

**Attachment G**

G.1 & 2. – Decommissioning and Aftercare

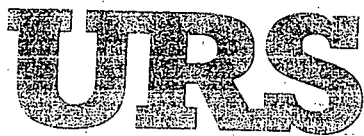
- (G a) Residual Management Plan
- (G b) Environmental Liabilities Risk Assessment

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

*Attachment G1 & 2*

February, 2002

J:\46605\004



RESIDUALS MANAGEMENT PLAN

ATLAS ENVIRONMENTAL LIMITED  
CLONMINAM INDUSTRIAL ESTATE  
PORTLAOISE  
CO. LAOIS

FINAL REPORT

FEBRUARY 28<sup>th</sup> 2002

*Consent of copyright owner required for any other use.*

RESIDUALS MANAGEMENT PLAN  
ATLAS ENVIRONMENTAL LIMITED  
CLONMINAM INDUSTRIAL ESTATE  
PORTLAOISE  
CO. LAOIS

FINAL REPORT

FEBRUARY 28<sup>th</sup> 2002

**RESIDUAL MANAGEMENT PLAN  
ATLAS ENVIRONMENTAL LIMITED, PORTLAOISE, CO. LAOIS**

**TABLE OF CONTENTS**

1.0 INTRODUCTION.....	3
1.1 REQUIREMENT FOR A RESIDUAL MANAGEMENT PLAN.....	3
1.2 LIMITATIONS.....	4
1.3 SITE CLOSE-DOWN SCENARIO: COMMENTS AND ASSUMPTIONS.....	4
1.4 RMP REPORT STRUCTURE.....	5
2.0 STATEMENT OF SCOPE.....	6
2.1 SITE DESCRIPTION AND HISTORY.....	6
2.2 SCOPE OF RMP.....	6
2.3 EXCLUSIONS FROM THE RMP.....	7
3.0 CRITERIA FOR SUCCESSFUL DECOMMISSIONING.....	8
4.0 PROGRAMME TO ACHIEVE STATED CRITERIA.....	10
4.1 PI PROGRAMME.....	10
4.1.1 Introduction.....	10
4.1.2 Stage 1: Production Decommissioning;.....	10
4.1.3 Stage 2: Removal of excess raw materials and final product;.....	11
4.1.4 Stage 3: Removal of hazardous and non-hazardous process wastes;.....	13
4.1.5 Stage 4: Cleaning of bulk storage and process equipment;.....	14
4.1.6 Stage 5: Removal of non-process related materials and non-hazardous wastes;.....	15
4.1.7 Stage 6: Decommissioning of Site Utilities and WWTP;.....	16
4.1.8 Stage 7: Removal of Residual Hazardous Materials;.....	17
4.1.9 Stage 8: Bund and Drain Integrity Testing;.....	18
4.1.10 Documentation and Certification of Residual Management Plan.....	19
4.2 PII PROGRAMME - MANAGEMENT OF RESIDUAL SOIL AND GROUNDWATER CONTAMINATION.....	23
4.2.1 Soil Characterisation Study.....	23
4.2.2 Groundwater Characterisation.....	23
4.2.3 Soil and Groundwater Remediation.....	24
5.0 SUMMARY OF COSTS ASSOCIATED WITH THE RMP.....	24

RESIDUAL MANAGEMENT PLAN  
ATLAS ENVIRONMENTAL LIMITED, PORTLAOISE, CO. LAOIS

FINAL REPORT

1.0 INTRODUCTION

1.1 REQUIREMENT FOR A RESIDUAL MANAGEMENT PLAN

Atlas Environmental Ireland Limited (referred to as Atlas Ireland for the remainder of this report) recovers an oil product from waste oil through blending and heating at Clonminam Industrial Estate, Portlaoise, Co. Laois. The company also runs a soil remediation facility at the site. A sister company, EMO Oil Services Limited, rents and maintains 9 storage tanks and a gantry on the site.

Environmental management of the site is regulated by the conditions described in the site IPC Licence No. 472 issued on the 27<sup>th</sup> January, 2000 by the Environmental Protection Agency (EPA). Until recently, Atlas Ireland was known as 'Atlas Oil Laboratories Limited', therefore all company references during the IPC licensing of the facility, and the IPC licence refers to the company by this name.

Clause 13 of IPC Licence requires the preparation and submittal to the EPA of a Residuals Management Plan (RMP). The specific requirements, set out in Condition 13 are as follows:

13.1	Following Termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained there-in or thereon, that may result in environmental pollution.
13.2	<p><i>Residuals Management Plan</i></p> <p>13.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for the decommissioning or closure of the site or part thereof. This plan shall be submitted to the Agency for agreement within six months of the date of the grant of this licence.</p> <p>13.2.2 Not applicable</p>
13.3	<p><i>The Residuals Management Plan shall include as a minimum, the following:</i></p> <p>13.3.1 A scope statement for the plan</p> <p>13.3.2 The criteria which define the successful decommissioning of the</p>

	<p>activity or part thereof, which ensures minimum impact to the environment</p> <p>13.3.3 A programme to achieve the stated criteria</p> <p>13.3.4 Where relevant, a test programme to demonstrate the successful implementation of the decommissioning plan</p>
13.4	<p>A final validation report to include a certificate of completion for the residuals management plan, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.</p>

This report describes the Atlas Ireland site-specific RMP which has been developed in response to these requirements.

