

Application for Authorisation

Environmental Protection Act 1990, Part I

Section A: General Information

1. Name and address of premises where process is/will be carried out

Nacton Road Service Station, Nacton Road, Ipswich, Suffolk
Post Code **IP3 9QL**
Telephone Number **01473 724662** **Contact Name** **Mr Wally Todd**
Position

2. Name and address of applicant[s]

Esso Petroleum Company Ltd, Esso House, Ermyn Way, Leatherhead, Surrey
Post Code **KT22 8UX**
Telephone Number **See Item 5** **Contact Name** **See Item 5**
Position **See Item 5**

3. Name and address of registered office (if applicable). In the case of partnerships, names and home addresses of the partners.

Esso Petroleum Company Ltd, Esso House, Ermyn Way, Leatherhead, Surrey
Post Code **KT22 8UX**
Telephone Number **See Item 5** **Contact Name** **See Item 5**
Position **See Item 5**

4. Name of the ultimate holding company (if applicable)

Exxon Corporation, 5959 Colinas Boulevard, Irving, Texas, USA

5. Address for correspondence if different from (1) above

Michael G Wigmore RIBA, Kevin Neary Associates
Phoenix House, 215b & 217b High Road
Benfleet, Essex, SS7 5HZ
Telephone 01268 794388

6. Enclose a map / plan with the application showing the location where the process is/will be carried out. Where the process is/will be carried out on only part of the premises please indicate the exact location on the plan enclosed.

Drawing No. 2723/ADP/01 A

7. Is the service station located under permanent living quarters or working areas? See Clause 9

YES	NO
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8. When was vapour balancing equipment installed or when will it be installed?

1995

Section B: Process and Control Information

9. Volume of petrol unloaded into the service station in each of the last three calendar years (see Clause 9 of this Note for the relevant timescales); in cubic metres (i.e. litres divided by 1000). Circle the appropriate band

YEAR	VOLUME OF PETROL / m ³			
1995	<1000	100 – 500	501 – 1000	>1000
1996	<1000	100 – 500	501 – 1000	>1000
1997	<1000	100 – 500	501 – 1000	>1000

10. Are deliveries “Driver Controlled”

YES	NO
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11. At a maximum, how many tanker compartments discharge into storage tanks at any one time, or will do so once a vapour balancing system is in place. If the latter information is not known, a statement of what assessment will be made to determine this information and within what timescale. The information supplied under item 11 should be supplemented by a site specific assessment. (See Clause 17).

Three (excluding Diesel)

12. Measures taken or to be taken for vapour emission control, both during unloading and in storage

Stage 1 Vapour Recovery

13. Please attach process diagrams and plans of vapour balancing equipment (including height and location of tank vent pipes)

Drawing No. STD 104 B

14. Unloading procedure and instructions (please attach)

See Esso ‘Blue Book’ Esso Management of Motor Fuels for Retailers and their Staff.

All to be in accordance with the Petroleum Licence Conditions and the Carriage of Dangerous Goods by Road Regulations 1992 and HS(a) 41.

15. Details of Supervision, Training and Qualifications of Operating Staff [Details should be specific to on-site staff and include general statements concerning delivery drivers]

The Site Manager/Licensee/Agent has undergone training by Esso Petroleum Co Ltd in relation to Petroleum Product Deliveries and Regulations and has a certificate to this effect in turn selected members of staff are trained by him/her and listed as approved for supervising deliveries.

16. Schedule of maintenance of vapour balancing controls [please attach]

All Vapour Balancing Controls are maintained on an annual schedule by specialist Engineers.

The P & V valves are replaced every three years.

This is recorded in the Site Register.

17. Schedule of examination and testing for vapour balancing controls [please attach]

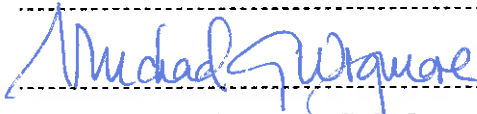
**The Vapour Balancing Controls, couplings, seals, lines and signage are examined and tested on a yearly basis.
This is recorded in the Site Register.**

18. Procedures or contingency measures in the event of vapour containment equipment failure. [please attach]

**No deliveries will be made other than single hose deliveries until the failure has been rectified.
An Unsatisfactory Delivery Conditions Report (UDCR) is made out by the Delivery Technician and reported to the Specialist Engineer.
This is recorded in the Site Register.**

You may also supply any other information you wish the Local Authority to take into account when considering your application.

I hereby certify that I am authorised to sign this application and all the information contained in this application is correct to the best of my knowledge and belief.

