flammable	39488		
5	14x25L	Arklone	Flammable	39487		
5	6x25L	White Spirits	Flammable	39406		
5	5x50L	Waste Solvent	Flammable	39414		
5	1x100l	NOS	Toxic	39199		
5	4x25l	Diesel	None	37858		
5	2x25l	Solvent	Flammable	39111		
5	2x25L	Solvent	Flammable	39354		
5	36x205L	Methanol	Toxic	39441		
5	3x205L	Petroleum SLudge	Toxic	39351		
5	8x205L	Anhydride	Flammable	39380		
5	4x205L	Pesticide	None	None		
5	4x205L	Tars	Flammable	39587		
5	2xIBC	Pesticide	None	None		
6	205 ltr	Sod dithionite	yes	38198		
6	4x205 ltr	no	yes	37320		
6	1x205 ltr	Aluminium chloride	yes	37817		
6	4x205 ltr	Waste pharmaceutical	yes	37343		
6	1x110 ltr	Tetrachloroethylene	yes	38375		
6	1x205 ltr		yes	37138		
6	1x110 ltr	Iodine monochloride	yes	36601		
6	1x25 ltr	Solvents	yes	36540		
6	1x25 ltr	?	none?	38196		
6	5x25 ltr	Laquer waste	yes	39487		
6	1x25 ltr	Iodine monochloride	yes	36607		
6	2x25 ltr	Solvent waste	none?		Could not see olan number	
6	Organic waste and solvents	4x200 ltr	yes	38404		
6	1x205 ltr	toxic organic liqs	yes	39194	Marked for shanks/mc	

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
6	4x205 liqs	FLamm liquid waste	yes	39177		
6	IBC (s/s)	yes	yes	36415	could be empty	
6	4x205 ltr	Mercury spill	yes	39140		
6	4x205 ltr	Waste sludge Dimethylformalide	yes	38404		
6	10x205 ltr	Toxic solid waste	yes	37259	Marked o/s cleanaway	
6	Approx 15 bags, x25 kg	Zinc dust	yes	no	No olan number	
6	Colodial sulphur spray	1 small package	yes	38827	Package wrapped and taped	
6	1drumz 205 ltr	yes	yes	39169	Overpacked damaged drum	
6	5x25 ltr	Toxic solid inorganic	yes	39351	2 lids missing	
6	4x205 ltr	Chloroform waste	yes	39194		
6	1x205 ltr, 3x50 ltr		yes	39167		
6	2 pallets x 20	Batteries	yes	?	No olan number visible	
7	2xbox	Acid Batteries	Corrosive	39539		
7	1xPackage	Paraformaldehyde	Toxic	37190		
7	4x205L	Oxygen Candles	Oxidising	37259		
7	6x205L	Xylene	None	37188		
7	2x100l	Trifluoroacetic acid	Flammable	38489		
7	1x100L	Chromium Oxide	Oxidising	11273		
7	1x25L	Toxic Sludge	Toxic	38287		
7	4x205L	Varnishes	None	37074		
7	3x100L	Dimethyl	Flammable	37713		
7	16x100L	Flammable Solid	Flammable	38184		
7	4x205L	Varnish	Flammable	37320		
7	4x205L	None	Corrosive	36370		
7	21x205L	Flammable Liquid	Flammable	39067		
7	12x205L	Tar	Toxic	36679		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
8	2xIBC	Ink	None	39642		
8	15x205L	NOS	Flammable	39650		
8	3x205L	Xylenes	Flammable	39642		
8	2xpackage	Nitrophenol	Toxic	39630		
8	4x100L	Flour	None	39650		
8	10x205L	NOS	Flammable	39650		
8	1xpallet	phosphates	None	39650		
9	6xbox	Photographic Waste	None	39604		
9	1xIBC	Hydrogen Peroxide	None	None		
13	3x100L	Lutensol	Harmful	39626		
13	1x100L	Organic NOS	Corrosive	38981		
13	1x100L	Organic NOS	Corrosive	39169		
13	1x205L	Sand and Water	None	39169		
13	1x205L	Broken Winchesters	None	39351		
14	1x205L	Isopropanol	Flammable	39251		
14	Overdrm	Acetone	Flammable	30087		
14	1x205L	NOS	Flammable	39056		
14	1x205L	Diethyl Ether	Reactive	38987		
14	2x50L	Acetic Acid	Corrosive	None		
14	3x25L	Hydrazine Hydrate	Corrosive	38987		
14	2x25L	Ptoluoyl Chloride	Corrosive	38987		
14	1x205L	Toluene	None	39056		
14	2x205L	Acid Chloride	Flammable	39056		
14	1x205L	Dimethyl Foramide	Flammable	None		
14	1x205L	Toluene Chloride	Flammable	39056		
14	1xOverdrm	Butyl Chloride	Flammable	38987		
14	1x205	Dimethyl Sulphate	Toxic	15730		
14	5x205	Phosphoric Acid	Corrosive	38198		

