

URS

ENVIRONMENTAL LIABILITIES
RISK ASSESSMENT

ATLAS ENVIRONMENTAL IRELAND
LIMITED
CLONMINAM INDUSTRIAL ESTATE
PORTLAOISE
CO. LAOIS

FINAL REPORT

MARCH 2002

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ENVIRONMENTAL LIABILITIES RISK ASSESSMENT

ATLAS ENVIRONMENTAL IRELAND LIMITED

1.0 EXECUTIVE SUMMARY

Risk is an inherent part of all industrial activity. Risk to the environment from Atlas Environmental Ireland Limited, previously known as 'Atlas Oil Laboratories Limited', is addressed under Condition 14.3 of the Integrated Pollution Control (IPC) Licence issued by the Environmental Protection Agency ('Agency'). This Condition requires Atlas Environmental Ireland Limited, hereafter referred to as 'Atlas Ireland' to carry out an Environmental Liabilities Risk Assessment (ELRA) of the Portlaoise site.

The objectives of the ELRA are:

- to identify potential and actual environmental liabilities which have arisen as a result of current or past site activities;
- to cost these liabilities in terms of remediation and associated issues;
- to examine the current level of insurance cover existing for the site in terms of level of cover and exclusions;
- to identify and cost liabilities or potential liabilities, if any, which are not covered by insurance or any other existing financial instrument.

URS Dames & Moore was commissioned by Atlas Ireland to carry out an ELRA of the Portlaoise site. The assessment consisted of a site inspection, interviews and documentation review.

While URS Dames & Moore cannot provide a strict legal interpretation of the wording of insurance policies, it would appear that:

- Atlas Ireland has insurance cover for environmental liabilities that arise during the period of the insurance, and it appears that past liabilities, which occurred as a result of sudden events, are also covered.
- Atlas Ireland appears to have first party insurance cover only for environmental liabilities arising at the Portlaoise site.
- The terms of the insurance policy are not clearly defined, however it is likely that the insurance covers sudden events only, and does not apply to gradual events.
- Furthermore, the remediation costs for removal of potentially contaminated soil or water on the site is covered to a limit of €127,000 only.

Table 1 of Section 7.0 lists the credible worst case environmental liabilities. In terms of potential financial liabilities the top five scenarios, in order of decreasing magnitude are summarised as follows:

Potential Liability	Estimated Remediation Cost
Release of Firewater to Surface Water	€ 500,000
Spill of Waste Oil/ Intermediate or Product from Pipeline	€ 250,000
Spill of Waste Oil/ Product due to loading or offloading operations	€ 250,000
Waste Oil/Product Tank Failure	€ 100,000
Remediation of Soils	€ 100,000

The worst-case scenario in terms of a new environmental liability, for which a cost has been estimated, is a major release of contaminated firewater to surface waters. The likelihood of the development of this scenario is low and is estimated to have an associated cleanup cost of approximately €500,000. However the insurance for the Atlas Ireland facility does not appear to cover such a scenario.

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2.0 INTRODUCTION

2.1 IPC LICENCE REQUIREMENT

Condition 14.3 of IPC Licence Register No. 472, issued on January 27th 2000, requires the licensee to arrange for the preparation of an Environmental Liabilities Risk Assessment (ELRA) covering the Atlas Ireland Portlaoise site. The ELRA must address liabilities arising from past and present activities and must be completed by an independent and appropriately qualified consultant. The mention of insurance policies in this report refers to those policies held by DCC, owners of Atlas Ireland, Portlaoise, Co. Laois.

2.2 ENVIRONMENTAL LIABILITIES

Any industrial site has the potential to generate environmental liabilities, i.e. damage to the environment which must be remedied, such remediation associated with a quantifiable financial cost.

Environmental liabilities may arise from *anticipated* or *foreseeable* events, i.e. known and quantifiable releases to the environment which arise due to the day-to-day operation of the facility. For a site subject to IPC Licensing, regular emissions to air, water and land have been the subject of detailed quantification and consequence analysis, i.e. assessment of the impact of emissions, during the licence application process. The resulting IPC licence either establishes emission limits and other conditions at a level which prevents new liabilities, or may require bonding or other secure funding mechanism to cover the expected liability. The latter case applies usually to, for example, on-site landfilling activities.

The IPC licence also ensures that under normal circumstances no significant environmental impact due to known releases from normal production operations will occur.

Environmental liabilities may also arise from unanticipated or unforeseen events. Such events may be loosely classified under the following headings:

- events which are *sudden* and which are identifiable such as an incident or series of related incidents which give rise to an environmental liability concurrent with the incident or shortly thereafter;
- events which develop gradually or go unnoticed for a long period of time which *gradually* give rise to an environmental liability.

Examples of the former would include explosion/fire or accidental release of chemicals from a storage tank to waters.

An example of the latter would be leaks in underground storage tanks or transfer lines, which would result in the gradual build-up of soil and/or groundwater contamination.

The costs of dealing with unanticipated or unforeseen events are usually issues that are addressed in the insurance cover for the industrial site in question. The degree to which existing insurance policies cover environmental liabilities depends on many factors including the specific wording of the policies and legal precedence. Most Public Liability (PL) insurance policies will contain some element of cover for environmental liabilities. However, the distinction between sudden and gradual events for existing insurance policies is the subject of much debate and disagreement. There are many "grey" areas between the extremes of sudden (explosion/fire) and gradual (long-term leakage of chemicals to the groundwater system).

We understand from the Agency that the requirement to complete an ELRA is based on the Agency's desire to ensure that the potential clean up costs of any accidental emission to the environment (whether sudden or gradual) are underwritten and to avoid a scenario where a company becomes insolvent due to the liabilities incurred or cannot cover the cost of the liabilities in the event of cessation of activities.

It may be considered that there are two approaches to completing an ELRA that will provide the level of assurance the Agency seeks in this regard, i.e. a "top-down" or "bottom-up" approach.

The top-down approach is based on an analysis of existing insurance cover to identify any gaps in cover which may exist, i.e. class or classes of events which are not covered or whether the maximum sum insured is insufficient to cover all credible events.

The top-down approach may be appropriate to sites that are very well characterised in terms of environmental impacts (historical and current), which have well-developed environmental management policies and practices and which have extensive insurance and substantial financial strength either at a local or corporate level.