Name (BLOCK CAPITALS): MICHAEL A. WILMORE
Signature  Date 24.09.98
Designation Agent for Esso Petroleum Co Ltd.
Fee attached (cheque payable to Ipswich Borough Council). £ 100.00

KEVIN NEARY ASSOCIATES

Phoenix House, 215b & 217b High Road, Benfleet, Essex SS7 5HZ

Tel: (01268) 794388 Fax: (01268) 794389

Ipswich Borough Council
Environmental Health
Civic Centre
Civic Drive
Ipswich
IP1 2EE

24 September, 1998

Dear Sirs

**NACTON ROAD SERVICE STATION, NACTON ROAD, IPSWICH, SUFFOLK, IP3 9QL
FOR ESSO PETROLEUM CO. LTD.
ENVIRONMENTAL PROTECTION ACT 1990 PART I**

I enclose for your attention the following: -

1. Application for Authorisation; Environmental Protection Act 1990, Part I form duly completed.
2. A cheque in the sum of £100 Application Fee.
3. A copy of Standard Information document; Site Specific Information and report prepared by Gilbarco Ltd. All issued by Esso Petroleum Co. Ltd.
4. A copy of Esso Petroleum Co. Ltd's Standard Drawing No. STD 104 B showing and describing the vapour balancing system.
5. A copy of Site Layout Drawing No 2723/ADP/01 A with the offset fills and vapour recovery marked in red.
6. A copy of *Management of Motor Fuels, Guidelines for Retailers and their Staff, April 1998 Edition (The Blue Book)*.
7. A copy of the Certificate of Training of the Site Manager/Agent and a copy of the Competent Persons Register (referred to in Question 15 of the Application Form).

I am unable to give contact names, telephone numbers and position in relation to Questions 2 and 3 on the Application Form. The persons responsible for complying with the legislation are the Esso Retail Engineers and they all work from home and therefore all correspondence should be channelled through myself.

If you require any further information or copies of the above documents I shall be pleased to supply same.

Yours faithfully



M. G. WIGMORE
PARTNER

Enclosures.

c.c. P Holt Esq.

Kevin J. Neary, Michael G Wigmore RIBA



ATTACH 1 P.1

GILBARCO LIMITED
Installations (South)
Crompton Close,
Basildon,
Essex, SS14 3BA
Telephone: 01268 533090
Fax: 01268 522581

REPORT ON 1 B VAPOUR BALANCE SYSTEMS FOR ESSO PETROLEUM LTD.

The objective of this report is to show that stage 1b systems with both High level and Low level manifolds to Esso standards operate correctly and further that for a given standard type, the system will be capable of handling three delivery hoses at one time without loss of vapour to atmosphere.

The tests were carried out at six nominated service stations. [See Appendix 1] The test procedure followed the general recommendations of the joint IP/APEA guidelines (section 9 vapour emission control).

In order that the test be considered valid a very accurate means of pressure measurement is required, Gilbarco employed our precision tank test system which is capable of monitoring in real time down to .0001 bar.

In broad terms the test procedure is as follows [See Appendix 2]


Check that P/V valve does not open below 35mb.
Connect and commence offloading one compartment of tanker. Do not connect vapour return.
Pressure will build within balance system and equalise.
Maintain pressure for a period to ensure system is sound.
Connect vapour hose. Complete first compartment offload.
Connect three hoses. Offload compartments. Time offloading.
Monitor pressures to ensure P/V valve does not operate.

Results, averaged were as follows: [Results in detail Appendix 3]

	Max equalising pressure	Max running pressure with three hoses	Speed of delivery with three hoses
High level manifolds to Esso Standard STD114	45.7 mb	29.2 mb	1345 lpm
Low level manifolds to Esso Standard C(98)05	34.4mb	11.4 mb	1245 lpm

Conclusions [Appendix 4]

In every case the pressure developed during normal running was insufficient to operate the site P/V valve, showing that the system as designed is capable of meeting the criteria set out above. However, at Danbury, a High Level version with a long vapour collection line, initial pressures could indicate operation of the p/v valve. Therefore, care needs to be exercised in the planning of vapour collection lines. Longer lengths give rise to initial pressure peaks.


K S Holmes
UK Installation Manager. 2nd June 1997





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GILBARCO LIMITED
Installations (South)
Crompton Close,
Basildon,
Essex, SS14 3BA
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Report on stage 1b Vapour balance systems for Esso Petroleum Ltd.

APPENDIX 1.

THE SITES:

Warley S/Stn, Arterial Road, Little Warley, Brentwood, Essex.

**High level system to Esso STD114. max runs to tanks approx 18m
Vapour collection adjacent to vent stack.**

Hovefields S/Stn, Arterial Road, Basildon, Essex

**High level system to Esso STD114. max runs to tanks approx 14m
Vapour collection adjacent to vent stack.**

Danbury S/Stn, Maldon Road, Danbury, Essex

**High level system to Esso STD114 max runs to tanks approx 35m
However, Vapour collection approx 12m run from vent stack to collection point**

Maple S/Stn, Maple Rise, Marlow, Bucks

**Low level system to Esso C(98)05. max runs to vents approx 20m
However, Vapour collection approx 25m run from vent stack to collection point**

Holtspur S/Stn, London Road Beaconsfield, Bucks.