ANNEX D - WASTE STORAGE LOG - SAF PLANT BAYS - LANSTAR - 21 & 22 APRIL 1998

Bay Number	Contents	Waste Description	Hazard Data	OLAN Number	Inspectors Comments	Photo/Sample Ref
14	2x205L	Thionyl Chloride	Corrosive	38987		
14	1x205L	Furoyl Chloride	Corrosive	37103		
14	1xOverdrm	Thionyl Chloride	Corrosive	38987		
14	2x25L	Acetonitrile	Flammable	38827		
14	6x25L	Lithium Chloride	Toxic	32436		
14	2x50L	Toxic Liquid	Toxic	38184		
14	3x100L	None	None	None		

ANNEX E

Storage Location	Waste Type	OLAN No	Section 62 No	Waste Description on Note	Producer	Arrival
Drum Handling Plant - Area 9	205ltr drums labelled 'Organic Compounds Containing Cyanides'	34673		Various Cyanides		3/10/97
Drum Handling Plant - Area 3	7x25ltr drums. Labels say 'HCl' but 'H ₂ SO ₄ ' written on top	25001		Note Archived - Could Not Find		3/09/96
Drum Handling Plant - Area 3	1x205ltr drum labelled 'H ₂ O ₂	25353		Waste Oil/Flocculent		15/10/96
Drum Handling Plant - Area 3	4x205ltr drums labelled as 'Hydrochloric Acid and TEA'	27533		TEA/HCl Liquid		19/12/96
Drum Handling Plant - Area 3, Bay 2	2x205ltr drums labelled as 'Phosphorus Oxychloride	34809		Various on list including 2x205ltr Phosphorus Oxychloride 100%		10/10/97
Drum Handling Plant - Area 3, Bay 2	1x205ltr drum labelled as '2,2 Dibromo-3-nitriloproplonamide, 20%'	37204		Various on list including '2,2 Dibromo-3-nitriloproplonamide'		19/1/98
Drum Handling Plant - Area 3, Bay 6	19x25ltr drums labelled 'Triethanolamine'	35156		29x25ltr drums of Triethanolamine		24/10/97
Drum Handling Plant - Area 3, Bay 7	26x25ltr containers - No waste description labels	24466		Bulk tanker load of oil/water		6/9/96
Drum Handling Plant - Area 3, Bay 10	205ltr drums marked as 'Dichloromethane'	28588		Various on list including 1x205ltr drum containing dichloromethane		10/2/97
Solvent Bay/STAR Plant	16x205ltr drums labelled as 'acid chlorides'	01603		10x205ltr drums containing 'Wool Grease'		29/7/94
Solvent Bay/STAR Plant	16x205ltr drums labelled as 'acid chlorides'	21837		Various acid chlorides on list		3/6/96
Solvent Bay/STAR Plant	1x205ltr drum marked 'Toluene M Thionylchloride'	24995		Various acid chlorides on list		30/9/96
Bulk Treatment Plant Bay 1	1x205ltr drums labelled as 'Waste Oxidising Liquors'	26503		Sodium Nitrite		11/11/96
Bulk Treatment Plant Bay 6	10xIBC's labelled as 'Waste Corrosive Liquors'	29750		IBC's containing various corrosive liquors		21/03/97
Bulk Treatment Plant Bay 6	1x205ltr drum labelled as 'Ammonia'	29164		Note Archived - Could Not Find		Not Known
Bulk Treatment Plant Bay 8	Waste Flammable Liquid	37087		Methanol Ethanol, Toluene		14/11/98