The bottom-up approach is based on completing a very detailed site audit and identifying and where possible, costing potential environmental liabilities which have arisen due to historical site activities or which may credibly arise due to current and future operation. The completion of this work may establish the level and type of insurance cover or other financial mechanism required to cover identified liabilities. The audit may also give rise to

recommendations, which, if implemented, will significantly reduce the risk of a liability arising.

The bottom-up approach may be appropriate to sites that are poorly characterised in terms of environmental impact from both a historic and current operations point of view and/or where current insurance cover is clearly inadequate.

For the completion of an ELRA for the Atlas Ireland facility, we have adopted the top down approach. The ELRA report is structured as follows:

Section 3 provides an overview of Atlas Ireland including ownership and financial information as well as a summary of site operations and potentially hazardous materials stored/used on site.

Section 4 provides an environmental characterisation of the site based on the extensive body of existing relevant information. This characterisation includes a review of site history, site environmental sensitivity, a summary of historic environmental liabilities and current site environmental management.

Section 5 provides an overview of current insurance cover.

Section 6 provides an assessment of whether there are any significant gaps in insurance cover, i.e. credible events that will not be covered by insurance or events, which will result in strictly environmental liabilities in excess of the sum insured.

Section 7 provides a summary of credible worst case environmental liabilities.

Section 8 provides conclusions.

2.3 INDEPENDENT AND APPROPRIATELY QUALIFIED CONSULTANTS

Condition 14.2.1 requires that the ELRA be carried out by independent and appropriately qualified consultants.

URS Dames & Moore is a world-wide environmental consultancy, offering a full range of environmental services. We have been operating in Ireland since 1995, employing a multi-disciplinary staff of highly qualified engineers and scientists. Since the office opened, we have completed numerous environmental assessment projects, including environmental due diligence, soil and groundwater investigation and remediation, waste management, IPC support, EMS support, legal support and hazard ranking.

2.4 LIMITATIONS

URS Dames & Moore has prepared this report for the use of Atlas Ireland and for submission to the Agency in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Unless otherwise stated in this report, the assessment assumes that the site and facilities continue to be used for their purpose without significant change.

The conclusions and recommendations contained in this report are based upon information provided by others and the assumption that all relevant information has been provided by those relevant bodies from whom it has been requested.

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3.0 ATLAS ENVIRONMENTAL IRELAND LIMITED

3.1 ATLAS ENVIRONMENTAL IRELAND LIMITED

Atlas Ireland commenced operations at the Portlaoise site in 1979. Prior to this, the site was a zoned industrial area in the Clonminam Industrial Estate. The primary process at the facility is the production of an oil product from waste oil, through blending and heating operations. Atlas Ireland also operates a soil remediation facility at the site. Additionally, a sister company EMO Oil Services Limited leases and maintains nine storage tanks and a gantry on-site.

Both Atlas Ireland and EMO Oil are owned by DCC. The DCC company was established in 1976 and is a marketing and distribution group, which operates primarily in the growth sectors of the information technology, energy and healthcare markets. DCC was listed on the Irish and London stock exchanges in 1994 and is headquartered in Ireland. There are approximately 4,500 employees world-wide. Today, the company has a turnover of €1.9 billion, and an operating profit of €91.7 million. DCC owns numerous EMO Oil sites in both southern and northern Ireland, and Capital facilities (similar to Atlas Ireland operations) in Northern Ireland. Therefore, a certain degree of flexibility exists within the company regarding alternative oil storage locations, should the requirement arise.

The organisations financial strength, coupled with their environmental commitment to maintaining their environmental policy, indicates that there it both the will and the financial depth to cope with any environmental liabilities, which may arise through the operation of the hazardous waste management facility in a responsible manner.

3.2 SITE LAYOUT

The site covers an area of approximately 20,300 m². The layout of the site is detailed in Appendix I and incorporates the processing area and bulk storage. The main structures at the facility may be briefly described as follows:

3.2.1 Bulk Storage

Storage of the waste oil, intermediates and products is concentrated in the centre of the site, in one tank farm. Oil storage comprises cylindrical tanks with differing capacities located within the bunded structure. A sludge reception area and associated interceptor is located adjacent to the south wall of the tank bund. There is also an EMO Oil unloading gantry located near the tank bund area.

3.2.2 Process Area

The main processing building is located adjacent to the boiler room and workshop, and is connected to the oil storage area via a small pipe bridge.

3.2.3 Administration Building

Atlas Ireland and EMO Oil occupy administration buildings located to the north east of the site. There is also an on-site laboratory adjacent to these buildings.

3.2.4 Warehouse

The site warehouse utilised for storage of general goods is situated south of the main entrance to the site. Adjacent to this building is the process effluent treatment plant and the oil filter cleaning and crushing operation.

3.2.5 Soil Remediation Facility

The soil remediation facility is located to the south of the site, with the southern part of the site undeveloped.

3.3 PROCESS DESCRIPTION

A detailed description of the activities at the Atlas Ireland facility was provided to the Agency in the IPC licence application in 1999. This process description is a summary of manufacturing operations only and also considers any developments at the site, since the IPC application procedure.

3.3.1 Waste Oil Collection, Delivery & Processing at Site.

Atlas Ireland operates a waste oil collection service whereby dedicated Atlas road tankers collect the waste oil material from the customer and return to the Atlas Ireland site in Portlaoise. The fleet of oil collection tankers complies with specifications required for carriage of hazardous wastes, and are driven by Atlas Ireland drivers that are trained to internationally recognised standards (ADR). These tankers can transport from 12 tonnes to 25 tonnes of waste oil to the site, with a maximum 100 tonnes of waste oil received at the site daily. Upon entering the site, the waste oil is checked and then segregated based on water content and stored in dedicated storage tanks accordingly. The main oil storage area is concentrated in the centre of the site in a dedicated tank farm. The tanks vary in capacity and substance stored therein.

The waste oil is directed from bulk storage via a pipe bridge to the processing area, where a series of process stages, including heating, centrifugation, filtration and post process drying operations occur. The oil is subjected to quality control testing to determine the final quality of the oil and whether further blending operations are required. The final product namely 11LS is stored in dedicated storage on-site, prior to dispatch to customers.

