MEMORANDUM

DATE:  10th December 1999
TO:    Each Board Member
FROM:  James Moriarty
RE:    Submission on application for IPC licence from Atlas Oil Laboratories Limited

<table>
<thead>
<tr>
<th>Application Details</th>
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<tr>
<td>Class of activity:</td>
<td>11.4 - The use of heat for the manufacture of fuel from waste</td>
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<td>License application received:</td>
<td>6th November 1998</td>
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<tr>
<td>Notices under article 11(2)(b)(ii) issued:</td>
<td>14th December 1998, 1st July 1999</td>
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<tr>
<td>Information under article 11(2)(b)(ii) received:</td>
<td>18th June 1999, 2nd September 1999</td>
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<td>Site Visits</td>
<td>9th December 1998, 13 September 1999</td>
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<tr>
<td>Notices under article 17 issued:</td>
<td>21st October 1999</td>
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<td>Article 17 compliance:</td>
<td>29th October 1999</td>
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**Company**

Atlas Oil are a hazardous waste management and environmental services company. Their main service area is the collection and reprocessing of waste oils derived from Nation-wide sources such as industry, ships, garages, tank and interceptor cleaning operations and bring-stations etc. Substantial quantities of oil filters are also taken on-site, crushed, the oil processed on site and the metal sent for recovery. The oil produced on site is used as a substitute fuel by the ESB and Cement Roadstone in their boilers.

The reprocessed oil is analysed and compared against limits recommended by the UK HMIP (Her Majesty's Inspectorate of Pollution). These limits are set with the EC Directive 87/101/EC on the disposal of waste oils in mind. A fuel satisfying the HMIP limits will ensure that, given proper conditions for combustion, the ELVs specified in 87/101/EC will be complied with.

The company has recently expanded their operation by adding new tanks. Previously capable of processing circa 1,500m$^3$ of raw waste oils per month, the plant now has a capacity to process 3,750m$^3$ per month (45,000m$^3$ per annum). Atlas Oil state that this additional capacity is necessary to cater for the increased waste oil for collection arising from greater number of automobiles in circulation and a general raising in environmental awareness.

The company have also indicated that they wish to develop a bioremediation unit where hydrocarbon contaminated soil is taken in and biologically remediated to a standard where it could be used in other applications such as roadfill, landfill cover etc. Any oil arising from washing of the soil would be directed via the main oil recycling process or treated with the main process effluent before discharge to sewer.
Process Overviews

• **Manufacturing of Recycled Oil**
Waste Oils are collected from across Ireland and brought to the Atlas Oil site where it is segregated in the oily waste receiving tanks. The percentage water in the oils brought on site varies from circa 45% water in ship oils to circa 15% water in garage and interceptor oils. A waste acceptance criterion is followed before the oil is accepted for recycling. This procedure takes into account the source of the waste oil in that oil from “approved sources” are accepted for treatment while oil not from an approved source is subject to laboratory analysis prior to acceptance. Waste oils contaminated with PCBs are not accepted for processing.

Once accepted, the oil is pumped to the tank farm where mixtures of similar water content are accumulated to be treated. The tanks are heated to circa 70°C, which accelerates gravity separation of the water from the oil. The oil is decanted and the water discharged to sewer with the concentrated oil sent to the next stage of the process - filtration/centrifugation.

Here the oil is filtered and centrifuged to remove sediments. Equipment used here includes candle filters, shaking filters and a basket centrifuge. Dependent on the viscosity of the material being filtered, it may be necessary to apply heat to this part of the process.

The oil is then pumped into the final drying tanks where water is driven off by heating in jacketed vessels at temperatures up to 100°C. The water content is typically reduced from 5% to less than 2% in the drying tanks.

Blending is the final step in the process where the product is finally manufactured according to strict requirements before shipment to the customer. Quality Control testing ensures compliance with product specifications. The company follow HMIP guidelines and have never, to date, had to reject a batch.

• **Used Oil Filter Processing**
A custom designed crusher/baler is used whereby oil is passed to a sump with subsequent transfer to the main recycling process as outlined above. The remaining metal is recovered as scrap metal.

• **Soil Remediation**
It is proposed to provide a service to bioremediate soils contaminated as a result of oil spillages. Specific microorganisms will be used to assimilate the hydrocarbons in the soil, thereby rendering it suitable for re-use. The material will be arranged in biopiles and the bioculture introduced by spraying. The system will be monitored to ensure proper additions of oxygen, nutrients and moisture where appropriate. The area where the soil remediation is to take place will be provided with containment to prevent surface & groundwater contamination.

Proposed Determination

**Air:**
The boiler is run using commercial light fuel oil and the PD requires that this be continued. Annual combustion efficiency tests are included. The company does not burn its own product in its boilers.

During the drying stage of the process there are atmospheric emissions as the water content of the oil is reduced to circa 2%. These emissions were assessed during the application and low levels of BTEX (Benzene, Toluene, Ethylbenzene & Xylene) were detected. The impact of these emissions was assessed using the USEPA
approved AERMOD model and ground level concentrations have been predicted to be below the Danish C-value. It should be noted that the model assumed worst case emissions to pertain for 24hr/day from the three drying tanks. In practice, emissions are generated from only one tank at a time and only for approximately 7 hours a day. It is therefore not considered necessary to impose limits on the drying tank vents.

There may be scope to improve the separation in the 70°C stage and this would reduce the need to use the higher temperature separation carried out in the drying tanks. As this is what generates the BTEX emission, a project to investigate better separation in the initial stage is included in the Schedule of Environmental Objectives & Targets.

Process Effluent:
Process wastewater arises from the separation processes inherent in the oil reprocessing. This is discharged to the Laois County Council sewer and a Section 97 consent was received for the discharge.

