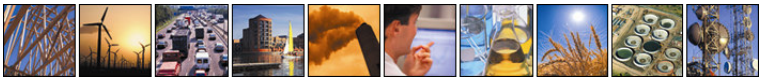
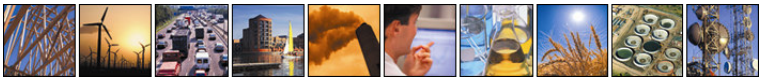
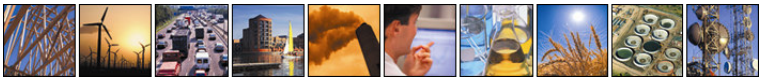
Entec

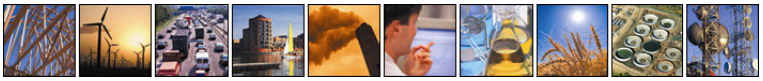
Creating the environment for business

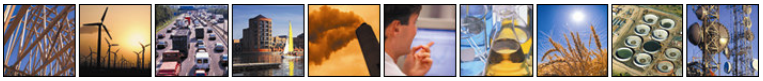
Appendix A
Detailed Country Information

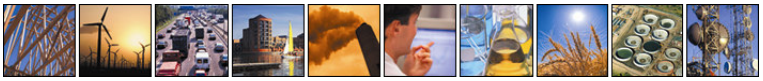


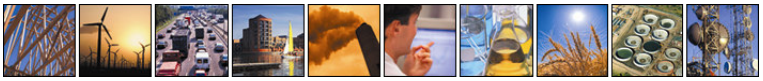


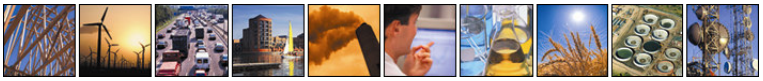


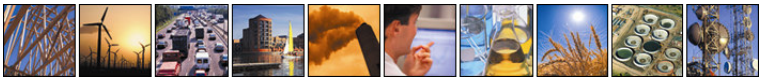


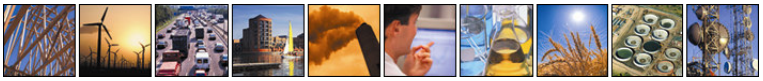












A1. Austria

A1.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Austria's implementation of Directive 94/63/EC.

Table A1.1 Stakeholders consulted for Austria

Stakeholder	Organisation name	Date interviewed
Government department	Federal Ministry of Agriculture, Forestry, Environment and Water Management	8th October 2008
Government department	Federal Ministry of Economics and Labour	16th December 2008

As part of the consultation process the Federal Ministry of Transport were contacted on Entec's behalf by the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

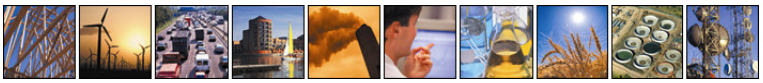
A1.2 Process for implementation

A1.2.1 Legal background

Austria introduced legislation for Stage I (and Stage II) petrol vapour recovery before Austria acceded to the European Union (1st January 1995), and before Directive 94/63/EC was introduced. The Austrian Ordinance 'Gesamte Rechtsvorschrift für Gaspendelleitungen für ortsfeste Kraftstoffbehälter' (Legislation for petrol vapour recovery from stationary containers)[1], Federal Law Gazette Number 558/1991, was introduced in 1991 and came into force on 1st January 1992. After Austria's accession to the EU (and thus after the introduction of Directive 94/63/EC), the text of the Austrian Ordinance was updated to Federal Law Gazette Number 904/1995 (CELEX No. 394L0063) to make specific reference to Directive 94/63/EC. This revision is referred to hereinafter as the Austrian Stage I legislation.

Due to the Austrian legislation pre-dating the Directive, it has not been necessary to implement any derogations from the Directive.

[1] Long title: 'Verordnung des Bundesministers für wirtschaftliche Angelegenheiten über die Ausstattung gewerblicher Betriebsanlagen mit Gaspendelleitungen für ortsfeste Kraftstoffbehälter' ('Regulation of the Federal Ministry for Economic Affairs on the equipping of stationary containers and terminals with petrol vapour recovery')



Requirements for storage installations at terminals according to Annex I of the Directive have, according to the Federal Ministry of Agriculture, Forestry, Environment and Water Management, been implemented in Articles 3 and 3a of the Austrian Stage I legislation. However, the Ministry indicated that "Annex I point 1 has not been transposed in a formal way in Austria (i.e. by transposing the relevant provisions into an ordinance pursuant to the Trade and Industry Act). However, the inspectors know about this obligation and it is implemented in effect by similar conditions in the single permits and/or conditions or stipulations subsequent to inspections."

Concerning the implementation of Article 5 (mobile containers), the Ministry of Transport stated that they consider the Article 5 of Directive 94/63/EC as transposed into Austrian Law through the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), which requires that appropriate measures shall be taken to prevent the release of dangerous quantities of gases and vapours (Austria does not have a more specific provision). Similarly, RID (railway) and ADN (vessels) have identical provisions (Austria is also a Contracting Party for these agreements). Due to Austria's provisions for loading and unloading of mobile containers (i.e. via the specific couplings) it is ensured that no other containers can be operated.

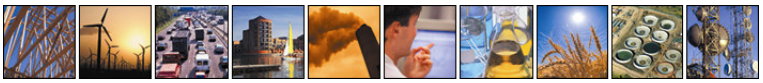
A1.2.2 Roles and responsibilities

At the Federal level, two ministries hold responsibilities for implementation of the Directive:

- The Federal Ministry of Agriculture, Forestry, Environment and Water Management (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft)
- The Federal Ministry of Economics and Labour (Bundesministerium für Wirshaft und Arbeit, BMWA)

These two ministries were involved in the transposition of the Directive. The ministry of Economics and Labour is responsible for the transposition of the Directive for service stations, containers and storage installations; this is done through the Trade and Industry Act. The Ministry of Environment has a degree of influence over the legislation as well, and is consulted and gives advice on whether the legislation is in accordance with the environmental aims.