ANNEX F

WEEK COMMENCING 20/04/98

TANK No.	PRODUCT USAGE	GALLONS MAX	TONNES MAX	TONNES ACTUAL	COMMENTS
B	Oil Water	110,000	496	305	AIS/TINCAL
C 1	Sludge				
C 2	Halogenated H2O	176,000	793	765	CHLORONATED WATER
CEN 1	General PE	11,880	53	20	
CEN 2	General PE	11,880	53	20	
CEN 3	General PE	11,880	53	MT	
CEN 4	General PE	11,880	53	20	
CEN 5	General PE	11,880	53	MT	
CEN 6	General PE	11,880	53	20	
CV 1	Water	44,000	198	100	
CV 2	Low solid Waste	33,000	147	100	
CV 4	Low Solid Waste	33,000	147	100	
CV 5	NaOH Sulphite	12,000	54	MT	
BUG Tank	General	4,500	22	MT	REQUIRES CLEANOUT
DA 1		50,000	225	80	
DA 2	Oil/Emulsion	50,000	225	160	
CA 1	Petroflux	50,000	225	10	
CA 2	Petroflux	50,000	225	15	
E Tank	Oil Water	1,198,000	5396	4036	
F Tank	Sewer Water	1,198,000	5396	5060	
G Tank	Sewer Water	1,198,000	5396	4890	
H Tank	Sewer Water	299,700	1350	1200	
I Tank	Tar Residues	70,346	319	198	
J Tank	Oil Water	1,198,000	5396	4680	
K Tank	Sewer Water	621,600	2800	2600	
L Tank	Sewer Water	621,600	2800	2600	
M Tank	Waste Oil	302,798	1373	560	
D 1	Rosin Waste	174,000	780	350	
D 2	Chlorinated SL	132,000	590	200	
FB 1	General Acid	16,000	72	MT	
FB 2	General Acid	16,000	72	MT	
FB 3	General Acid	16,000	72	70	WATER
FB 4	General Acid	16,000	72	70	WATER
FT 1	Oil/Emulsion	12,000	54	40	
FT 2	Oil/Emulsion	12,000	54	20	
FT 3	Oil/Emulsion	12,000	54	20	
K 21	Chlorinated SL	12,000	126	120	
K 22	Chlorinated SL	12,000	126	120	
K 23	Chlorinated SL	28,000	126	120	
K 24	Chlorinated SL	28,000	126	120	
K 27	Chlorinated SL	28,000	126	30	
K 28	Storage	28,000	126	MT	
MC 1	Caustic	49,940	225	160	
MC 2	REDUNDANT	49,940	225	SOLID	
MC 3	Oil for SALE	49,940	225	15	
MC 4	Neutralised MSD	49,940	225	200	
MC 5	FE Water	49,940	225	100	
MC 6	FE Water	49,940	225	100	
MC 7	FE Water	49,940	225	100	
MC 8	FE Water	49,940	225	90	
ODP 1	Waste Water	12,000	54	40	
ODP 2	Waste Water	12,000	54	35	
ODP 3	Hypochloite	8,000	36	25	
ODP 4A	Caustic Water	6,000	27	26	
ODP 4B	Caustic Water	6,000	27	26	
ODP 5	Make Up Water	12,000	54	50	
ODP 6	Cyanide	12,000	54	20	