The effluent undergoes limited treatment on site before discharge. This treatment involves Inclined Plate separators to separate oil from the effluent prior to discharge. The skimmed oil is returned to the process. The company have indicated in the application that there are a number of alternative treatment technologies which could be applied to the site. Condition 6.5 of the PD requires that a programme to improve effluent quality be prepared and progressed through the EMP.

Laois County Council, in their Section 97 consent has requested the applicant to monitor flow in the receiving sewer and to limit (or prohibit) discharge accordingly. They have also requested that information be recorded for 12 months and forwarded weekly. This, although an unusual request, has been included in accordance with Section 97 (2) of the EPA Act. A bi-annual respirometry test has been included in order to assess the impact the effluent is having on the downstream treatment plant.

As the Section 97 consent allows higher than PARCOM recommended limits for the metals Copper, Zinc, Lead & Cadmium (List I substance), the proposed determination requires that the appropriate reductions be achieved within 18 months. An Effluent Metals screen is proposed quarterly with the metals to be screened for subject to the agreement of the Agency.

Surface Water:
All surface water arising on-site enters an oil-interceptor which has four stages and a number of safety features built in to protect against oil being discharged to the surface water drainage network. The outfall from the interceptor is fitted with a composite sampler which is used to provide a weekly sample for COD and Fats, Oils & Grease analyses. In light of the scope for oil contamination, a daily visual inspection is conditioned in addition to the weekly composite sample. Action and warning levels are to be developed for both COD and Fats, Oils & Greases. In addition, Condition 9.1.1 requires that maintenance procedures be developed which will ensure the effective operation of the oil interceptor.

Ground Water:
Given the processes on site, a hydrogeological investigation of the site is considered necessary and the company is given twelve months to complete an investigation with Agency agreement. There are no groundwater monitoring points on site at present but any ones recommended by the investigation will be retained as required. There was some limited testing carried out on excavated soil which did not indicate contamination had ocurrd. The hydrogeological investigation will provide further information and enable the impact of additional processing activities to be assessed.
Waste:
Some hazardous residues are separated from the oil in the filtration/centrifugation stage. In addition, small amounts of hazardous waste are generated from laboratory testing activities. These are required to be disposed of via a licensed hazardous waste disposal contractor.

Non-hazardous waste is taken to Laois County Council landfill by a permitted haulier.

In relation to the Waste Oils reprocessing, the PD limits the classes of Waste Oils that can be accepted to lubricating oils from garages and ships. This is because these materials are of known composition and not subject to significant variation in composition. The current practice of taking in industrial oils, oils from bring stations and oil spill clean ups is controlled under Condition 7.9. The restriction proposed is considered necessary because of the potential of accepting contaminated oils which would be incorporated with lesser-contaminated oils, thereby effectively using dilution to disperse any contaminants. In light of the fact that the activity is “the use of heat for the manufacture of fuel from waste” and not a disposal operation, the licensee will have to develop a waste acceptance procedure, to the satisfaction of the Agency, that will demonstrate the suitability of the waste oil for reprocessing.

The company proposes to accept hydrocarbon-contaminated soil on site and subject it to a bioremediation process. A microbial culture is to be used to degrade the oil in the soil rendering it suitable for other uses such as road trunking and landfill cover. The biomass will be incorporated in the soil and will not have to be removed. Any leachate arising from the bioremediation unit (washings etc) will be collected and either sent for processing in the main oil recycling plant or treated in the effluent treatment plant before discharge to sewer. Only soils contaminated with materials that would not compromise the quality of the recycled oil product will be accepted for treatment.

The PD requires that the licensee draft a Waste Acceptance Procedure to ensure that contaminated soil arriving on site is capable of being treated. As there is a connection with the main oil recycling process, only soil contaminated with material which would not affect the final recycled oil product will be accepted. Soil accepted for treatment is to be stored on a concrete base with containment provided for leachate collection. A test programme to determine the operational control features of the bioremediation process is required and the licensee will have to obtain the agreement of the Agency before sending any remediated soil off site for recovery/reuse. This is to ensure adequate control over the destination of the material and will provide that any residual contamination is matched to end-use. The licensee is required to justify proposed end-use for a particular batch of remediated soil by reference to international contaminated land assessment criteria (ICRCL tables, Dutch tables etc).

Noise:
The site is located in an Industrial Estate on the outskirts of Portlaoise. A noise survey undertaken as part of the application indicated that while there are a number of noise sources on the site the noise levels produced by the machinery is contained within the factory surrounds due to either being enclosed or screened by tanks, buildings etc.

Noise monitoring conducted at the nearest Noise Sensitive Locations indicate that the recommended levels of 55 and 45 dBA are being achieved with the absence of tones and impulses. An annual survey is conditioned to ensure that proposed changes on site do not impact on ambient noise levels.

Residuals Management/Environmental Liabilities
Bearing in mind the current and proposed future activities on site, it is considered necessary to include a requirement to prepare a Residuals Management Plan. An Environmental Liabilities Risk Assessment is also required because of the large quantities of waste material stored on site.

**List I, II Substances & Carcinogens**

Cadmium is discharged to sewer, Benzene is emitted to atmosphere (impact not significant as explained above). Both substances are components of incoming waste oils and are incorporated into the final reprocessed oil product. The waste acceptance procedure will ensure high cadmium oils will not be accepted on site and Schedule 2 imposes, within 18 months, the PARCOM limit of 0.05mg/l for discharge to sewer.

**Submissions**

No submissions were received in relation to this application.

**Recommendations:**

That the Board approve the proposed determination, with conditions, as attached.

Signed

James Moriarty,
Inspector, L & C Division