The District Authorities are the inspectors and permitting agencies for the installations (terminals and petrol stations).



A1.2.3 Permitting and inspection activities

Permitting is regulated through the Trade and Industry Act[2]. Provincial government evaluates the applications for the permits. Normally the permits have stricter limits than the Directive, due to the fact that the Austrian legislation is already stricter than the Directive (see below).

Inspections are undertaken by district authorities, although consultation with the Federal Ministry of Agriculture, Forestry, Environment and Water Management indicated that Austria is "weak" on undertaking inspections, i.e. there is no minimum inspection frequency. However if an incident is reported then an inspection is undertaken. Operators must however carry out their obligations from the Austrian legislation, which includes reporting emission measurements.

Throughput thresholds are determined solely from operators' data. There is a necessity to change a permit if a substantial change takes place at the installation (i.e. one in which emissions are increased).

A1.2.4 Guidance for inspectors and industry

Based on the consultation undertaken, it is understood that there has been no guidance document written for implementation of Stage I legislation in Austria.

With regard to Stage II, a guidance document addressed to authorities and operators on how to assess and write service station permits, details on problems, leaks, etc. ('Technische Grundlage zur Beurteilung von Tankstellen'[3]) was produced in 2005 by the Federal Ministry of Economics and Labour.

Furthermore under the general scope of IPPC installations, there is an annual 3-day conference where all the competent authorities and legal permit experts meet to discuss practical problems with implementation[4]. This conference could potentially include any issues to do with Stage I, but the Federal Ministry of Agriculture, Forestry, Environment and Water Management stakeholder could not recall in the last five years any issues arising regarding the Stage I VOC Directive i.e. there were no reported problems of implementation within the last five years at these conferences. The outcome of these annual conferences is a report and potentially revision of appropriate legislation.

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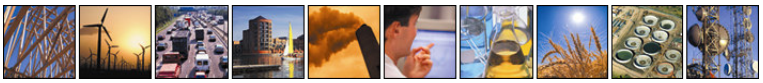
[2] Gewerbeordnung (GewO) 1994, relevant sections are articles 77 to 82.

[3] http://www.bmwa.gv.at/NR/rdonlyres/1EB15DB1-A5EB-4546-B55B-E9F647ACCB82/0/TGTankstellen.pdf

[4] http://www.bmwa.gv.at/BMWA/Schwerpunkte/Unternehmen/Gewerbe/GewerbReferent/default.htm



A1.2.5 Reporting

The Austrian Stage I legislation stipulates in Article 3a, paragraph 6 the reporting requirements of operators. Operators are required to

- At least once per year perform the measurements and checks on vapour recovery mechanisms referred to in Annex II of the Directive according to the measurement and analysis techniques (Meβ- und Analyseverfahren) stipulated in Appendix II of the Austrian legislation[5]; and
- At least once per month to check the connection lines and pipes for leaks.

The latter point is the stipulation of a specific reporting frequency for the requirements of Point 3 of Annex II of the Directive. For the former point, the techniques stipulated in Austria based on Appendix II of the Directive are periodic measurements, i.e. Continuous Emission Monitoring Systems (CEMS) are not required.

A1.3 Status of implementation

From consultation with the Federal Ministry of Agriculture, Forestry, Environment and Water Management it was mentioned that all terminals, service stations and containers meet the requirements of the legislation (which is stricter than the Directive in some cases).

Austrian Stage I legislation goes beyond the requirements of Directive 94/63/EC in its requirements for loading and unloading installations at terminals. Annex II of the Directive requires in Point 2 that "*the mean concentration of vapours in the exhaust from the vapour recovery – unit corrected for dilution during treatment – must not exceed 35 g/normal cubic metre (Nm³) for any one hour*" and that "*the equipment used must be capable of measuring concentrations at least as low as 3 g/Nm³*". Article 3a paragraph 2 of the Austrian Stage I legislation places a stricter limit than the Directive for this point, requiring VOC emissions in the VRU exhaust to not exceed

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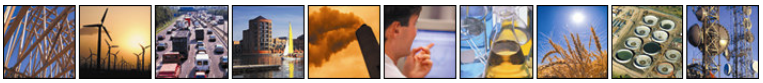
[5] „*1. Die Messungen sind nach den Regeln der Technik für dampf- und gasförmige organische Verbindungen angegeben als Gesamt-C (zB nach dem Verfahren gemäß VDI 3481, Blatt 1 und 3) unter den üblichen Betriebsbedingungen durchzuführen. Der Methananteil an den Gesamtkohlenwasserstoffen ist gaschromatographisch zu bestimmen und vom Gesamt-C-Wert abzuziehen.*

2. Bei den Messungen sind mindestens drei Meßwerte in Form von Halbstundenmittelwerten zu bestimmen.

3. Der Emissionsgrenzwert gilt als überschritten, wenn ein Meßwert abzüglich der oberen Fehlergrenze des Meßverfahrens den Grenzwert überschreitet.

4. Die in der Z 1 genannte VDI-Richtlinien (Richtlinie des Vereins Deutscher Ingenieure) ist beim Österreichischen Normungsinstitut, Heinestraße 38, Postfach 130, A-1021 Wien, erhältlich."