3.3.2 Soil Remediation Facility

Atlas Ireland is the first Irish company to be licensed by the Agency for the treatment and disposal of petroleum contaminated soil. The Atlas soil treatment process is based on bioremediation and there are two soil remediation areas located to the south of the facility. Soil, which is accepted for treatment on-site, is weighed in and then segregated on the basis of type and level of contamination. Pre-treatment of the soil, including soil washing and oil recovery may be carried out if required. Preparation of the soils for the remediation process, incorporating micro-organisms and nutrients addition is the next stage of treatment, prior to the bio-remediation process. The residence time for the contaminated soils at the bioremediation area may vary from 8 to 12 weeks, with monitoring conducted on routine basis. Any oil recovered from the contaminated soil during the bioremediation process is forwarded for processing on-site. Following laboratory certification and Agency approval, the remediated soil is then disposed off-site via return to originator, landfill, or alternative uses.

3.3.3 Wastewater Treatment Facility & Effluent Drainage System

The process effluent drainage system comprises a number of sumps in the soil remediation area and a separator in the new tank farm. Effluent is forwarded, under level control, to a batch effluent treatment system. This treatment system is located within and outside the existing general warehouse. The treatment plant effectively comprises a number of process tanks, dosing equipment, an inclined plate separator and also a packed media coalescent & filter separator. Treated effluent is pumped under controlled circumstances from the wastewater treatment plant via process effluent drain to Laois County Council foul sewer. This process drain runs separately and parallel to the final surface water drain and joins the main industrial park foul sewer system to the west of the site. Monitoring of the final discharge at *emission point reference*: FS1 is conducted in accordance with the requirements of the IPC licence.

The process effluent drainage system is separate to the surface water drainage system at all times. There are also no significant process drains in the yard area or in the process room.

3.3.4 Surface Water Drainage System

Surface water drainage at the facility may be segregated into two separate areas on-site. The *first system* comprises the main area of the site, incorporating the central and northern part of the site. Here surface water drains to yard gullies and drains to a 58 tonnes capacity, 4 chamber interceptor which is located between the process building and the old tank

farm. Typically this interceptor has a spare capacity of 30 tonnes. Water and trace oil are separated and the oil free water is pumped under level control from a post separation pump chamber to a new 30 tonnes interceptor. This new interceptor is situated adjacent to the western border of the facility. There is no available retention in the 30 tonnes interceptor. However, the design of the larger interceptor allows the pumping of water from each chamber directly into the tank farm bund, in the event of run-off in excess of the spare capacity of the interceptor. This surface water system is also termed the combined interceptor system, for the purposes of this report.

The *second system* includes surface water from the south part of the site, specifically around the tank farm and the soil remediation area, which passes through the aforementioned 30 tonnes capacity interceptor.

The company maintains an Interceptor Inspection Sheet on-site. This inspection procedure ensures the proper and efficient operation of the 58 tonnes capacity interceptor.

3.3.3 Utility Plants

At the Atlas Ireland site, utility facilities consist of the steam generation plant, compressor plant, chemical storage and on-site laboratories.

3.4 INVENTORY OF HAZARDOUS MATERIALS

The site has conducted a detailed inventory of hazardous materials stored on-site for the purposes of determining substances to be included in the Pollution Emissions Register (PER). Table 3.4.1 summarises the laboratory List II hazardous substances on-site, which were incorporated into the PER and subsequently, reported as part of the AER. All these substances are laboratory chemicals and are utilised as part of laboratory procedures only.

Table 3.4.1 Laboratory List II Substances included in the PER 2000

Substance	CAS Number
Chloroform	67-66-3
Mercury	7439-97-6
Zinc Nitrate	10196-18-6
Copper 2 Nitrate	19004-09-4
Nickel 2 Nitrate	13478-00-7
Chromium 3 Nitrate	7789-02-8
Lead 2 Nitrate	10099-74-8
Molybdenum (Mo)	7439-98-7
Titanium (Ti)	7440-32-6
Tin (Sn)	7440-31-5

Barium (Ba)	7440-39-3
Boron (B)	7440-42-8
Vanadium 4 Oxide sulphate	12036-21-4
Silver	7440-22-4
Toluene	108-88-3
Di-Chloromethane	75-09-2
Copper Turnings	7440-50-8
Barium Chlorate 2 Hydrate	10297-38-9

Chemical usage as detailed in Table 3.4.1, are considered insignificant with quantities of chloroform, toluene and di-chloromethane not exceeding 15 kg/ annum usage. The remaining substances are utilised less than 1 kg/ annum. There is no bulk storage of the above chemicals on-site, with storage confined to the dedicated laboratory area on-site.

The company are presently reducing List II substance use on-site, as part of company targets and objectives in the Environmental Management Programme.

Other hazardous chemicals, which are utilised at the facility for cleaning and miscellaneous, are as follows:

Chemical	Purpose	Quantity
Phosphoric Acid	Tank Safe	0.14 tonnes
Dyna 143 Fluid	Parts Washer	4 tonnes
High Foam Concrete Remover	Concrete Remover	1.2 tonnes
Regular concrete remover	Concrete Remover	1.6 tonnes

Storage of non-hazardous chemicals at the facility include the following:

Chemical	Purpose	Quantity
Resin	Tank Safe	10 tonnes
Calcium Chloride	Tank Safe	0.45 tonnes
TFR 18	Detergent	1 tonnes
TFR 10	Detergent	0.8 tonnes
AAE7	Biofuel Trials	3.7 tonnes

4.0 SITE ENVIRONMENTAL CHARACTERISATION

4.1 AVAILABLE INFORMATION

There is a considerable amount of information available on the environmental characterisation of the site. This includes:

- IPC Licence Application 1999;
- IPC Licence (Reg. No. 472), January 2000;
- Characterisation of regular day-to-day emissions as required under the IPC licence (Reg. No. 472);
- A database of notifiable environmental incidents which have occurred on the site;
- Emergency Response Procedure, Atlas Ireland;
- Annual Environmental Report, Atlas Ireland, 2000;
- Soil & Groundwater Investigation, ref.: 46605/002/report URS D & M, 2001;
- Firewater Risk Assessment, URS Dames & Moore, 2002.

The available body of information is substantial and permits the development and presentation of a clear characterisation of the site from an environmental perspective, the assessment of environmental liabilities already identified and the potential for the arising of new liabilities.