## 1.2 LIMITATIONS

URS has prepared this report for the sole use of Atlas Ireland and for submission to the EPA 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.

## 1.3 SITE CLOSE-DOWN SCENARIO: COMMENTS AND ASSUMPTIONS

In order to develop a fully costed RMP for the Atlas Ireland site, a number of assumptions have been made with regard to the mode and management of a hypothetical site shut down.

A general assumption is that the site can be sold as a going concern to a third party and that completion of the plan will result in a decommissioned and decontaminated site suitable for future industrial use. All bulk storage, whilst emptied and cleaned as part of the RMP, will be assumed to remain in place following vacation of the site by Atlas Ireland.

The second general assumption is that all parts of the site are closed as part of one comprehensive RMP. No direct reference to partial closure is made in the RMP. Under a closure scenario involving a single plant or element of the site,

the facility would still operate under its IPC licence. The RMP and associated costs have been developed for a number of discrete programme stages arranged in a logical sequence to facilitate complete site closure. The actual steps to be carried out and their associated costs for any partial shut downs may be derived from the RMP by simply reviewing that part of the RMP which covers that specific activity or land-parcel.

The third general assumption is that the RMP will be reviewed and up-dated as necessary, on an annual basis as part of the AER. The Atlas Ireland site is a developing company with site operations constantly under review. Therefore the annual review of the RMP will take any change in site status into consideration and current planned activities.

A fourth assumption is that, in the event of site cessation EMO Oil Limited will still be in operation and may assume ownership of the oil storage tanks currently being used by Atlas Ireland.

Finally it is assumed that cessation of activities of either part of the site or of all activities will be known in advance. This allows the planning of raw material intake and processing in order to reduce the volumes of material to be disposed of.

#### 1.4 RMP REPORT STRUCTURE

Section 2 provides an overview of the scope of the RMP in terms of those buildings, activities and issues which are covered in the plan.

Section 3 describes the proposed criteria to be used to demonstrate successful decommissioning and decontamination.

Section 4 describes the RMP in a Project Management style, with discrete stages and associated tasks. Two programmes are considered:

Programme I (PI) Decommissioning and Decontamination of all above and below ground structures – including management of residues arising.

Programme II (PII) Management of long-term residual soil and ground water contamination.

Section 5 provides a summary of the costs associated with implementation of the RMP.

## 2.0 STATEMENT OF SCOPE

### 2.1 SITE DESCRIPTION AND HISTORY

Current operations commenced in 1979. Prior to that period, the site was green-field in an industrially zoned area. The site has developed over time with the following major investments:

- Soil remediation facility (1999/2000);
- New tank farm for oil storage (1998/1999).

The total site area is approximately 20,300 m<sup>2</sup>. A site layout plan is presented as Figure 1. The following is a brief description of the main features:

1. The north east corner of the site is largely occupied by administration buildings and a laboratory. The offices belong to both EMO oil, a tenant on the site, and Atlas Ireland.
2. Just south of the main entrance to the site there is a warehouse that is used for general storage. Attached to this warehouse is the process effluent treatment plant and a small oil filter cleaning and crushing operation.
3. Oil storage is concentrated in the centre of the site. Oil is stored in a number of cylindrical storage tanks of varying capacities within one main bund. Adjoining the south wall of the bund is a sludge reception area with accompanying interceptor. There is also an EMO Oil controlled unloading gantry adjacent to the East perimeter wall of the tank farm bund.
4. To the south of the site, there are two soil remediation areas – a recent addition to the company's operations. Further south, the site is undeveloped.
5. The main oil storage area is connected via a small pipe bridge to a process room where the waste oil is treated. Adjacent to the process room is a workshop and boiler room containing a gas fired boiler.

Approximately three quarters of the site is hard paved with resulting surface water run-off directed to one of two interceptors located on the site.

### 2.2 SCOPE OF RMP

The proposed RMP addresses both short/medium-term actions and a longer-term programme.

The short/medium term actions, that is programme PI, will involve decommissioning and decontamination of all process related structures currently used for production activities.

This will involve decommissioning and decontamination of:



- all production buildings
- all ancillary/utility areas
- all storage areas
- all residuals arising as a direct result of decommissioning

The RMP will also address the long-term issues (programme PII) associated with residual soil and groundwater contamination resulting from the site history of activities across the complete parcel of lands owned by the company.

### 2.3 EXCLUSIONS FROM THE RMP

The RMP will be completed when all potential sources of adverse environmental impact have been either removed from the site or controlled to a predetermined level and as agreed with the Agency. The costs of removing all above and below ground structures - effectively returning the site to "green field" status has not be included.

The only exception is where buildings and/or structures have to be removed to either assess residual soil and groundwater (S&GW) conditions.

For inspection purposes only.  
Consent of copyright owner required for any other use.