10 g/Nm^3, and for the equipment used to measure this concentration to be capable of measuring concentrations below **1 g/Nm^3**:

- "Die nach Abs. 1 erforderliche Dampfrückgewinnungseinrichtung muß dem als Anlage 1 zu dieser Verordnung angeschlossenen Anhang II zur Richtlinie 94/63/EG mit der Maßgabe entsprechen, daß der höchstzulässige Grenzwert für die mittlere Dampfkonzentration in den Abgasen der Dampfrückgewinnungseinrichtung nicht 35 g/Nm^3 je Stunde, sondern 10 g/Nm^3 je Stunde beträgt und daß die Meßgeräte mindestens Konzentrationen bis hinunter zu 1 g/Nm^3 (und nicht, wie im Anhang II zur Richtlinie 94/63/EG vorgesehen, 3 g/Nm^3) messen können müssen."

Due to the Austrian legislation pre-dating the Directive, no derogations from the Directive have been necessary. However, the possibility for extensions of up to five years to deadlines was provided for in Article 82, paragraph 5 of the Trade and Industry Act. Consultation with the Federal Ministry of Agriculture, Forestry, Environment and Water Management confirmed than no time extensions were granted according to the Directive; even if they had been, the extended deadlines would have now lapsed.

A1.4 Technical issues

The Federal Ministry of Agriculture, Forestry, Environment and Water Management considered that there are no known reported technical issues with complying with the Directive.

The Austrian Stage I legislation does not require Continuous Emission Monitoring Systems (CEMS) to be installed on VRUs at terminals, and that instead only periodic measurements are required.

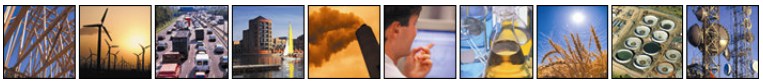
A1.5 Problems of interpretation

There are no known reported problems of interpreting the Directive.

A1.6 Potential for simplification

Consultation with The Federal Ministry of Agriculture, Forestry, Environment and Water Management suggested that, in their view, there are many technical requirements of Directive 94/63/EC which are more complicated than they need to be. However, no specific recommendations on potential for simplification were provided. The Ministry suggested that Austria would support a move to tighten the restriction in Annex II of VOC emissions in VRU exhausts to 10g/Nm^3, but because this is already in force in Austria, there would be no additional benefit in Austria.

It was noted that the potential for simplification could be more relevant to new Member States which have more recently implemented the Directive.



A2. Belgium

A2.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Belgium's implementation of Directive 94/63/EC.

Table A2.1 Stakeholders consulted for Belgium

Stakeholder	Organisation name	Date interviewed
Government department – Flanders region	Flemish Environment, Nature and Energy Ministry (Flemish LNE)	31st October 2008 and 17th December 2008
Government department – Walloon region	Directorate General for Natural resources and the Environment of the Ministry of the Walloon region (Division CELLULE AIR Aspects technico-économiques de la lutte contre la pollution atmosphérique)	28th October 2008
Government department – Walloon region	Walloon Agency for Air and Climate Change	5th December 2008
Government Department – Brussels Region	Département Plan air, climat et énergie/Afd. Lucht, klimaat en energieplan Bruxelles Environnement - IBGE/Leefmilieu Brussel - BIM	15th December 2008

The following Belgian competent authorities and industry organisations were contacted but no information has been received:

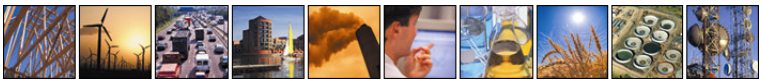
- Belgian Federal Government - Public Health, Food Chain Safety, EN Environment: this department is responsible for mobile containers for all Belgium under the Stage I VOC Directive requirements, as noted from consultation with other stakeholders in Belgium;
- Belgium Petroleum Federation (industry).

A2.2 Process for implementation

A2.2.1 Legal background

Federal level

The responsibility for mobile containers is retained by the Federal Government (Public Health, Food Chain Safety, Environment), whereas the competent authority for the permitting of terminals and petrol stations is devolved to the three Regions: the Flemish Region, the Walloon Region and the Brussels Capital Region.



For mobile containers, no legislative documents have been received and no information has been made available on the implementation of Directive 94/63/EC with regards to mobile containers.

Flemish region

In Flanders the Vlarem legislation[6] addresses and refers specifically to environmental legislation and requirements for installations that are included and captured under the so called "Classification list". VLAREM I mostly covers procedures and the list of establishments considered to be a nuisance, while VLAREM II mostly covers environmental quality standards and environmental conditions.

The "Classification list" was published in 1991 and sets out a classification for the different sectoral activities and installations that need an environmental permit (Classes 1 and 2) or registration (Class 3). For the Stage I VOC Directive the following classifications are relevant:

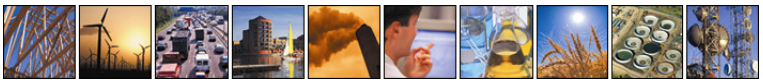
- For storage installations at terminals ("storage installation" is defined as: one or a multiple of fixed containers which are used at a terminal for the storage of petrol): classification number is 17.3.4. This is further subdivided into different classes such as:
  - Class 1 for storage installations with total storage capacity > 30,000 litres[7]. Consultation with the Flemish Environment, Nature and Energy Ministry (Flemish LNE) mentioned that all terminals in Flanders are likely to be covered under Class 1;
  - Class 2 for storage installations with total storage capacity between 500 - 30,000 litres; and
  - Class 3 for storage installations with total storage capacity between 50 – 500 litres.

The Flemish LNE noted that the classification list already existed before Stage I VOC Directive was introduced in the Vlarem legislation. In practice there is storage of petrol in small volumes in other installations than terminals, and this flammable liquid is required to be stored taking into account best safety and environmental practice, hence the Classes 2 and 3 for storage installations. This practice is stipulated in chapter 17 of the Vlarem legislation (section 5.17.4 "Control of the emission of volatile organic compounds (VOC) with the storage and transferring of petrol").