4.2 SITE HISTORY

The company originally commenced operations with waste oil collection and disposal in 1979. Since then, the company has expanded into other hazardous waste collection and disposal operations, and into the areas of emergency response, environmental services and wastewater treatment systems. The company developed also into soil treatment and remediation and installed a dedicated soil remediation facility on-site in 1999/2000. A new tank farm dedicated to oil storage was constructed in 1998/1999 and was integrated into the existing tank farm in 2002.

Atlas Ireland's sister company, EMO Oil, occupies an office building and operates storage tanks on the site. EMO Oil also maintains and operates a gantry for loading and unloading operations.

4.3 SITE SENSITIVITY

4.3.1 Surrounding Land Use and Topographical Setting

The Atlas Ireland facility occupies an area of approximately 20,300 m² and is situated on the outskirts of Portlaoise town, in the Clonminam Industrial Estate. Neighbouring land use is as follows:

North: Car Wreckage/ Salvage Yard

South: Railway Line

East: Industrial Estate Access Road

West: Irish Rail Sleeper facility

4.3.2 Site Geology and Hydrogeology

URS Dames & Moore conducted a soil and groundwater investigation at the Atlas Ireland site in July 2001, report reference: 46605/002/report.

Regional data from the Geological Survey of Ireland (GSI) suggests that the underlying bedrock in the region is dark grey argillaceous bioclastic limestone from the Lower Carboniferous age. This type of limestone is usually thinly bedded. The overburden in this part of Portlaoise is considered limestone gravel, and an area of boulder outcrop within 1 km of the site indicates that the overburden cover may be thin.

Flow of groundwater in both the fractured bedrock and overlying sediments is likely to reflect the topography and flow to the north east towards Portlaoise. Groundwater flow in the bedrock is considered to be karstic. This flow is expected to discharge to the Triogue River. This river flows north through Portlaoise to the river Barrow. The bedrock is considered to be a major aquifer where groundwater flow is via fractures, some of which may be solutionally enlarged ('karstified'). As the bedrock is overlain with coarse-grained subsoils, it may be considered extremely vulnerable. The subsoils themselves may also constitute a local aquifer and would also be classified as extremely vulnerable to pollution.

4.3.3 Environmental Sensitivity

The river Triogue is the nearest surface water feature, and is located to the east of the facility, adjacent to the industrial estate access roadway. Surface water emissions from the site eventually discharge to the river Triogue. This river ultimately combines with the River Barrow approximately 6.5 miles from site. According to an EPA River Quality database for 1997, the river

Triogue is considered seriously polluted (Q2) to moderately polluted (Q3), with the river Barrow categorised as slightly polluted to unpolluted. The river Barrow is also noted for the inhabitancy of protected fish species. An Agency 2000 interim report on Water Quality indicates that the water quality has improved for the river Triogue. The importance of this surface water regarding water abstraction is considered insignificant, as water is not abstracted for drinking water purposes for Portlaoise town. The public water supply for Portlaoise is derived from groundwater. The primary groundwater source is at Ballydavis, north east of Portlaoise town. An additional groundwater source is located to the south-east of the town on the R426 road, which is utilised occasionally.

Groundwater may be used for potable supply in the vicinity of the site, however no wells are noted within a 1 km radius of the site in the well record database of the Geological Survey of Ireland.

There are four groundwater bore-holes on the site for monitoring purposes only. No groundwater is abstracted for utilisation on-site for any other purpose.

4.4 HISTORIC ENVIRONMENTAL LIABILITIES

4.4.1 Releases to Air

There is no evidence to suggest that any historical release to air, either sudden/accidental or gradual arising from the Atlas Ireland facility has resulted in the development of any off-site environmental liability.

With regard to sudden and accidental, there is no history of:

- major fires or explosions;
- unforeseen reactions resulting in significant discharge to atmosphere;
- significant accidental releases of hazardous gases.

Licensed emissions to atmosphere arise from the on-site boiler and have been the subject of a comprehensive monitoring programme, the results of which are forwarded to the Agency on an annual basis. Additionally, the company has recently converted to a new boiler, operating on natural gas as opposed to the previous fuel, namely light fuel oil. This development significantly decreases any potential environmental impacts.

Any off-site impact of emissions to air which have been noted have been transient in nature, i.e. occasional short-term odour episodes.

Vegetation on and near the site appears to be in good condition with no evidence of blight or damage due to either atmospheric quality or deposition.

4.4.2 Releases to Surface Water

There is currently no evidence to suggest that any release from the site to surface waters has resulted in an environmental liability.

With regard to the release of treated effluent from the site, all treated effluent discharges to sewer and there is also a comprehensive database of monitoring data on the quality of treated effluent. The company also maintain a high level of compliance with the IPC licence specified Emission Limit Values (ELVs) for emissions from the site.

As discussed in Section 4.3.3, surface water from the site discharges to the river Triogue, which is located, approximately 1.5 miles north east of the site.

4.4.3 Releases to Ground or Groundwater

There is no known history of landfilling or burial of waste material on any part of the Atlas Ireland site.

No known significant spillages have occurred in the past on-site.

All wastes generated on-site since commencement of site operations have been disposed via specialist hazardous waste management contractors or local authority landfill. There is no evidence to suggest that the nature of site operations or any waste generated at the Portlaoise site has resulted in any off-site liabilities.

Monitoring of ground during the aforementioned *URS Dames & Moore* survey indicated some minor hydrocarbon contamination in the soil, but did not demonstrate any zones of contamination with regard to volatile hydrocarbons, diesel range hydrocarbons, polyaromatic hydrocarbons or metals. Similarly, groundwater monitoring did not indicate any significant diesel range of volatile hydrocarbon contamination, however some results indicated elevated levels of PAH compounds above Dutch Intervention Values in some wells. This indicated the possibility of an up-gradient source, but also the site may be contributing to the observed impact of groundwater by PAHs. Groundwater monitoring is on-going at the facility.

4.5 CURRENT ENVIRONMENTAL MANAGEMENT

The site operates an active environmental management system, based on a combination of technical measures and environmental management procedures, whose objectives are:

- achieving full compliance with the emission limits specified in the current IPC licence;
- minimising/eliminating the risk of accidental events which could give rise to significant releases to the environment;
- containing any accidental releases within the site boundary.