### 3.0 CRITERIA FOR SUCCESSFUL DECOMMISSIONING

The criteria for successful decommissioning to ensure minimum impact to the environment with respect to residuals management are as follows:

1. The decontamination of all process equipment according to site developed standards.
2. Documented and fully costed reports to ensure that all raw materials and finished product have been dispatched from the site that are not considered waste and so have a monetary value.
3. Documented and fully costed reports on the disposal of hazardous waste including full certification required under legislation (Trans-frontier Shipment of Hazardous Waste Regulations, 1998 and Waste Management Act, 1996 and IPC Licence).
4. Documented and fully costed reports on the disposal of non hazardous wastes including all certification required under the Waste Management Act and IPC licence.
5. Written records of any correspondence with the EPA regarding any waste disposal that is not currently listed in the IPC licence and not explicitly listed in this report.
6. Surveying, clearance and final disposal documentation for any asbestos found on the site if it is required that the asbestos must be removed.
7. Clearance and final disposal documentation for any PCBs/PCTs found on site.
8. Clearance and final disposal documentation for any ozone depleting substances found on site.
9. Appropriate bund and drain integrity testing documentation including engineer reports of any remediation work carried out. This will be furnished as part of Atlas Ireland's ongoing 3 year programme as required in the IPC licence.
10. Appropriate documentation and reporting of post-closure soil and groundwater investigations.
11. If required, remediation of site soil and groundwater to pre-determined, risk based, remedial goals, agreed with the EPA and verified by a programme of groundwater monitoring post corrective action.

Note that, with respect to the above criteria, the costs and time to complete decommissioning should not exceed that estimated in the most up-to-date revision of the Residual Management Plan in place at the time of decommissioning.

For inspection purposes only.  
Consent of copyright owner required for any other use.

## 4.0 PROGRAMME TO ACHIEVE STATED CRITERIA

### 4.1 PI PROGRAMME

#### 4.1.1 Introduction

Programme PI involves the decommissioning and decontamination of all above ground structures - including management of residues arising therefrom. The structure of PI is based on a logical sequence of project milestones. The end point will be the removal of all materials (including hazardous wastes) from the site that could pose a risk to future site users and the wider environment. Any remaining structures/buildings must be left in a safe condition.

The PI programme comprises a number of stages, each with a set of specific tasks involving the management of residual materials and waste. The individual stages are in a logical sequence however, some overlap in terms of scheduling is expected.

The individual stages are:

Stage 1:	Production Decommissioning
Stage 2:	Removal of Excess Raw Materials and Final Product
Stage 3:	Removal of Hazardous and Non-hazardous Process Wastes
Stage 4:	Cleaning of Bulk Storage
Stage 5:	Removal of Non-process Related Materials
Stage 6:	Decommission of Site Utilities and WWTP
Stage 7:	Removal of Residual Hazardous Materials
Stage 8:	Other Considerations

Each stage is considered under the following headings where appropriate:

- Tasks to be undertaken
- Budget estimate
- Time to complete
- Site status at end of stage

Please refer to Figure 4.1 (Gantt chart with stages/tasks and timeframes).

#### 4.1.2 Stage 1: Production Decommissioning;

##### *Tasks to be undertaken*

Raw material intake will have ceased. Regarding waste oil processing, any remaining waste oil in bulk storage will be processed to final product until

available storage for final product has been filled. Regarding oil filter crushing, any stock of remaining filters will be emptied of oil, cleaned and crushed and placed in storage for off-site disposal. Regarding soil remediation, remediation of current stocks of contaminated soil will continue until such time as either all contaminated soil has been treated or until storage capacity for treated soil is reached.

All major processing equipment will then be stopped and electrically isolated.

#### *Budget Estimate*

The cost to undertake this would be considered a normal production or operating cost.

#### *Estimated Time to complete*

It will take approximately six weeks to process all remaining oil and up to six months to process all remaining soil on the site. However, the actual time to complete this task will depend on many circumstances, for example, when plant cessation is announced and the quantities for raw material on site. For soil treatment, only a small number of staff would be required to complete the treatment of remaining stocks.

#### *Site Status - end of Stage 1*

- All production ceased - however, process effluent treatment ongoing;
- Atlas Ireland raw materials - i.e. all waste oil and contaminated soil will be processed and the final product and bulk storage in designated areas. Oil storage will be limited to tank farm bulk storage in the main bund.
- EMO Oil Limited operations progressing as normal.

#### 4.1.3 Stage 2: Removal of excess raw materials and final product;

##### Oils

Based on current production levels and average stock data, Table 2.1 provides a summary of the recovered product, remaining on site once production has ceased.

Table 2.1 - Estimate of Oil remaining on site after Stage 1

Oil Stored	Quantities	Storage Details
<b>Tank Farm</b>		
Recovered final product	2200 tonnes	50, 100 or 140 tonnes storage tanks
EMO Oils, kerosene and gas oil	200 tonnes kerosene 250 tonnes diesel oil	50 tonne and 100 tonne storage tanks
Recovered final product	3,200 tonnes	1 x 2,300 tonne storage tank

Oil Stored	Quantities	Storage Details
		& 1 x 940 tonne storage tank
'wet ship' raw material with water fraction removed	900 tonnes	1 x 940 tonne storage tanks
<b>Drum Storage</b>		
Various waste oils either in liquid form or contained within discarded oil filters	30 tonnes	UN 220 litre drums

Final product will be sold onto existing customers as normal. Unprocessed waste oil will be sent to an alternative recovery site. It is assumed that the EMO oil will remain in their designated storage tanks (refer to Figure. 1) for ongoing usage.

### Soils

There are 5 active storage areas for soil. It is assumed that approximately 1,800 tonnes of soil may be present in these storage areas at the end of stage 1, of which all soil will be treated and ready for re-use as a product.

Treated soils will be handled as is normally the case following remediation at Atlas Ireland (landfill, road building, etc).

### Others

Crushed and cleaned cans will be disposed of to a metal recycling company as is the current practice. The oil recovered from this operation is contained within the oil figures presented in Table 2.1.