- For petrol distribution: classification number is 17.3.9. This is further subdivided into different classes such as:

[6] http://www.emis.vito.be/wet_ENG_navigator/milieuvergunning.htm

[7] This volume for classification for terminals in litres appears very small compared to the ranges described in the Directive 94/63/EC; Confirmation with the competent authority has been requested regarding the units for the classifications.



- Class 1: this is referred as "other establishments" in the classification and covers all public petrol stations that sell gasoline/petrol (i.e. all petrol stations subject to Stage I requirements are Class 1 stations);

- Class 2: this covers distribution points that are only used at a company level i.e. only vehicles from the company can use these petrol stations; and

- Class 3: this coves stations that are not supplying and distributing liquids with a flaming point > 50 degrees Celsius.

The Vlarem environmental legislation was published in 1995 in Flanders and is the key legislation in Flanders that covers and incorporates European Directives into Flemish law. Every time a new Directive is published and needs to be transposed into national law, it is incorporated into the Vlarem environmental legislation. In a similar manner the Stage I Directive was transposed into Flemish legislation on the 1st April 1999 and has been included in Section 5.17.4 "Control of the emission of volatile organic compounds (VOC) with the storage and transferring of petrol", subsection 5.17.4.1. "Stage 1 vapour recovery"[8] (subsection 5.17.4.2 refers to "Stage 2 vapour recovery" and section 5.17.5 refers to "Fuel distribution installations for motor vehicles"). Additional technical requirements for Stage I VOC vapour recovery are included in Appendix 5.17.9 of Vlarem II legislation[9]. The preparations for the transposition of the Stage I VOC Directive were made by the Flemish Environment Department (Flemish LNE) and the approval as law was done by the Flemish Government.

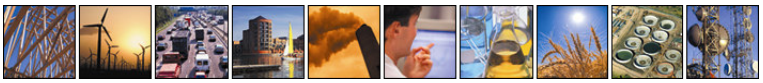
During discussion with the Flemish LNE it was noted that Flanders was delayed in transposing the Stage I Directive into national law although the dates and timescales of the Directive were kept the same in the Vlarem relevant section for Stage I VOC (i.e. Part 5, Chapter 17, Subsection 4.1 – Stage I vapour recovery). However the Vlarem provisions and requirements for Stage I vapour recovery are in line with Directive 94/63/EC. Moreover Flanders has introduced a requirement from 1st January 2008 to comply with a more stringent concentration limit for VOC emissions at the VRUs at terminals of 10 g/Nm^3 instead of 35 g/Nm^3. This VOC limit was approved by the Flemish Government in the Vlarem law after consultation and discussion with industry.

Walloon region

In the Walloon Region, the Stage I Directive has been transposed into legislation through the Decree of the Walloon Government of 23 May 1996 (AGW 23/05/1996), modifying the General Regulation for the Security of

[8] http://www.emis.vito.be/wet_ENG_navigator/vlarem2-part5.htm

[9] http://www.emis.vito.be/wet_ENG_navigator/vlarem2-appendix5.17.9.htm



Employment with regard to the flammable deposits of liquid, aiming at limiting the emissions of volatile organic compounds during the storage of gasoline and of its distribution of the terminals to the service-stations.[10]

The competent authority responsible for the application and implementation of the Stage I VOC Directive is the Walloon Government, via (or by its public servants) its administration named "Prevention and Authorisations Division" (SPW DGRANE DPA).

Brussels region

In the Brussels region, the Directive was transposed into an order on 'Arrêté du Gouvernement de la Région de Bruxelles-Capitale fixant des conditions d'exploiter au stockage d'essence et à sa distribution'[11]. The Brussels Institute for the Management of the Environment (BIME) was responsible for drafting this document, which was formally adopted by the Brussels Government[12]. The order takes all of the derogations and timelines for implementation directly from Directive 94/63/EC[12].

Derogations adopted: Flanders Region

For Flanders, it is understood that no derogations have been adopted, following consultation with the Flemish LNE, including the permitting division of the organisation.

Derogations adopted: Walloon Region

For the Walloon region of Belgium, consultation has suggested that there are transitional periods for the application of the Directive to certain service stations. In particular, it is understood that AGW 4/03/1999 allows a transitional period up to 1 January 2010 for stations with storage tanks that were less than 20 years old in 2001. The practical implications of how this transition period relates to the requirement to implement Stage I controls according to Directive 94/63/EC and AGW 23/05/1996 is not clear. In addition the Walloon Ministry of Environment mentioned that there are some transitional implementing provisions in accordance with the petrol volumes sold annually but no details have been provided for these derogations.

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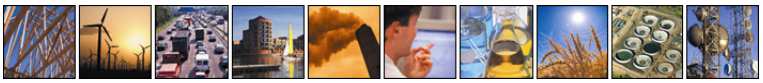
[10] Arrêté du Gouvernement wallon portant modification du Règlement général pour la protection du travail, en ce qui concerne les dépôts de liquides inflammables, visant à limiter les émissions de composés organiques volatils lors du stockage de l'essence et de sa distribution des terminaux aux stations-service (M.B.27.06.1996)

[11] Arrêté du Gouvernement de la Région de Bruxelles-Capitale fixant des conditions d'exploiter au stockage d'essence et à sa distribution. Publication number 1996031413. Dossier no. 1996-10-10/35.

[12] Personal communication from Sophie Deligne of the Bruxelles Environnement (IBGE) Département Autorisations on the 15th of December 2008.



Derogations adopted: Brussels Region

For the Brussels region, no derogations were adopted as far as the stakeholder consulted [12] was aware. However the relevant legislation[11] allows them to adopt all of the derogations in the Directive if needed.

A2.2.2 Roles and responsibilities

Flanders region

In Flanders the transposition and implementation of Directive 94/63/EC was done by the Flemish Environment Department (Flemish LNE) and the approval as law was done by the Flemish Government. Environmental permits for terminals and petrol stations are issued by either the provincial council (in the first instance) or the Flemish minister (in case of an appeal). The Environmental Licences Division of the Environment, Nature and Energy Department (LNE) will give an opinion on the licence application (whether the establishment will be able to comply with the legislation). The Environmental Inspection Division of the Environment, Nature and Energy Department is responsible for inspections.