ANNEX F contd

OS	1	Sodium Sulphite	21,5000	97	15	
OS	2	General	21,500	97	25	SLUDGE
OS	3	General	21,500	97	MT	
T	1	Treated Cyanide	6,660	30	MT	
T	2	Sludge/Acid	7,770	35	25	
T	3	Sludge/Acid	7,770	35	20	
T	4	Sludge/Acid	7,770	35	MT	
T	5	Sludge/Acid	7,770	35	MT	
Thickener		General Sludge	99,900	450	400	
Lime Silo		Powdered Lime	9,900	45	25	
Slurry tank		Lime slurry	5,550	25	10	
CS	1	Caustic Soln	8,800	40	10	
ENKA W.Tank		General Aqueous	12,400	56	10	
H	5		12,000	56	-	
H	6	Chlorinated H2O	12,000	56	40	
H	7	Chlorinated H2O	12,000	56	12	
H	8	Chlorinated H2O	12,000	56	27	
H	9		12,000	56	10	
H	10	Chlorinated H2O	12,000	56	25	
H	11		12,000	56	10	
CO	1	Pet Wash Tank	176,015	800	-	BR DIPS TANK
CO	2	Coal tar	176,015	800	640	
CO	3	Pet Wash Water	12,000	56	-	BR DIPS TANK
CO	4	Oil To CO7	50,000	227	128	
CO	5	Waste Oil	50,000	227	154	
CO	6	Coal Tar	50,000	227	161	
CO	7	Waste Oil	50,000	227	141	
CO	8	PCB Water	50,000	227	140	
CO	9	PCB Water	50,000	227	176	
CO	10	Oil water	132,000	600	360	
CO	11	Sodium Naphth	132,000	600	-	SPU DIP TANK
CO	12	Waste Oil	132,000	600	470	
CO	13	Coal Tar	176,015	800	680	
CN	Drums		-	-	17	
R	2		5,000	25	MT	
R	2		5,000	25	MT	