There will be miscellaneous treatment chemicals of relatively small quantities (in comparison with soil and oil) that will need to be disposed of as hazardous waste as per the terms of Schedule 3 (i) of the IPC licence.

### Budget Estimate

The cost to undertake this would be considered a normal production or operating cost. The exception where potentially significant expense may be incurred is the disposal of the unprocessed waste oil. The estimate to dispose of this material is provided in Table 3.1. Miscellaneous chemical disposal as hazardous waste will incur costs as specified in Table 3.1.

### Estimated Time to Complete

It is estimated that this task can be carried out in parallel with residual oil stock processing (refer to previous stage).

### *Status at the end of Stage 2*

All bulk soil and oil will have been removed from the site with the exception of EMO oil. The bulk oil storage tanks, unloading bays and segregation tanks and process equipment will now contain some residual hydrocarbon sludge for later removal. Miscellaneous chemicals and recovered crushed cans will have been removed from site.

#### 4.1.4 Stage 3: Removal of hazardous and non-hazardous process wastes;

##### *Hydrocarbon Sludge*

The main sources of process waste will be hydrocarbon sludge derived from oil recovery operations. The main areas where such sludge is possible are as follows:

- Bulk storage tanks
- Oil interceptors
- Centrifuges and filtration devices
- Sludge reception pits
- Truck wash bays
- Bunds

Since Atlas Ireland regularly carries out de-sludging of such areas as part of their business, this task would be undertaken in-house. Initial sludge volume will be removed by vacuum tanker. There are two main options for the disposal of the resulting sludge:

1. Removal to an alternative waste oil treatment company within Ireland;
2. Removal to a waste treatment or incineration facility abroad.

It would be preferable to maximise the former option as this would result in the recovery of oil rather than its incineration. This is in keeping with waste minimisation hierarchy.

The emptied reception pits and bunds will be steam cleaned and the resulting oil/water mix diverted to the on site treatment plant plate separator to allow the recovery of the oil fraction. The oil fraction will then be skimmed for off-site disposal to an alternative recovery company within Ireland. The aqueous fraction will then be further treated in the on-site wastewater treatment plant.

##### *Other process wastes*

UN drums that will be cleaned with a detergent solution to allow a gas-free standard by Atlas Ireland. An estimate of 100 drums will be cleaned in this manner. The detergent solution resulting from the cleaning will be treated in

the on-site treatment plant. The clean UN drums will be sent off site as non-hazardous scrap metal for recovery.

It is anticipated that there will be a quantity of oil contaminated adsorbent booms and absorbent granules from the process room and from the surface cleaning process. This waste is also likely to arise during bulk storage cleaning (Stage 4). This will be disposed as a hazardous waste with an approved hazardous waste contractor.

#### *Cost Estimate*

The sludge removal and surface steam cleaning will be considered an operational cost regarding resources and is not considered separately in this plan. However, additional detergent will be purchased to cater for drum cleaning and for later bulk storage cleaning (see Stage 4). Additionally, there will be disposal costs associated with the various hazardous wastes that will be generated during this stage. Such costs are summarised in Table 3.1

#### *Status at end of Stage 3*

The bulk of hydrocarbon sludge will be removed from the site. However, interceptors and the treatment plant, which will still maintain a function at that point, will still contain some hydrocarbon sludge. Sludge reception pits and the main oil bunds will be steam cleaned.

#### 4.1.5 Stage 4: Cleaning of bulk storage and process equipment;

This task can be carried out by Atlas Ireland as Atlas Ireland offers this service as part of commercial operations. All of the required techniques, trained personnel and equipment for this task can be provided by Atlas Ireland. The cleaning of bulk storage will be carried out in accordance with the International Petroleum (IP) Code of Practise, Part 16. Additional works may involve removal of hydrocarbon sludge and cleaning to gas-free standards.

Stage 4 will comprise the following tasks:

- Steam cleaning of bulk storage and process equipment to remove gross oil films;
- Separation of oil fraction from water in treatment plant and further treatment of the water fraction;
- Removal of the recovered oil fraction to an alternative waste oil treatment facility;
- Detergent cleaning of tank internals and process equipment to gas-free standards;
- Treatment of the resulting detergent solution in the treatment plant.



- Removal of contaminated pipe lagging and bottoms sludge and disposal of same as a hazardous waste

#### *Estimated Time to Complete*

This task will take a considerable amount of time owing to the number of bulk storage tanks involved (approximately 30 tanks, excluding EMO oil tanks) on the site. An allowance of 4 working weeks to complete this is anticipated and may start after Stage 2 is completed.

#### *Estimated Cost to Complete*

Since this event is a one off event and potentially very expensive, it is not considered a cost that is normal to the running of the plant. The estimated cost to complete this state is presented in Table 3.1. Detergent costs have been considered in Stage 3. Disposal costs for the contaminated lagging and tank bottom sludge that is likely to arise and cannot be reprocessed are also presented in Table 3.1.

#### *Status at the end of Stage 4*

All bulk storage, with the exception of the EMO tanks will be empty and cleaned to gas free standards. The process equipment will also be oil free and will be electrically isolated.

At this point, the only operational area will be the boiler room with the associated LPG supply, the treatment plant, the laboratory and some of the administration area. There will also be a temporary designated storage area with adequate secondary containment to facilitate any miscellaneous or unanticipated waste or chemical arising during the latter stages of decommissioning.