Walloon Region

In the Walloon Region there are two competent authorities responsible for this legislation. Both authorities fall within the administration of the Walloon Government: both are divisions within DGRNE (Directorate General of Natural Resources and the Environment[13]), which is part of the principle administration of Wallonia, the MRW (the Ministry of the Walloon Region[14]). The two divisions are:

- The Division of the Prevention and Authorisations (DPA)[15], which is responsible for permitting and licensing; and
- The Division of the Police Force of the environment (DPE)[16], which is responsible for controlling and assessing compliance with the regulation.

Discussions with local contacts have advised us that some restructuring is taking place at the moment, such that MRW is becoming the SPW (Public Service of Wallonia), DGRNE is absorbing agriculture activities to become DGRANE, and that DPE is becoming the DPC (Police and Control).

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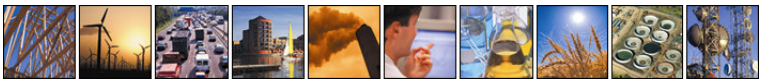
[13] Direction générale des Ressources naturelles et de l'Environnement (DGRNE).

[14] Ministère de la Région wallonne.

[15] Division de la Prévention et des Autorisations.

[16] Division de la Police de l'environnement.



Brussels Region

In the Brussels region the BIME was responsible for drafting the legislation and is responsible for all permitting and inspection activities[12]. The Brussels government was responsible for approving the legislation[12].

A2.2.3 Permitting and inspection activities

Flemish region

Permitting is done at a provincial or local town (authority) level[17]. Class 1 installations (terminals and petrol stations[18]) are permitted by the provinces, while Class 2 and 3 installations are permitted/registered by local towns/authorities. In Flanders there are five provinces and 308 local towns/authorities. From consultation with the Flemish LNE it was highlighted that effectively all of the terminals and petrol stations in Flanders are under Class 1 category, hence permitting is primarily done by the provinces.

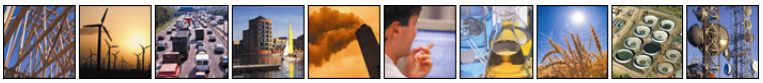
The permitting at the provincial level is done as follows[17]:

- The Government of each province (provincial council) is responsible for making the decision to issue the environmental permit for each installation (terminal or petrol station);
- The provincial government takes advice from the provincial Environmental Department in terms of the environmental conditions at each installation and to help in the decision making process for issuing the permits; and
- The provincial Environmental Department consults and takes advice from the Environmental Licence board/Flemish Environmental Department/Environment Agency and other advisory bodies before advising the provincial government with regards to issuing a permit.

It is understood that all terminals and petrol stations in Flanders have permits, based on consultation with the permitting division of the LNE. A general environmental permit is issued that sets out the list of activities in the Classification list that an installation is permitted for and the requirements that it is required to comply with. The permits include both specific and general requirements: the permit states that operators are required to follow the Vlarem provisions and requirements as they are set out therein; hence the operator is required to check the Vlarem provisions to find out the specific requirements for its installation. The general provisions and requirements for each installation are described under Part 4 of the Vlarem legislation (these describe general requirements of the

[17] http://www.investinflanders.com/en/doing_business/legal_guide/environmental_regulations/

[18] It is noted petrol stations are classified as Class 1 in the classification list (see section A2.2.1); hence they are permitted by the provinces.



operators e.g. adoption of best available techniques (BAT); annual emission reporting) and the operators are also required to check and comply with these[19].

If any changes/modifications are made to the Vlarem legislation, the permits (and requirements therein) are not renewed for the installations, but it is under operators' responsibility to be in compliance with the Vlarem provisions at all times (as indicated by the Flemish LNE). For Class 1 activities for terminals and petrol stations, the operator is required to have an environmental coordinator of the installation. This person is certified by the Flemish Government and undertakes annual training (in environmental law and requirements, changes in any provisions, etc.) and is responsible for making sure that the installations are in compliance with the Vlarem law, including being informed and updated on any changes within the Vlarem law.

For Class 2 installations (for terminals)[18] the local towns undertake the permitting and the mayor of the town is responsible for issuing the permit. For Class 3 installations, there is no need to obtain a permit and the operators only need to register with the local town. However Class 3 installations are still required to follow the Vlarem requirements as they are included in the Classification list. The details for permitting and advice are given by several advisory government bodies such as the environmental department of the local authority.

In most cases the permits are valid for 20 years, both for terminals and petrol stations. However the period of validity of the permit depends on the decision of the permitting authority e.g. an authority may decide upon a ten year period if the resources required for inspection are less and they may wish for full investigation of an installation to be undertaken at more frequent intervals, as mentioned by the Flemish LNE.

With regards to inspection, Class 1 installations are inspected by the regional authority by the division of Inspection in the Flemish LNE (Flemish Environment, Nature and Energy Department), while for Class 2 installations inspection is undertaken by local authorities. The frequency of the inspection is determined by the competent authority that undertakes them but in general Class 1 activities are inspected more frequently that Class 2 and 3 activities.

Walloon region

The installation (terminal storage or petrol station) is authorised by a 'single permit' or "Permis Unique" including conditions to comply with the requirements of the Stage I VOC Directive and with the regional legislation. This permit is issued by the municipal authority where the installation is established and it is valid for an indefinite period.

Compliance is checked by (and if necessary sanctions are imposed by) the Department for "Policy and Control of the Environment" (SPW DGRANE DPC).