ANNEXE G

DATE	CONT-RACTOR	CIMPRO	QUOTE	ORDER	OLAN	S62 MTR	D.O.C.	PH	SG	STRENGTH%	OIL	SLUDGE	LIQUID	SOLID	LIME COST	CAKE COST	OTHER TESTS/COMMENTS	TREATED C.O.D.	TANK	MATERIAL
17.4.98	Cleanaway	Acid o	12969	24593	39622	00641765	LDC57750	0.8	1.110	21% as H ₂ SO ₄	-	-	100	-	-	-	-	2000	T4	Aqueous Waste
17.4.98	Qualitech	Oilwater	11692	24636	39630	00668787	013610	7.5	0.976	-	4	-	96	-	-	-	-	N/A	B	Water
18.4.98	Cairds	Alkali	10927	24660	39631	00655850	-	12.2	1.105	13% as NaOH	-	-	100	-	-	-	-	2000	MCI	Caustic Washings
18.4.98	UK Waste	Aqueous	12348	24499	39632	00647846	29796	7.0	0.979	-	-	-	100	-	-	-	-	37000	B	Glycol & Water
18.4.98	UK Waste	Aqueous	4722	24672	39633	00595828	66088	12.0	0.985	0.1% as NaOH	-	-	100	-	-	-	-	2500	ODP's	Brine Washings
18.4.98	Cairds	Alkali	10927	24662	39634	00655851	-	12.1	1.157	14.9% as NaOH	-	-	100	-	-	-	-	2000	MCI	Caustic
18.4.98	Qualitech	Aqueous	11807	24617	39635	-	0525	7.6	0.975	-	-	-	100	-	-	-	-	9200	T4	
18.4.98	Qualitech	Acid c	15046	24638	39636	00594139	-	2.0	0.981	1500ppm CrO ₄ ²⁻	-	-	100	-	-	-	1.5% as H ₂ SO ₄	2500	T3	Chromic Acid/Surfactant
18.4.98	Cairds	Alkali	10927	24661	39637	00655852	-	12.0	1.100	10.9% as NaOH	-	-	100	-	-	-	-	2000	MCI	Caustic
20.4.98	Irish Waste Services	Acid n	16072	24666	39641	0052235	-	0.6	1.193	35% as HNO ₃	-	-	100	-	-	-	(517 No 21153) +0051	<500	T4	Nitric Acid
20.4.98	Qualitech	Aqueous	11807	24618	39643	-	0571	6.9	0.975	-	-	-	100	-	-	-	-	<100	T5	Leachate Water
20.4.98	Qualitech	Aqueous	11807	24645	39644	-	0526	7.1	0.963	-	-	-	100	-	-	-	-	<100	T5	Leachate Water
20.4.98	Cairds	Alkali	10927	24663	39646	00555853	-	12.4	1.039	5.3% as NaOH	-	-	100	-	-	-	-	<500	MCI	Caustic
20.4.98	Lanes	Oilwater	14954	24674	39648	00638502	-	8.0	0.984	-	1	-	99	-	-	-	-	N/A	B	Oil/Water
20.4.98	UK	Acid c	16097	24595	39649	00617598	66089	2.0	1.021	2% as G	-	-	100	-	-	-	2.3% as H ₂ SO ₄	4000	T3	Chromic Washings
20.4.98	UK	Sludge	465	24673	39652	50280262	66075	7.3	0.980	-	-	10	90	-	-	-	-	<500	T5	Copper Washings
20.4.98	Mantank	Sludge	14636	24614	39653	-	1089	8.8	1.020	-	-	25	75	-	-	-	Approx 2T left for pits	<500	Thick	Lagoon Sludge
20.4.98	Rosters	O/SPE	7577	24669	39654	00372155	102669	7.6	0.990	-	-	-	100	-	-	-	-	N/A	Cen 1	Pharmaceutical Washings
20.4.98	Nistech	Oilwater	813	24676	39656	00509104	001101	8.9	0.976	-	0.5%	-	99.5%	-	-	-	-	N/A	B	Oil/Water
20.4.98	UK Waste	Acid c	16097	24596	39659	00617599	66090	3.9	1.037	3000ppm as Cr	-	-	100	-	-	-	0.7% as H ₂ SO ₄	<500	T3	Chromic Acid
20.4.98	Snowie	O/S P.E	13405	19452	39655	00038195	-	7.3	1.004	-	-	-	100	-	Phenol	0.01 ppm	Okayed by P Partington	N/A	Cen 1	Flumethrin/Water
20.4.98	Qualitech	Aqueous	11807	24646	39662	-	0573	8.8	0.980	-	-	-	100	-	-	-	-	<100	Intpit	Leachate Water
20.4.98	Cairds	Alkali	10927	24664	39660	00655854	-	12.6	1.071	6.3% as NaOH	-	-	100	-	-	-	-	<500	MCI	Caustic
20.4.98	UK Waste	Aqueous	12348	24651	39667	00647847	29826	6.5	1.001	-	-	-	100	-	-	-	-	10500	FTI	Gas Condensate
21.4.98	Qualitech	Aqueous	11807	24647	39669	-	0528	7.4	0.980	-	-	-	100	-	-	-	-	<100	T3	Leachate Water
21.4.98	Qualitech	Acids	16099	24574	39671	00668774	1104	3.8	1.016	0.4% as H ₂ SO ₄	-	-	100	-	-	-	-	<500	T3	Water Washing Trace Acid
21.4.98	Cairds	Alkali	10927	24665	39678	00655855	-	1.7	1.039	4.7% as NaOH	-	-	97	3	-	-	-	6000	T3	Caustic Waste
21.4.98	UK Waste	Oilwater	768	24690	39680	50271289	66110	8.2	0.972	-	1	-	99	-	-	-	-	N/A	B	Oilwater
21.4.98	UK Waste	Aqueous	493	24629	39682	50262601	65452	8.2	1.076	Oppm as CN	-	-	100	-	-	-	-	<500	T2	Neutralised Cyanide
21.4.98	Mantank	Oilwater	8763	24687	39684	00586600	-	8.2	0.986	-	1	-	99	-	-	-	EM No. Nigel Homer	N/A	B	Oil (Gas)& Water
21.4.98	UK Waste	Sludge	11318	24682	39687	00641839	66576	12.5	1.003	25ppm CrO ₄ ²⁻	-	-	98	2	-	-	0.9% as NaOH	33000	T2	Caustic Chromate Sludge
21.4.98	UK Waste	Acid c	1248	24681	39688	00641838	66557	1.0	1.103	1% as CrO ₄ ²⁻	-	-	100	-	-	-	4.7% as H ₂ SO ₄	2500	T2	Sulphuric/Chromic Acid
21.4.98	Qualitech	Aqueous	11807	24648	39692	-	0529	6.5	0.985	-	-	-	100	-	-	-	-	20	T3	Leachate Water
21.4.98	UK Waste	Oilwater	941	24691	39693	50280261	66111	9.2	0.980	-	1	-	99	-	-	-	-	N/A	B	Coolant Oil & Water
21.4.98	UK Waste	Oilwater	12348	24654	39694	00647848	29827	5.9	0.986	-	-	-	100	-	-	-	-	40000	B	Glycol & Water
21.4.98	Lewis	Product	-	-	39695	-	-	9.0	1.177	12% Sulphite	-	-	100	-	-	-	-	N/A	OSI	Sulphite
21.4.98	Ian (Scot)	Cyanide	13404	19451	39696	00040511	-	12.4	1.043	30000ppm CN ⁻	-	-	100	-	-	-	3:1 With Hypo	N/A	ODP6	Cadmium Cyanide Solutions
21.4.98	Qualitech	Aqueous	11807	24649	39699	-	0530	7.2	0.962	-	-	-	100	-	-	-	-	20	T2	Leachate Water
21.4.98	UK Waste	Acido	15704	24607	39700	00654853	66523	1.1	1.083	5.4% as H ₂ SO ₄	-	-	100	-	-	-	-	2000	T5	Mixed Acid
22.4.98	Qualitech	Aqueous	11807	24650	39702	-	0531	7.2	0.990	-	-	-	100	-	-	-	-	<100	Int-Pit	Leachate Water