#### 4.1.6 Stage 5: Removal of non-process related materials and non-hazardous wastes;

This will be relatively limited in scope, comprising mainly of clearance of materials from the warehouse such as:

- Packaging
- Absorbent booms
- Mechanical parts
- Protective clothing
- Miscellaneous stores

These materials will be removed and disposed of either to local business or to landfill. Metal components which cannot be re-used will be disposed of to a

metal recycling company. Packaging waste will, where possible, be disposed of to waste recycling centres.

An approximate cost to dispose of these materials is presented in Table 3.1.

#### 4.1.7 Stage 6: Decommissioning of Site Utilities and WWTP;

Atlas Ireland runs a physio-chemical treatment plant to remove trace oil and other oil recovery related contaminants. The treatment plant effectively consists of a number of process tanks, dosing equipment and an inclined plate separator. The treatment plant is only to be decommissioned at a late stage in the de-commissioning plan, as it will be treating liquid residues from other decommissioning activities.

Surface water interceptors will be de-sludged and steam cleaned, and the resulting sludge removed for off-site treatment at an alternative waste oil treatment facility. The interceptors will then be washed with a detergent solution. The resulting washings will be removed off-site for disposal as a hazardous waste.

At this point, it is assumed that no further liquid effluent will be generated on site. The treatment plant will be isolated but not physically disconnected from incoming flow. A connection will be maintained for emergency purposes. Any remaining untreated effluent will be treated as normal. Once all effluent has been treated, any remaining liquid fraction will be tested for key parameters as per Schedule 2 (ii) of IPC licence Register number 472. If the liquid meets licence limits, it will be discharged to discharge reference point FS1. Liquid that does not meet the limits will be removed and disposed of as hazardous waste.

Treatment tanks and treatment equipment will then be de-sludged by Atlas Ireland crew and the resulting sludge disposed of as hazardous waste. The tanks will be steam cleaned and the resulting washings disposed of as hazardous waste.

Treatment chemicals, such as polymers and flocculants, will be returned to suppliers where possible or disposed of as hazardous waste.

Once all areas of the site are considered adequately clean, the boiler will be decommissioned. The LPG supply for the boiler may be isolated, but this will depend on the need for the boiler by EMO Oil. The boiler house floors and fuel ducts will be cleaned with a detergent solution and the washings disposed of as a hazardous waste.

A boiler maintenance contractor will be contracted to clean the boiler internals.

### *Estimated Time to Complete*

The estimated time to complete this stage is 2 weeks and can only take place once all previous stages have been completed.

### *Budget Estimate*

The costs associated with this stage are mainly associated with hazardous waste disposal. Atlas Ireland have the resources to decommission the treatment plant and utilities and therefore the associated costs can be considered an operational and are not presented in this RMP. The exception to this is the contract cleaning of the boiler internals.

It is assumed that the boiler will remain in place and will not be removed, as it does not represent a potential source of environmental pollution once decommissioned properly.

### *Status following Completion of Stage 6*

The site will be completely decommissioned and cleaned where practical. The only bulk storage will be EMO Oil bulk storage in 9 bulk storage tanks in the tank farm. Processing and wastewater treatment equipment will be in place but cleaned and electrically isolated. There will be some miscellaneous chemicals in designated storage awaiting disposal.

#### 4.1.8 Stage 7: Removal of Residual Hazardous Materials;

The expected residuals at this point in the decommissioning plan are as follows:

- Asbestos cement tiles in the warehouse roof
- Firefighting Halons
- Fire-fighting foam and other fire extinguishers
- Small quantities of ozone depleting substances
- Laboratory chemicals and workshop chemicals
- Laboratory GC instrument containing radioactive material
- Emergency Generator Fuel (diesel oil)
- Fluorescent tubes that are not operational
- Boiler treatment chemicals
- Batteries
- Toner Cartridges

Table 3.1 summarises the disposal of these materials where necessary. The following additional points are made regarding some of the above residuals:

1. The roof of the existing warehouse contains asbestos cement (typically 3 to 5% asbestos content bound in a cement matrix). The condition of this roof

is generally good. However, an asbestos survey of the site will be undertaken upon site closure. As part of this survey, the roof will be examined and any roof panels removed and replaced with modern equivalent panels (asbestos free). With the publication of a revised European Waste Catalogue (incorporating the Hazardous Waste List) any damaged asbestos cement panels that might be removed are considered hazardous waste. However, it is likely that Atlas Ireland will commission an asbestos survey at some point during the decommissioning process. Any recommendations arising out of that survey will be acted upon as part of the decommissioning plan.

2. There are three halon fire extinguishers of the automatic discharge type located on the site (boilerhouse and process room). These units will be accepted by Portlaoise Fire Services at no cost. However, as EMO Oil are assumed to maintain an ongoing operation on the site, the remaining fire extinguishers and on-site fire-fighting foam stock will remain.
3. Since EMO Oil are to remain on site, the emergency generator will not be decommissioned and the diesel oil supply maintained locally for the generator.
4. Atlas Ireland, as part of the Environmental Management Programme, has a plan to replace ozone depleting substances as regulated by European Regulation (EC) No 2037/2000. In a site closure scenario, this programme would be moved forward to completion. External contractors (mainly equipment suppliers) will be contracted to remove the ozone depleting substances, which will include refrigerant R22 contained in three domestic fridges on-site.
5. There are no polychlorinated Biphenyls (PCB's) positively identified on the site. However, there are a number of older fluorescent light fittings which may contain PCB bearing capacitors. Such capacitors will be removed and disposed as hazardous waste.
6. There is a radioactive source on-site, in the form of a Ni63, 555 MBq unit located in the laboratory Gas Chromatography (GC) machine. However, it is anticipated that the GC instrument would most likely be sold on as an asset.