4.5.1 Releases to Air

Boiler emissions to air are subject to an on-going monitoring programme as specified in Schedule 1(i) of the IPC licence. Emissions are reported on an annual basis and summarised in the Annual Environmental Report (AER).

All incidences are investigated, and are incorporated into a specific incident standard procedure.

The site operates a strict fire prevention policy and comprehensive fire-fighting system. Additionally, the company has close links with the Portlaoise Fire Brigade, with trial hosing exercises and other routine drills conducted by the fire brigade at the Atlas Ireland facility.

4.5.2 Releases to Surface Water

There are no historic releases to surface water.

There are two licensed sewer and surface water emissions points from the site, namely, FS1, which discharges process effluent to Laois County Council Foul Sewer, which is located to the yard at the rear of the canteen. The second licensed emission point is the surface water discharge monitoring point, referenced SW-01 in the IPC licence.

Taking into consideration, the sensitivity of receiving waters it is concluded that any oil bearing run-off and/or fire water with an elevated BOD loading would impact adversely on the receiving waters of the river Triogue and potentially on the river Barrow. Therefore, all contaminated firewater and possible oil run-off arising in the event of a fire will in the near future be adequately contained on-site.

With regard to accidental releases the following measures are in place to eliminate or minimise the risk of such an event occurring and containing any such release within the site:

- The combined interceptor drainage system incorporates an oil-water interceptor with an additional capacity of approximately 30 tonnes. Also, provisions exist to pump surface water, contaminated or otherwise, from the aforementioned interceptor to a bunded structure or storage tank, if necessary.
- Atlas Ireland operates a strict environmental incidents and/or spill reporting and response policy.
- The tank farm is located within a suitable bund.
- Storage of most chemicals on-site is confined to areas provided with secondary containment. However, it is understood that remaining unbunded areas, i.e. the general warehouse, are incorporated into a bunding programme to be completed in the near future.
- In accordance with Condition 9.4.1 of the IPC licence the facility is currently testing the integrity of bund structures;
- There is an adequate supply of oil absorbent material and containment booms, and similar oil absorbent material, plus a dedicated Emergency Response Van on-site.

4.5.3 Releases to Ground

There are no significant historic releases to ground.

The main hazardous waste streams generated by the facility are as follows:

Waste Type	Source of Waste
Waste Oil	Typically poor quality oil, which is unsuitable for processing on-site and originates from ships, garages and industry.
Oil Filters	Primarily arising from vehicles, and subjected to crushing on-site prior to disposal.
Oil/ Sand Mixtures	Arising from the soil remediation and treatment operations on-site.
Oily Material, including oily rags, oily sludge, lubricating agent etc.	Typically arising from off-site collection and on-site from the process area, workshop, cleaning of equipment etc.
Laboratory Waste (including COD waste)	Waste arising from the on-site laboratory.
Fluorescent Tubes	Arising from off-site collection, stored on-site prior to off-site recycling.
Batteries	Arising from off-site collection, stored on-site prior to off-site recycling.

The primary non hazardous waste streams arising at the Atlas Ireland facility include the following:

Waste Type	Source of Waste
General refuse (including paper and cardboard)	Typically arising from on-site activities including the administration offices and canteen.

The company is required, under the terms of its IPC licence to maintain a full record of the types, volumes and destinations of wastes disposed off-site. Off-site disposal arrangements for the disposal of hazardous and non-hazardous waste have been agreed with the Agency, as per the site's IPC license.

Significant improvements to the site infrastructure in the past number of years are expected to minimise the risk of future releases to ground, this includes the substantial hard paving on the site.

In accordance with the requirements of the IPC licence, integrity testing for all underground tanks and pipelines will be conducted at the facility. This is expected to reduce future risks by highlighting any potential issues before any significant long term chemical or oil releases can occur. There have been no underground storage tanks (USTs) on-site in the past, and there are presently no USTs at the facility.

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5.0 CURRENT INSURANCE STRUCTURE

It is understood that D.C.C. Group Limited and/ or subsidiary companies, namely Atlas Ireland, have been provided with a combined property damage and business interruption insurance cover. It is understood that the indemnity cover concerns liabilities arising from the Atlas Ireland site. The Property Damage and Business Interruption combined sum insured is €19,099,637.

URS cannot provide a strict legal interpretation of the wording of definitions and exclusion endorsements in policies however the following points are noted:

- Section 1 of the insurance policy details the property damage, whereby the property insured is:
"On property & interests as hereinafter specified at any premises, being the property of the Insured or for which they are responsible or for which they assume responsibility"
This statement suggests the insurance policy covers first party insurance only.
- An extension to the property damage cover states the following:
"Costs incurred in removal and replacement of land or water on any premises owned or occupied by the Insured which becomes contaminated following an insured event: limit £100,000"
An insured event is defined as a sudden, unforeseen event. However, the definition is considered not to include any gradual events. Furthermore, the remediation costs for removal of potentially contaminated soil or water on the Portlaoise site is covered to a limit of €127,000 only.
- The insurance also includes *"Escape of oils, chemicals or other liquids"*. However, this statement is not clearly defined within the insurance documentation received by URS, but it is likely that this applies to insured events only.
- Atlas Ireland has insurance cover for environmental liabilities that arise ~~during the period of the insurance, however it is also understood that past~~ liabilities, which arose from insured events, are covered by insurance to the limits as detailed above.

The assumptions on insurance cover as detailed above, are based upon available information as received by URS Dames & Moore.

6.0 ENVIRONMENTAL LIABILITIES RISK ASSESSMENT

In the preceding sections we have summarised the site sensitivity, known historic environmental liabilities and the measures, both technical and managerial, currently in place to eliminate/reduce the risk of new environmental liabilities arising.

It has also been concluded that the site environmental and safety management system endeavours to prevent the development of any new significant off-site environmental liability. In arriving at this conclusion we highlighted:

- the comprehensive spill containment programme - bunding of bulk storage, extensive drainage systems combined with separators;
- the tank and pipeline inspection and repair programme;
- the ongoing programme to incorporate all storage tank levels into the computerised SCADA system;
- the on-going monitoring programme for releases to air, effluent quality and surface water quality and the ground water monitoring system;
- The comprehensive fire prevention and minimisation systems, and fire fighting systems in place at the facility.

The current level of insurance cover and exclusions as it relates to environmental liabilities were also summarised.