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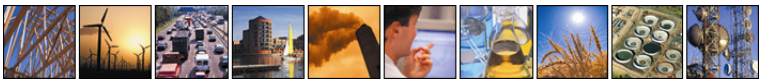
[19] http://www.emis.vito.be/wet_ENG_navigator/vlarem2-part4.htm



Brussels region

In the Brussels region, the Brussels Institute for the Management of the Environment (BIME) is designated as the competent authority and is responsible for permitting and inspection of all service stations and petrol terminals[12]. The specific requirements included in the permit are those set out in the order mentioned previously.

A2.2.4 Guidance for inspectors and industry

For the Walloon region, discussion with the competent authority did not identify any guidance notes developed for industry or inspectors for the implementation of Directive 94/63/EC.

Consultation with the Flemish LNE did not identify any guidance notes or information leaflets that were developed for the implementation of the Directive by the Flemish LNE. However whenever transposition is taking place for a Directive, a working group is formed between the Flemish LNE and industry associations, e.g. terminal and petrol stations unions in this case, to discuss the Directive's requirements and its transposition into the Vlarem environmental legislation. In this way the Directive's requirements and any specific issues are communicated to the industry members via their trade unions.

No guidance has been developed for inspectors and industry on the implementation of the Directive in the Brussels Region[12].

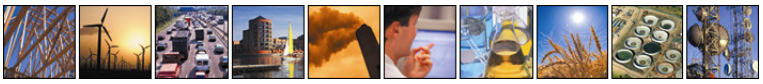
A2.2.5 Reporting

Flemish region

Terminals need to report annually with regards to the performance of the VRU at the site to the Environmental Licensing and Inspection departments (both part of the Flemish LNE) and the Flemish Environment Agency[20], as stated in Article 5.17.4.1.3 (paragraph 4) of the Vlarem legislation. No further reporting is required from the terminals or petrol stations to competent authorities with regards to their throughput levels. However Article 5.17.4.1.5 of the Vlarem law states that the operators must keep a register of the throughput and this should be at the disposal of the competent authority.

In addition under Part 4 of the Vlarem law (which refers to the general requirements) the operators are required to report their emissions annually if they are > 20 tonnes for VOCs, > 0.1 tonne for benzene or > 10 tonne for aromatics.

[20] The Flemish Environment Agency (VMM) measures and reports air quality and associated emissions. The Flemish LNE Department is responsible mainly for policy preparation, permitting and inspection activities.



Walloon region

No information has been received from this region regarding any reporting obligations for the installations.

Brussels region

There are no specific reporting requirements relating to compliance with the Directive, but operators must report their annual throughput to the competent authority (BIME)[12]. BIME then checks the operators' data to determine if the throughput has altered such that the operator should now be included or exempt from the regulations[12].

A2.3 Status of implementation

Flemish region

A report provided by the Flemish LNE[21] in relation to Stage II BAT application that was conducted in 1999 indicated that there were 5,063 petrol stations in Belgium and 3,000 stations in Flanders. No more recent information on the number of petrol stations has been identified to date.

Consultation with the Flemish LNE indicated that it is expected that all terminals and petrol stations would comply with the requirements, particularly for the Class 1 installations (all petrol stations and the majority, if not all, terminals in Flanders are Class 1 installations), as they are more frequently inspected and need to comply with BAT. .

Walloon region

For the Walloon region of Belgium, consultation has suggested that there are transitional periods for the application of the Directive to certain service stations. In particular, it is understood that AGW 4/03/1999 allows a transitional period up to 1 January 2010 for stations with storage tanks that were less than 20 years old in 2001. The practical implications of how this transition period relates to the requirement to implement Stage I controls according to Directive 94/63/EC and AGW 23/05/1996 is not clear.

No confirmation of the status of implementation of terminal storage installations in the Walloon region with regard to the requirements of the Stage I VOC Directive has been made available.

The Walloon Ministry of Environment have confirmed that they anticipate that all terminals and service stations will comply with the requirements of the Directive no later than 1st January 2010 when the last provisional timescale for compliance with the requirements expires.

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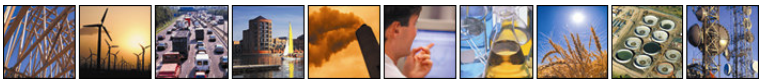
[21] http://www.emis.vito.be/EMIS/Media/Tankstations_volledig_rapport.pdf



Brussels region

In the Brussels region all mobile containers, terminals and service stations are currently understood to meet the requirements of the Directive[12].

A2.4 Technical issues

Consultation with the Flemish LNE did not identify any issues and problems with regards to the implementation of the Directive 94/63/EC. However it appeared that there was a delay in transposing the Directive into national law, although the same dates and timescales were kept in the transposition as set out in the Directive.

Flanders has introduced a requirement from 1st January 2008 to comply with a more stringent concentration limit for VOC at the VRU at terminals i.e. 10 g/Nm^3 instead of 35 g/Nm^3. This VOC emission limit was approved by the Flemish Government in the Vlarem law after consultation and discussion with industry; the Flemish LNE stakeholder highlighted that the industry did not have any complaints about this and is expected that the 10 g/Nm^3 to be easily achieved at the VRUs at the terminals in Flanders. The 10 g/Nm^3 VOC emission limit value at VRUs at terminals was set in the Vlarem law to be in line with the LRTAP (Gothenburg) Protocol as presented in Annex 6 (Number 8, table 1) of the report[22].

Consultation with the Brussels region did not identify any issues or problems with regards to the implementation of the Directive[12].

No information is available on technical issues encountered in Walloon region

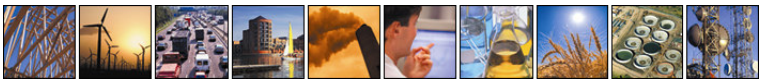
A2.5 Problems of interpretation

No problems of interpretation were identified from discussions with the Flemish LNE or with the BIME in the Brussels region.