#### 4.1.9 Stage 8: Bund and Drain Integrity Testing:

In accordance with Condition 9.4.1 and 9.4.5, Atlas Oils is required to integrity test underground drains and bunds at the facility. It is anticipated that all integrity testing programmes (including repair or decommissioning of drains) will be completed this year. Therefore, assuming that adequate bund testing and drain integrity testing and improvements have been made by the time of site cessation, no further work is considered necessary.

#### 4.1.10 Documentation and Certification of Residual Management Plan

At this point, Programme PI will be complete. Documentation as listed in Section 3.0 of this report will be gathered for Agency inspection.

For inspection purposes only.  
Consent of copyright owner required for any other use.

TABLE 3.1 - SUMMARY OF COSTS FOR RESIDUALS DISPOSAL AND RMP TASKS - PROGRAMME I (PI)

RESIDUAL or TASK	ANTICIPATED RESIDUAL DISPOSAL ROUTE	ESTIMATED QUANTITY	RMP STAGE REFERENCE	COST PER UNIT (Euro)	ESTIMATED COST (Euro)
Unprocessed waste oils from oil filters	Treatment at alternative waste oil treatment facility	30 tonnes	Stage 2	€ 100 / tonne	3,000
Crushed and cleaned oil filters	Metal Recycling	10 tonnes	Stage 2	€107/ tonne (£70 Stg/ tonne)	1,070
Miscellaneous hazardous chemicals	Disposal as hazardous waste	5 tonnes	Stage 2	507 / tonne	2,530
Oil fraction from steam cleaning of reception pits and bunds	Treatment at alternative waste oil treatment facility	5 tonnes	Stage 3	100 / tonne	500
Empty and cleaned UN drums	Scrap metal recovery	5 tonnes	Stage 3	€107/ tonne (£70 Stg/ tonne)	530
Hydrocarbon sludge from reception pits and bunds	Treatment at alternative waste oil treatment facility	15 tonnes	Stage 3	€100/ tonne	1500
Oil contaminated absorbent booms and granules	Disposal as hazardous waste	0.5 tonnes	Stage 3 & 4	507 / tonne	250
Surface cleaning (detergent purchase)	N/A	1 tonne	Stage 3 & 4	250 / tonne	250
Tank cleaning	Off-site waste oil recovery/ on-	30 tanks	Stage 4	3000 / tank	90,000

RESIDUAL or TASK	ANTICIPATED RESIDUAL DISPOSAL ROUTE	ESTIMATED QUANTITY	RMP STAGE REFERENCE	COST PER UNIT (Euro)	ESTIMATED COST (Euro)
	site wastewater treatment plant				
Sludge from bottom of tanks	Hazardous waste	264 tonnes	Stage 4	507 / tonne	134,000
Contaminated lagging disposal	Disposal as hazardous waste	1 tonne	Stage 4	507 / tonne	500
Miscellaneous non-hazardous non-process related materials	Recycled/re-used or disposal to landfill	-	Stage 5		
Liquid from WWTP decommissioning	Hazardous waste (if cannot be discharged)	10 tonnes	Stage 6	507 / tonne	5,070
Sludge and tank washings from treatment plant	Hazardous waste	7 tonnes	Stage 6	507 / tonne	2,530
Oil interceptor sludge	Treatment at alternative waste oil recovery facility	35 tonnes	Stage 6	100 / tonne	3,500
Detergent washings from cleaning of oil interceptors	Hazardous waste	3 tonnes	Stage 6	507 / tonne	1,520
Wastewater treatment chemicals	Hazardous waste (assuming no alternative re-use found)	3 tonnes	Stage 6	507 / tonne	1,520
Boiler cleaning (external contract)	N/A	2 days	Stage 6	600 / day	1,200
Asbestos survey	N/A	1 day	Stage 7	700 / d	700
Limited asbestos roof repair	Hazardous waste	2 days, 5% roof	Stage 7	700 / d and 40/m <sup>2</sup>	1,500
Laboratory, workshop and boiler	Hazardous waste	0.5 tonnes	Stage 7	570 / tonne	350

RESIDUAL or TASK	ANTICIPATED RESIDUAL DISPOSAL ROUTE	ESTIMATED QUANTITY	RMP STAGE REFERENCE	COST PER UNIT (Euro)	ESTIMATED COST (Euro)
chemicals					
Ozone depleting substances removal.	Removal & disposal by specialist company	1 day	Stage 7	€1000/ d	1000
Fluorescent tubes	Recycled by specialist company	100	Stage 7	1.5 / tube	150
Batteries	Return to cartridge supplier for recycling	10	Stage 7	50 / battery	500
<b>TOTAL PROGRAMME 1 (P1) COST ESTIMATE (Euro)</b>					<b>253,670</b>

For inspection purposes only.  
 Consent of copyright owner required for any other use.