In the following section, notwithstanding our conclusions on current environmental management at the site, we discuss the potential for the arising of new environmental liabilities which are either excluded from the current insurance cover or would result in liabilities in excess of the sum insured.

6.1 RELEASES TO AIR

6.1.1 Summary of Atmospheric Releases

Long-term, expected releases to air from the plant are well characterised and monitored in accordance with the Agency's requirements. The potential for these releases to create an off-site environmental liability is remote. The IPC licence application process assesses the impact of emissions to air. The Agency is not permitted to issue an IPC licence where significant environmental pollution is occurring.

There is also a very low potential for gradual, unmonitored releases leading to an off-site environmental liability building up over a period of time.

6.1.2 Potential Liabilities and Insurance Cover

The on-site event with the greatest potential for unanticipated or unforeseen releases to air is:

- a major fire in the tank storage area, processing area, oil gantry, oil segregation tanks or a combined area fire.

Clearly events of this nature are sudden and accidental and should be covered by the site's insurance. Such events have the potential to cause environmental liabilities due to releases to all three environmental media, i.e.

- releases to air of smoke, vapours and gases;
- releases to water of contaminated firewater;
- releases to ground and groundwater of firewater and other liquids arising from the event

Releases to air, in comparison to releases to water and ground, are likely to have a short-term/transient impact on the surrounding areas (releases to water and ground are discussed in the next two Sections). The prevailing wind direction is south-south west, with a frequency of greater than 50%. This reflects the direction of Portlaoise town from the Atlas Ireland facility, however, the likelihood of any significant releases to atmosphere from the site which would adversely impact the environment, is considered. Also depending on the severity of the event, it may be difficult to separate the costs of strictly environmental liabilities which arise as a result of releases to air from other non-environmental third party liabilities i.e. physical damage to adjoining property, injury to nearby inhabitants or workers in adjoining industries etc. It may be expected that other third party liabilities such as ~~injury to human population or damage to property~~ have the potential to exceed the strictly environmental liabilities arising from releases to air for most events of this nature. A full third party liability assessment for the Portlaoise site is outside the scope of an ELRA.

However, if we assume that strictly environmental liabilities are related to long-term damage/contamination of vegetation, forestry or farmland, then such a liability does not appear to be covered in the insurance policy as the policy only appears to cover the first party (refer to Section 5).

6.2 RELEASES TO SURFACE WATER

6.2.1 Summary of Releases to Surface Water

Long-term, expected releases to water from the plant are well characterised and monitored according to Agency requirements. The potential for these releases to create an off-site environmental liability is low. The IPC licence application process assesses the impact of emissions to water from the facility. The Agency is not permitted to issue an IPC licence where significant environmental pollution is occurring.

There is no evidence to suggest that previous releases have had any measurable effect on the quality of the environment outside the site. There is also a very low potential for gradual, unmonitored releases leading to an off-site environmental liability building up over a period of time.

6.2.2 Potential Liabilities and Insurance Cover

There are a number of types of events that warrant consideration, i.e.

- a major on-site spill of waste oil or product due to tank failure
- a major on-site spill of waste or product due to pipeline/process failure
- a major spill of waste oil or product to ground during loading/unloading operations
- firewater arising as a result of fire

6.2.2.1 Major on-site spill due to tank failure

There is one bunded tank farm at the Atlas Ireland site, containing the bulk of tank storage on-site. Tanks storing hazardous substances, particularly oils and oil/water mixtures are provided with secondary containment. The bund for the tank farm has undergone significant upgrading in the latter part of 2001 and the first quarter of 2002. There is also adequate spill retention containment in this bund, in accordance with the requirements of the IPC licence.

Tank integrity testing is ongoing at the facility, particularly the heated storage tanks. Testing occurs in conjunction with routine cleaning of the tanks, as visual tank inspections are conducted, and if necessary non-destructible testing (NDT) x-ray testing is also conducted.

Non-catastrophic tank failure, for example, pin-hole leaks in tank walls, will not result in a significant environmental impact and would be noticed by site personnel soon after development.

Atlas Ireland maintains a fully equipped Emergency Response Van on the site operated by the Oil Spill Response team. This unit is capable of dealing quickly with any large spills of potentially hazardous materials. Additionally, the company maintains an "Emergency Preparedness" standard operating procedure, which details what should happen in the event of a major spill on the site.

The potential for the creation of a significant environmental liability as a result of waste oil or product tank failure is very low due to the containment structures on-site.

6.2.2.2 Major on-site spill due to pipeline/process failure

Pipeline failures adjacent to the tanks discussed above would be dealt with in the same way as spills from the tanks themselves, that is, by being contained in bunded areas. With regard to pipeline failure in areas of the site, which are not bunded, such as the pipeline bridge, associated spills would be directed to the surface water system. The capacity of the main interceptor (58 tonnes) would be expected to retain in excess of 30 tonnes of oil. Due to the presence of production personnel in the process area at any one time, it is unlikely that a major leak in a process pipe would go unnoticed. In addition, during periods of non-production at the facility, the valve arrangement present on the pipelines minimises the volume of material stored within the pipeline.

The largest volume of oil likely to emanate from the Process Area due to an accident is approximately 100 liters and would occur in the event of the failure of a vessel or pipeline in the process area. Waste oil would then drain via the surface water system to the interceptor. It is expected that this quantity of oil would be contained in this interceptor.

However, for the following reasons the likelihood of the development of this scenario is low:

- The site operates a strict spill reporting and response procedure.
- The pipework throughout the site is the subject of an on-going inspection programme.
- The findings of these inspections are recorded and the pipework replaced as required, as part of the ongoing maintenance programme of the plant.

Furthermore, having assessed the available insurance information, it would appear the development of an environmental liability due to pipeline failure is covered under the insurance in particular the extension regarding

chemicals, oils or liquid releases. However as the extent of this coverage is unclear, it would possibly only apply if the event was sudden and unforeseen.

6.2.2.3 Major on-site spill due to road tanker loading or unloading

The worst case scenario in terms of loading and unloading operations is a major on-site spill from a road tanker. All road tankers have a capacity of 12 tonnes to 25 tonnes, so the largest volume of oil likely to arise in the event of an accident is a maximum 25 tonnes and may result from:

- Pipeline Failure
- Personnel Error
- Vehicle Collision
- Explosion

An on-site oil spill from a road tanker would potentially impact the ground/ groundwater or surface waters via the site drainage system.