A2.6 Potential for simplification

The Flemish LNE stakeholder stated that the Flanders government would like to see the 10 g/Nm^3 introduced in Directive 94/63/EC as the VOC concentration limit for VRUs at terminals. Moreover, they suggest that the requirements of Directive 94/63/EC should be updated to be in line with the new BREF on storage, including any higher abatement efficiencies that may be presented (e.g. higher than the current 90% and 95% abatement efficiencies referred to in Annex I for external and internal floating roof tanks respectively). For any future

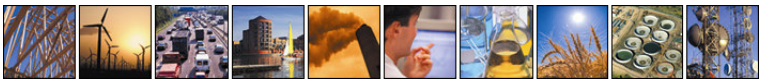
[22] http://www.unece.org/env/lrtap/full%20text/1999%20Multi.E.Amended.2005.pdf



revision of the requirements of Directive 94/63/EC, they also suggest that the revision of the BREF on refineries should be considered and taken into account.

A2.6.1 Other issues

The Flemish LNE stakeholder also highlighted that a requirement to apply VRUs on seagoing ships should be considered for any revision of Directive 94/63/EC. They have suggested that recent information from Sweden (that VRUs on ships are already installed and operating) and the Netherlands (that VRUs are installed in the Amsterdam harbour; it could not be confirmed by the LNE stakeholder if this is yet operational) indicate that installation of VRUs is feasible on seagoing ships and environmental permitting conditions in Sweden and Netherlands have included VRU on seagoing ships. According to the Flemish LNE, this counteracts any previous arguments a few years ago when industry was stating that it was not possible to install VRUs on ships, the main argument being that many ships did not have the proper connections to connect to a VRU. Currently the Flemish region is investigating the feasibility of installing VRUs on seagoing ships by undertaking a technical and economic assessment as stated from the Flemish LNE.



A3. Bulgaria

A3.1 Data sources

The following data sources were consulted in order to gather information for Bulgaria's implementation of Directive 94/63/EC.

- Official web site of the Ministry of Environment and Waters - http://www.moew.government.bg/index_e.html
- Eur-Lex – http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31994L0063&model=guichett
- National Report '2007 the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations- Directive 94/63/EC
- Interview conducted with Mrs. Elena Yakimova – expert Air Pollution Control, MOEW

A3.2 Process for implementation

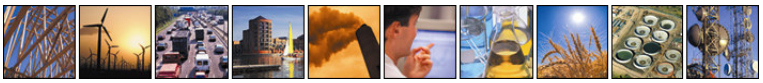
A3.2.1 Legal background

In 1994 the EU published Directive 94/63/EC on the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations[23]. This Directive was transposed to Bulgarian legislation through the establishment of Regulation N16 from August 12th 1999 grounding on the Article 9 from the Clean Air Act of Bulgaria[24]. The Regulation was enforced 9 months after publishing in State Gazette No:75 /1999 (from May 25th 2000). Its enforcement and coordination is entrusted to the Ministry of Environment and Water, the Ministry of Economy, the Ministry of Transport, the Ministry of Regional Development and Public Works and the Ministry of Health.

This Regulation establishes threshold values for emissions of volatile organic compounds (VOC), discharged to air from plants and installations for storage and loading or unloading of petrol, including during operations related to

[23] http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31994L0063&model=guichett#top

[24] http://www.paragraf22.com/pravo/zakoni/zakoni-d/228.htm



loading or unloading of mobile containers for transport of petrol from one terminal to another or from a terminal to a service station.

There is a three year transitional period for Bulgaria for the implementation of the requirements of Directive 94/63/EC until 31.12.2009.

A3.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A3.1 Roles & Responsibilities

Role and Responsibility	Organisation
• Role: regulator • Carries out the national policy in the field of environment and AAQ management; • National competent authority (through its Air Protection Directorate) for the approximation of the Directive; • Responsible for the harmonization of the legislation as a whole, for organization, coordination and control of activities on its implementation and enforcement. When necessary, reports to EC on the process of fulfilling the indicated activities. • Instructions and orders on the implementation of the Regulation	MOEW – Ministry of Environment and Waters
• Maintains and develops the national information/monitoring system and the data bases on emissions of harmful substances released in the atmosphere; • Responsible for the methodological guidance of the RIEW in their data collecting activities; • Organizes and maintains the data base of VOC emissions resulting from storage and transport of petrol in relation with reporting on the process of the Directive implementation in the country, including emissions from mobile containers(through its Air Monitoring Department) • Ensures methodologically the measurements and the control inspections, carried out by RIEW(through its Laboratory and Analytical Directive),i.e. provides the necessary standardization documents, methodologies, guidebooks, etc.	Executive Environmental Agency(at MOEW)
• Responsible for implementation and enforcement of the environmental legislation in relevant districts of the country's territory; • In charge of implementation and enforcement of the technical requirements of the Directive, referring to relevant stationary sources (terminals and services stations)	RIEW – Regional Inspectorate of Environment and Waters