**Low level system to Esso C(98)05. max runs to vents approx 18m
Vapour collection adjacent to vent stack.**

Kent Elms S/Stn. London road, Eastwood, southend, Essex

**Low level system to Esso C(98)05, max runs to tanks at approx 30m.
Vapour collection adjacent to vent stack.**



Report on Stage 1b vapour balance systems for Esso Petroleum Ltd.

APPENDIX 2

TEST PROCEDURE.

This test requires a very accurate means of pressure measurement. The system used will monitor in real time down to .1mb (.0001bar)

Check P/V valve for accuracy. Pressure opening at 35mb. Vacuum opening at -2mb.

The procedure on site was as follows:

Tanker arrived and connected one compartment ready to offload.

The vapour hose was connected to the tanker but not to the collection point.

The pressure monitor was placed at the vapour return valve to form part of the collection line.

The compartment commenced offloading. Pressure built up within the system eventually stabilising.

[This is shown as Max equalising pressure]

Discharge from the tanker stopped and the pressure was held showing no apparent leaks in the system..

The vapour line was connected and compartment discharge completed.

Three compartments were then connected and offloading commenced.

This sequence was timed. The total for the compartments being divided by time to show speed of delivery in litres per minute.

The pressure monitor was constantly observed and readings noted at one minute intervals.

On some sites, where a fourth compartment was available, this was added into the delivery once one of the original three had completed.



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GILBARCO LIMITED
Installations (South)
 Crompton Close,
 Basildon,
 Essex, SS14 3BA
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 Fax: 01268 522581

Report on 1b Vapour Balance Systems for Esso Petroleum

APPENDIX 3.

RESULTS.

MAX EQUALISING PRESSURES IN mb WITH HOSE DISCONNECTED.

KENT ELMS	45.7	37.8	37.2	FAULTY P/V FOUND TO ACTIVATE AT 56.4MB
WARLEY	56.4	48.0	37.0	
HOVEFIELDS	28.3	25.2	25.1	
DANBURY	66.3	63.7	*	
MAPLE	31.8	28.2	28.0	
HOLTSPUR	35.6	37.1	35.7	

RUNNING PRESSURES IN mb WITH THREE HOSES AT ONCE
 PRESSURES NOTED AT ONE MINUTE INTERVALS.

WARLEY Vol Delivered 12100 litres

13.1 9.8 9.1 8.4 6.9 8.8 14.9 17.3 19.1 18.1

HOVEFIELDS Vol Delivered 20800 litres

18.6 11.0 15.1 16.4 17.0 18.1 17.1 18.3 15.3 13.0 11.4 10.2 0.0

DANBURY Vol Delivered 24000 litres

36.2 39.8 34.0 21.7 12.0 13.3 14.6 19.1 18.1 19.9 19.7 15.4 13.8 13.0 11.4
 13.2 8.2 7.5 7.1 6.2 5.6 5.0

MAPLE Vol Delivered 24400 litres

11.4 6.6 6.3 5.9 5.6 5.4 6.6 7.8 8.6 5.8 5.2 4.8 4.5 2.8 1.4 0.6 * 1.4 1.4 1.4
 1.4 1.3 1.2 1.2 1.1 1.1 * NEW COMP STARTED

HOLTSPUR Vol Delivered 28800 litres

7.6 10.9 11.4 11.2 11.0 10.6 9.9 9.7 9.1 8.6 1.6 0.4 0.2 0.9 0.8 0.6 0.5 0.4
 0.2.

KENT ELMS Vol Delivered 21500

-1.8 5.6 7.5 7.5 7.6 7.5 7.2 6.0 5.8 3.5 3.4 2.5





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SPEED OF DELIVERY WITH THREE HOSES.

These figures are based on time elapsed from commencing three compartments to completion of final compartment, in some cases, a fresh compartment was added during the process once one had emptied.

WARLEY	1210 lpm
HOVEFIELDS	1600 lpm
DANBURY	1090 lpm
MAPLE	976 lpm
HOLTSPUR	1515 lpm
KENT ELMS	1791 lpm



Report on stage 1b Vapour balance systems for Esso Petroleum

APPENDIX 4

CONCLUSIONS.

Generally the systems performed as had been expected. Pressure build ups occurred generally quickly following the start of three hoses, however pressures decayed rapidly as soon a flow developed.

Apart from one incident at Danbury when the system pressure momentarily pushed above the preset valve limit, pressures generally remained well below those necessary for operation of the P/V valve.

Danbury had the combination of High Level manifold coupled with a remote vapour collection point. Clearly any condensate in the horizontal section will serve to slow the vapour path. Once this had established however pressure fell rapidly.

It is also important to realise that in normal circumstances it is unlikely that three hoses would be started simultaneously. This particular test therefore looks at the situation in its most extreme form.

From an engineering point of view therefore remote collection points should be avoided if possible, and planned with care if one should become necessary.

One other point of note is that remote collection points do slow average offloading speeds. Contrary to what might have been thought, after the initial pressure increase the running pressures fall into a similar pattern, the time of delivery simply increases.