## 4.2 PII PROGRAMME - MANAGEMENT OF RESIDUAL SOIL AND GROUNDWATER CONTAMINATION.

### 4.2.1 Soil Characterisation Study

In March 2001, Atlas Ireland commissioned a groundwater study which included an assessment of soil quality under the site. During drilling, evidence of minor hydrocarbon contamination in shallow soil was observed at two of the four locations. No PID reading was recorded above 10 ppm, indicating a general absence of volatile organic compounds. Laboratory analysis of the soil samples taken confirmed the field observations and did not highlight any zones of contamination with regard to volatile hydrocarbons, diesel range hydrocarbons, polyaromatic hydrocarbons or metals.

Whilst previous soil and groundwater work has been carried out on the site as described above, it is proposed that a comprehensive intrusive investigation be carried out on the site in the event of site closure. Undertaking a post site closure investigation also guarantees that data is collected at a point in time, which marks the end of chemical use/transfer/storage on-site. These investigations will focus on the shallow soils in the central area of the site, where oil product storage and processing is concentrated. Drilling inside buildings and close to key items of process plant and areas of oil storage would form the main element of this work. It is likely that perched groundwater samples from the soil characterisation study, if encountered, would also be retrieved and analysed for the appropriate compounds.

If significant shallow soil contamination is found to be present it could continue to leach to groundwater (acting as an ongoing source of groundwater contamination) or have implications with respect to the potential future use of the site. Therefore the results of the soils characterisation study will be used to establish the need for, and scope of, soil specific corrective action. Risk based decision making will be used to quantitatively evaluate the appropriate levels of residual soil contamination that can be left in place, assuming continued use of the site for industrial purposes.

### 4.2.2 Groundwater Characterisation

It has been stated above that previous investigation work has indicated that there is no significant groundwater contamination on the site.

It is further assumed that under a closure scenario, there will already be sufficient groundwater monitoring wells to broadly characterise groundwater

quality under the site. Therefore, no allowance has been made for additional monitoring wells or for source area groundwater remediation.

The estimated cost to carry out an intrusive investigation programme is estimated at 25,000 Euro.

#### 4.2.3 Soil and Groundwater Remediation

Given the current knowledge of the condition of the soil and groundwater underlying the Atlas Ireland site, no remediation is considered necessary. Therefore, no remediation costs are considered for this RMP. However, future soil and groundwater work, either as part of ongoing IPC licence requirements or site closure or for any other reason, may change the status on remediation. Therefore, future revisions of the RMP should reflect adequately any such changes as they occur.

### 5.0 SUMMARY OF COSTS ASSOCIATED WITH THE RMP

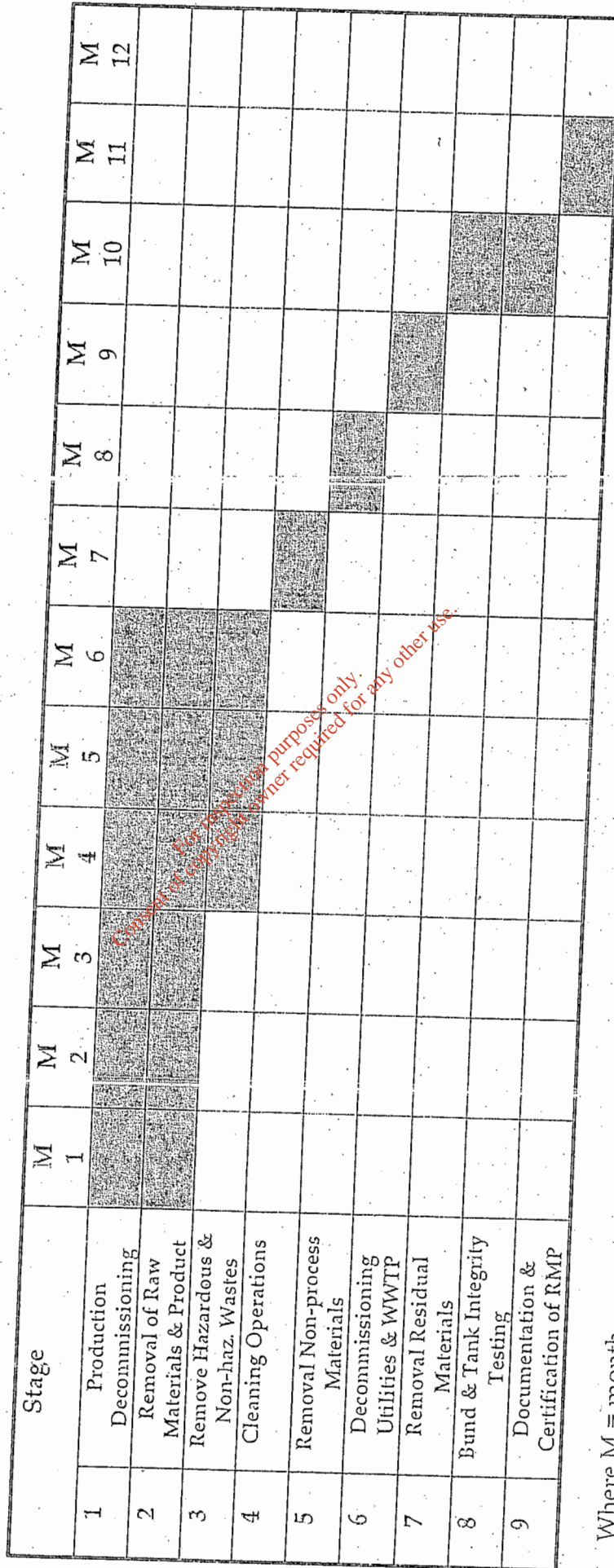
This section briefly summarises the costs presented in Sections 4.1 and 4.2 of this report. The summary is presented in Table 5.1 and includes all costs identified during the analysis of Programmes PI and PII.