However, for the following reasons, the potential for these scenarios to arise is considered low:

- All bulk storage is located within bunded structures, so any accidental overfilling of tanks will be contained within the bund.
- All process and surrounding areas of the Atlas Ireland site are covered in concrete, which is largely impervious to sudden oil spillages, thus protecting the underlying soil and groundwater.
- Any spillages at the main entrance to the facility, main area of the site and storage tank area should drain to process drainage system or alternatively the combined surface water drainage system, incorporating the oil-water separator, which has a spare capacity of 30 tonnes.
- All drivers of Atlas road tankers are trained to internationally recognised standards.
- The Atlas road tankers are maintained to high standards.
- An adequate supply of containment booms, oil absorbent material and an emergency response van are readily available on-site at all times.

Given the above reasons, the development of an environmental liability is considered low. Regarding the insurance cover, in the event of an incident occurring on the Atlas Ireland site as detailed in Section 5.0, there is an extension covering oils, chemicals or other liquid releases, however the specific extent of this extension is unclear.

6.2.2.4 Firewater arising from fire on-site

Taking into consideration the main facilities on the Atlas Ireland site, the tank farm is considered to contain a low to medium fire risk. The substances stored in this farm include finished product, distillate raw material, ship raw

material, product storage and EMO oil storage. The flammability of some of these materials may pose a potential fire risk, however there are numerous control measures in place to minimise any risks. Such measures include fire alarms, fire detection systems, strict permit procedures concerning hot-work etc.

The company has recently undertaken a Firewater Risk Assessment, in accordance with the IPC licence, to assess the requirements for firewater containment on-site. Any report recommendations, once implemented should further minimise risks to the environment. In the event of fire, the firewater arising with potential elevated biochemical oxygen demand levels (derived from high concentrations of fire fighting foam) and oil run-off, would have an adverse impact on receiving waters. The aforementioned firewater risk assessment deems the capacity of the tank farm bund more than adequate to contain any such firewaters arising from the tank farm area.

The report also estimates that firewater, with a potential quantity of 600 m³ (possible scenario for fire arising in the warehouse, which is deemed a medium risk area) may be released to surface waters. However, the possibility for oil contamination of the firewater is considered low, due to the warehouse contents. The firewater report concludes with recommendations to contain all firewater (including warehouse run-off) from the Atlas Ireland site.

In the unlikely situation of firewater release occurring, it is estimated that all clean-up costs and necessary remediation of the river would be in the region of €500,000. Such a remediation programme would most likely involve extensive restocking of the river Barrow. However, from the assessment of insurance cover, it appears that third party liability, such as the potential liability described above, is not covered in the insurance policy.

6.3 RELEASES TO GROUND AND GROUNDWATER

6.3.1 *Summary of Ground and Groundwater Releases*

At many sites this has the greatest potential to create a gradual pollution issue which would not be covered by the insurance policies such as that in place at Atlas Ireland. The Atlas Ireland insurance policy only covers sudden releases to ground to a limit of €127,000.

The current management programme to deal with this issue in terms of ongoing groundwater monitoring has been broadly costed and is not considered to be significant in terms of site financial turnover or the on-going site investment programme.

The on-going monitoring programme should ensure that the risk of a new gradual issue developing on the site is low.

6.3.2 Potential Liabilities and Insurance Cover

A potential environmental liability exists regarding the present soil and groundwater situation at the facility, and the possibility of future implementation of a remediation programme. However, it should be noted that the likelihood of this potential liability being realised is very low. As detailed in Section 4.4.3 of this report, an assessment conducted in July 2001 indicated minor hydrocarbon contamination in soils and some elevated PAH concentrations in groundwater. The assessment concluded that there was a possibility that an upgradient source may have contributed to the elevated PAHs levels and that remedial action did not appear to be required. To initiate a possible remediation programme, would involve a further comprehensive soil and groundwater assessment and subsequent soil treatment with order of cost estimate of €100,000. Following assessment of the insurance documentation, such a liability is considered not to be covered under the Atlas Ireland insurance policy, as it is likely that this contamination did not result from a sudden, unforeseen event, as such an occurrence would be documented by the company.

Any contamination issue caused by a major spill on site is likely to be covered by the insurance to a limit of €127,000, provided it is discovered in good time and remedial measures are instigated in its immediate aftermath.

In the unlikely event of loss of waste oil or product to ground on the Atlas Ireland site, remediation would likely involve a combination of product recovery and contaminated soil treatment or removal.

Remedial measures for potentially contaminated soils include in-situ or ex-situ treatment. In-situ methods may involve biological or chemical treatment to degrade or fix contaminants. This treatment may also be conducted ex-situ. The treatment options for ex-situ may include thermal treatment to degrade the contaminants.

7.0 CREDIBLE WORST CASE ENVIRONMENTAL LIABILITIES

The following table summarises the major Credible Worst Case environmental liabilities that could develop at the site and the associated costs:

Table 1: Credible Worst Case Environmental Liabilities

Item	Potential Liability	Credible Worst Case	Controls/ Response	Expected to be covered by insurance	Likelihood of occurrence*	Estimated** Remediation Cost
1	Waste Oil/Product Tank Failure	Contents of Waste Oil or Product Tank is suddenly released to bund	Pump oil to available tank. Process/ reprocess all available material. Remove any contaminated material or soil.	Yes	Very low	€100,000
2	Spill of Waste Oil/ Intermediate or Product from Pipeline	Quantity of waste oil/ product spills to bund or ground (directed to interceptor)	Preventive Maintenance. Emergency Preparedness Plan initiated.	Yes	Low	€250,000
3	Spill of Waste Oil/ Product due to loading or offloading operations	Quantity of oil substance spills to ground, (directed to interceptor)	Preventive Maintenance. Emergency Preparedness Plan initiated.	Yes	Low	€250,000
4	Fire in Tank Farm or Warehouse Area on-site	Approximately 600 m ³ of firewater released to surface waters	Emergency Preparedness Plan initiated.	No (by operational budget)	Low	€500,000
5	Remediation of Soils	Further assessment & subsequent remediation programme	Remediation Programme initiated.	No (by operational budget)	Very low	€100,000

*Very high, high, medium, low, very low

**While every attempt has been made to accurately estimate potential cleanup costs, costs of oil spill clean ups can vary depending on such variables as weather and spill location. It is also anticipated that in the event of oil releases to bund, or oil spillages, a substantial quantity of the oil may be reprocessed at the facility, thereby reducing the disposal costs. In the event of an environmental incident requiring a soil remediation programme, soil treatment may be conducted on-site, thereby reducing treatment costs.