TABLE (1): Assessment of Bulk Storage Tanks ANNEX H

Tank Number	DH1	DH2	DH3	DH4	DH5	ODP1	ODP2	ODP3	ODP4a	ODP4b	ODP5	ODP6	CV1	CV2	CV4	CV5	OS1	OS2	OS3	M10	FB1	FB2	FBS	FBB	C1	C2	DA1	DA2	
Bundled (<110%)	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	0	0	
Rain water Present (<110%)	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
Valves (Within Bund)	0	0	0	0	0	1	1	1	1	1	1	1	na	1	1	1	1	1	1	1									
Adequate Construction	1	1	1	1	1	1	1	1	1	1	1	1	na	1	1	1	1	1	1	1									
Acid resistance	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1	1	1	1	1	1	1	
Impermeable Base	1	1	1	1	1	1	1	1	1	1	1	1	na	1	1	1	1	1	1	1									
Vehicle Discharge Marked	0	0	0	0	0	0	0	0	0	0	0	0	na	0	0	0	0	0	0	0									
Working Plan Normal Storage / abnormal Storage																													
Actual Storage																													

Tank Number	K21	K22	K23	K24	FT1	FT2	FT3	E	G	H	K	L	J	I	M	D1	D2	B	MC1	MC2	MC3	MC4	MC5	MC6	MC7	MC8	K27	K28
Bundled (<110%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1
Rain water Present (<110%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Valves (Within Bund)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adequate Construction	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Acid resistance	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na						
Impermeable Base	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Vehicle Discharge Marked	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Working Plan Normal Storage / abnormal Storage																												
Actual Storage																												

Tank Number	CEN1	CEN2	CEN3	CEN4	CEN5	CEN6	CA1	CA2	EWT	BUG	BUG	LAYER SEP	CS1	RT1	RT2	RT3	RT4	RT5	H5	H6	H7	H8	H9	H10	H11	CO1	CO3
Bundled (<110%)	1	1	1	1	0	1	1	1	na	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	1
Rain water Present (<110%)	1	1	1	1	1	1	1	1	na	na	na	na	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Valves (Within Bund)	1	1	1	1	1	1	1	1	na	na	na	na	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adequate Construction	1	1	1	1	1	1	1	1	na	na	na	na	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Acid resistance	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Impermeable Base	1	1	1	1	1	1	1	1	na	na	na	na	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Vehicle Discharge Marked	0	0	0	0	0	0	0	0	na	na	na	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Working Plan Normal Storage / abnormal Storage																											
Actual Storage																											