Table 5.1 Summary of Costs

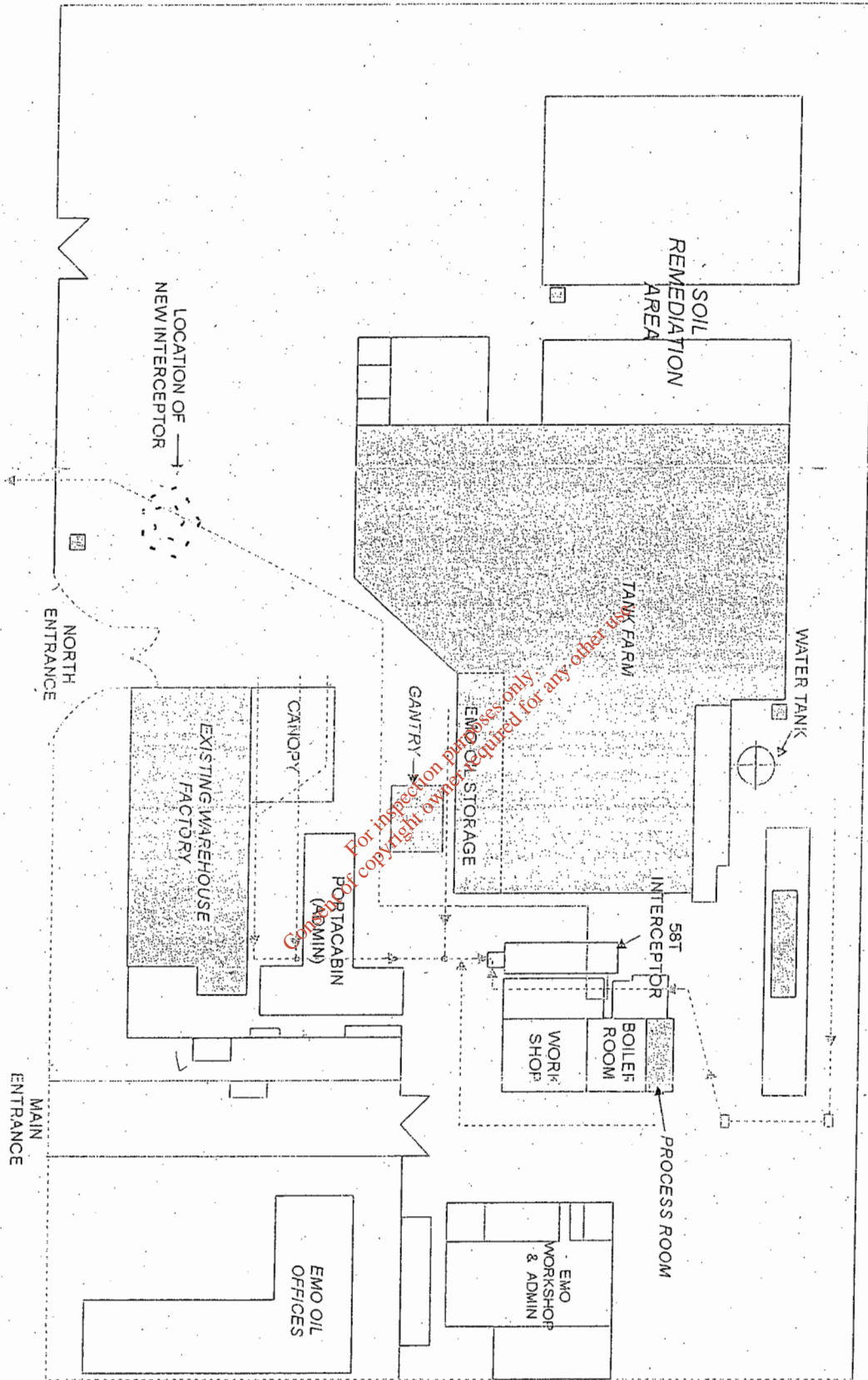
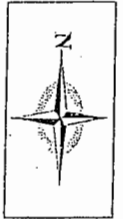
ITEM	DESCRIPTION	COST (€)
PI	Above ground site shut down, cleaning and residuals removal	253,670
PII	Soil Characterisation Study	25,000
	SUB TOTAL PII	
	RMP TOTAL (approximate)	278,670

In conclusion it has been estimated that, in the very unlikely event of site closure involving complete cessation of all production activities at Atlas Ireland, an allowance of approximately 278,700 Euro should be required to bring the site to an environmentally safe (inert) condition. Any modifications to present site conditions will be reflected in the AER submission, which will update the RMP annually.

FIGURE 4.1 GANTT CHART



Where M = month



Title	SITE LAYOUT MAP
Project	RESIDUAL MANAGEMENT PLAN
Location	CLONMINAM INDUSTRIAL ESTATE, PORTLAOISE
Client	ATLAS IRELAND

App'd	Reference	PH/DB/DUB	Date	FEB 2002
TI App'd	Job No.	46605-004-447	Scale	NTS
			<b>FIGURE 1</b>	
<small>           4th Floor, Iveagh Court            6-8 Marcourt Road            Dublin 2, IRELAND            Tel: +353 (0) 1 475 4422            Fax: +353 (0) 1 475 4878            www.urscorp.com         </small>				