8.0 CONCLUSIONS

The Atlas Ireland site at Portlaoise is well defined in terms of historic and current environmental impacts. The site has been subject to soil and groundwater assessments and has been through the IPC licensing system and is prepared for the waste licensing procedures of the Agency. The site is subject to an on-going monitoring programme for releases to air, sewer and water as well as surveillance of groundwater.

The current environmental management programme on the site has reduced the risk of the development of new significant environmental liabilities to a low level.

The overall site sensitivity to environmental liabilities is moderate.

The property damage and business interruption insurance cover for the Atlas Ireland site is €19,099,637.

The worst-case scenario in terms of a new environmental liability, for which a cost has been estimated, is contaminated firewater release to surface waters. The likelihood of the development of this scenario is low and is estimated to have an associated cleanup cost and remediation cost of approximately €500,000. However, it is understood that the insurance will not cover such a scenario.

Remediation of soil or groundwater on-site is covered by insurance to a limit of €127,000 only. Any further costs would not be covered.


No other scenarios have been identified which could result in environmental liabilities, which either exceed the insurance cover or where the potential remediation costs could threaten the financial solvency of Atlas Ireland and DCC.

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URS Dames & Moore would like to thank Atlas Ireland for the opportunity to participate in this project and hope it fulfils your requirements. Should you have any queries regarding this project please do not hesitate to contact the undersigned.

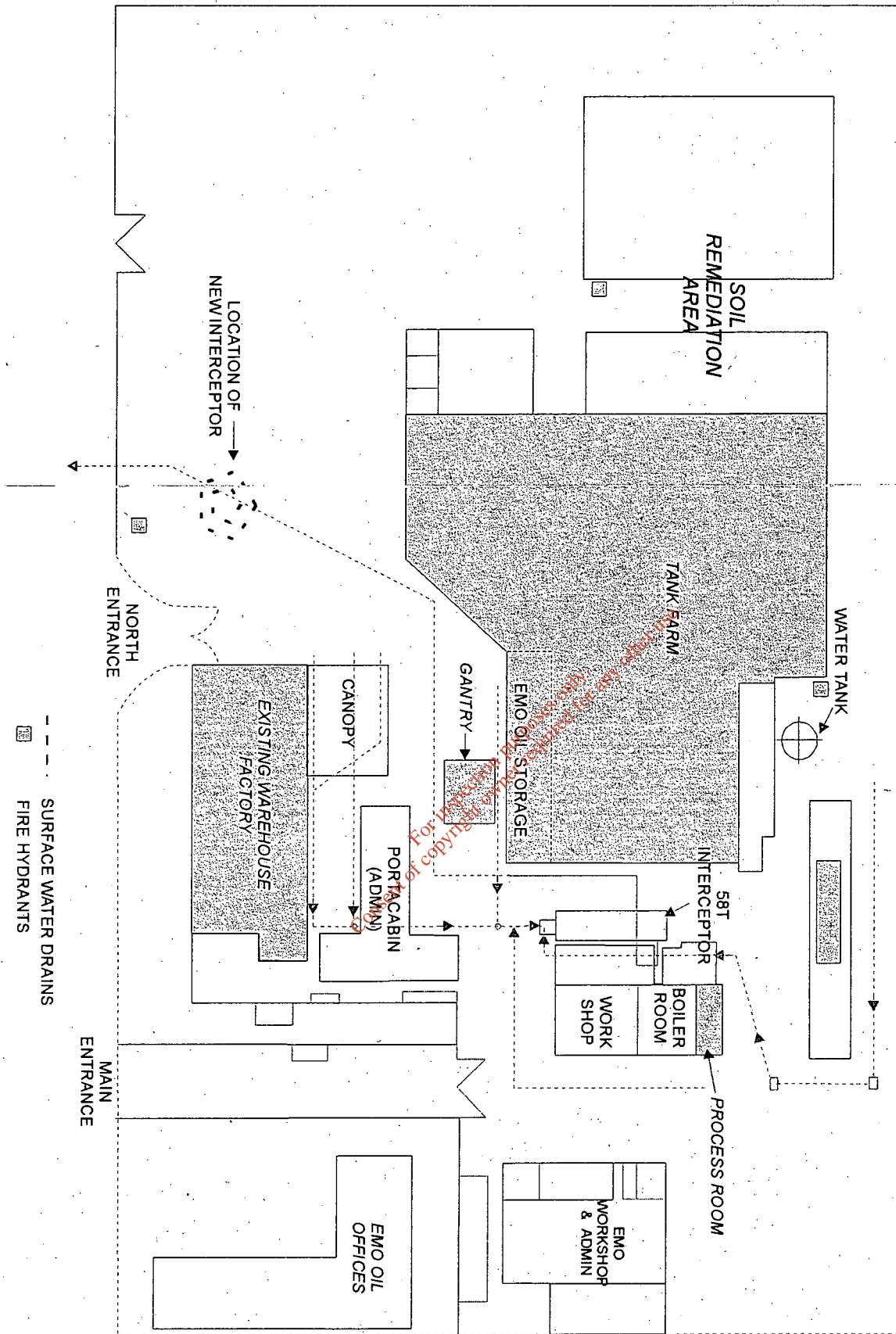
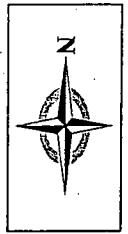
Yours sincerely,

for URS DAMES & MOORE



Sheila Duggan
Staff Environmental Scientist


Gerard Kelly
Project Director

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Title	SITE LAYOUT MAP
Project	ENVIRONMENTAL LIABILITIES RISK ASSESSMENT
Location	CLONMINAM INDUSTRIAL ESTATE, PORTLAOISE
Client	ATLAS IRELAND

App'd	Reference	Date
	PH/DB/DUB	FEB 2002
Tl App'd	Job No.	Scale
DB	46605-004-447	NTS
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