0 - None Compliance
 1 - Compliance
 na - Not assessed

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NORTH AREA OFFICE

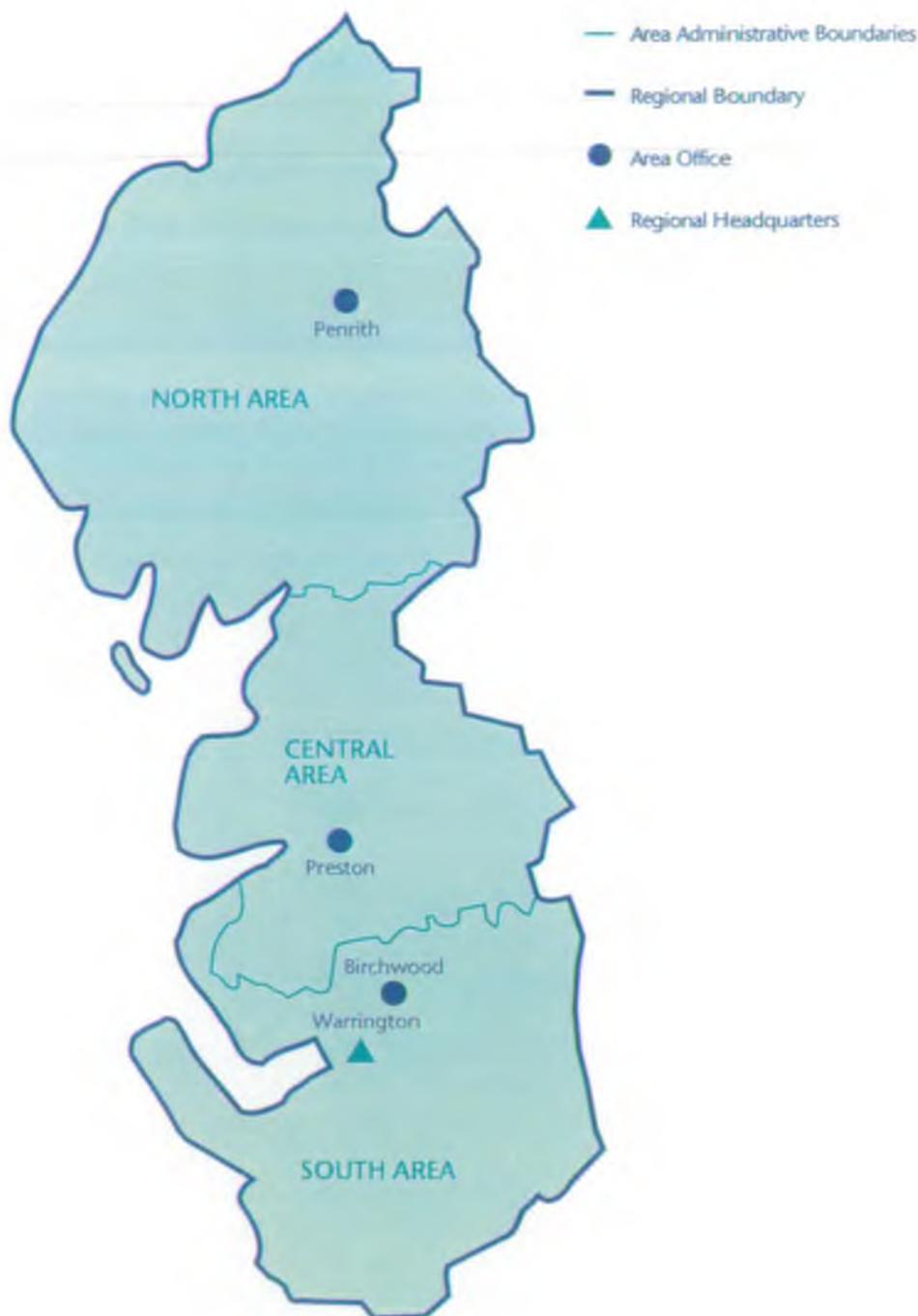
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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

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GENERAL ENQUIRY LINE**

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**ENVIRONMENT AGENCY
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