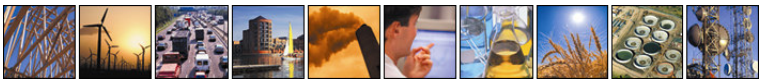


Table A3.1 (continued) Roles & Responsibilities

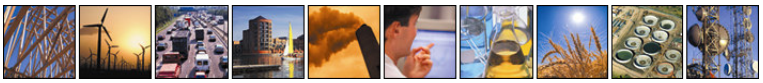
Role and Responsibility	Organisation
• Carries out the national policy as regards development of the transport activities and vehicles, and the approximation of the European environmental requirements in this field; • Through its executive agencies responsible for approximation with the legislation, for application and enforcement of the relevant EU and international requirements for transport of dangerous goods. • In charge of implementation and enforcement of the technical requirements of the Directive concerning regarding the relevant mobile sources(road, rail tankers and vessels)	Ministry of Transport
• National competent authority for the application of the European Agreement for International Road Transport of Dangerous Goods.(ADR)	Executive Agency “Automobile Administration” (MT)
• National competent authority for the implementation of the Common Rules for International Railway Transport of Dangerous Goods(RID) • Responsible for the application and enforcement of the technical requirements of the Directive concerning the rail tankers.	Executive Agency of “Railway Administration” (MT)
• National competent authority for implementation of the International Code for Transport of Dangerous Goods along the river Danube; • Responsible for the application and enforcement of the technical requirements of the Directive concerning the vessel used for transport of petrol inland waterways.	Executive Agency "Maritime Administration"(MT)
• Carries out the national policy of ensuring the necessary state reserves and war time stocks. • Responsible for bringing its terminals (IPS and IPLU) into compliance with the technical requirements of the Directive.	State Agency ‘State Reserve and Wartime Stocks - SASRWS(at CM)

A3.2.3 Permitting & inspection activities

Responsibility for granting permits and setting up permit conditions is the Ministry of Environment and Waters in accordance with the Ministry of Economy and Energy, Ministry of Regional Development and Public Works and the Ministry of Health.

The inspections of the terminals which respond to the requirements of the Directive94/63/EC are held once a year. The frequency of the inspections of the service stations is different according to the Regional Inspectorates’ plans of action.

The municipality authorities and the Regional Inspectorates on Environment and Waters control and manage activities related to the aim of achieving a high level of protection for the environment on their territory.



A3.2.4 Guidance for inspectors & industry

The Ministry of Environment and Waters established by the ordinance N RD-1238/01.10.2003 a "Methodology of assignment of the Volatile Organic Compounds resulting from storage, loading and unloading of petrol" consisting of empiric formulas according to which emissions of VOCs may be estimated.

A3.2.5 Reporting

The Regional Inspectorates of Environment and Waters are responsible for the issue of the directions and the execution of the technical requirements of the Directive94/63/EC concerning the installations (terminals and service stations). Using its executive agencies, the Ministry of Transport is responsible for the appliance and the imposition of the technical requirements of the Directive94/63/EC, concerning the containers (railway, road or waterway).

The Regional Inspectorates of Environment and Waters collect/deliver information about the conditions of the installations, included in the directive, to the Ministry of Environment and Waters within one month before sending the National Report for the enforcement of the regulation to the European Commission. The first National report is not submitted to the EC.

The Ministry of Transport delivers information to the Ministry of Environment and Waters about the condition of mobile tankers - transported by road, rail or waterways - used for the transfer of petrol from one terminal to another or from a terminal to a service station, within one month before sending the National Report for the enforcement of the regulation to the European Commission.

The National report for 2007-2008 will be delivered to the EC in the end of February 2009.

A3.3 Status of implementation

As described previously, Bulgaria has a transition period for implementing the Directive until the end of 2009. More than 60-70% of the installations are already responding to the Directive's requirements. The Ministry of Environment and Waters is organizing seminars and trainings in order to inform the companies how to carry out the requirements of the Directive 94/63/EC.

Current situation in terms of implementation is as follows:

- **Terminals** – 42 terminals of which 8 are new and 6 of them are responding to the requirements in the Directive.
- **Service stations** – see table below:

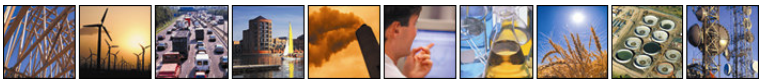


Table A3.1 Service stations

	Total service stations	New service stations	Numbers of existing service stations (by throughput)			
			>1,000m3	>500m3	>100m3	Others
Service stations	2,378	861	535	136	525	321
Year of compliance			2005	2007	2009	2009

From a total of 2,378 service stations, 13 % are not still adapted to the requirements of Directive 94/63/EC. For mobile containers the situation is described below:

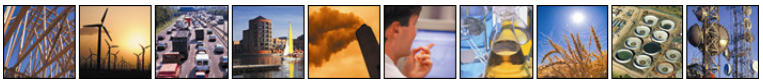
- **Road tankers** – 688 containers from which 227 are responding to Regulation N16 and the remaining 461 are in a period of adaptation which was due to end on 31st December 2008.
- **Railway containers** – 792 containers, all of which comply with the requirements of the Directive. Although they are property of the Bulgarian State Railways they are registered under a number of other companies. The list below shows the owners and the quantity of containers they have:
  - "BDZ" EAD – 405 containers
  - Lukoil Bulgaria – Burgas – 349 containers
  - OMV Bulgaria – Sofia – 34 containers
  - ESTEL OIL Bulgaria – Sofia – 4
- **Inland water way containers** – 2 tank barges (property of the "Bulgarian River Shipping" company) which are in compliance with the requirements of the Directive.

A3.4 Technical issues

No technical issues have been identified.

A3.5 Problems of interpretation

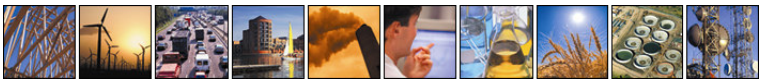
No problems of interpretation identified.



A3.6 Potential for simplification

The MOEW created a special schedule according to which the inspections of the installations will be simplified because it seems that the volume of the work is too much and the Regional Inspectorates can not manage to do all the work in time.

A recommendation suggested by the MOEW for the EC is the creation of a network between the EU MSs to exchange information about how emissions of VOC are controlled including the way in which they have implemented Directive 94/63/EC.



A4. Cyprus

A4.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Cyprus' implementation of Directive 94/63/EC.

Table A4.1 Stakeholders consulted for Cyprus

Stakeholder	Organisation name	Date interviewed
Government department	Ministry of Labour and Social Insurance (MLSI)	17th October 2008
Government department	Ministry of Communications and Works (MCW)	8th October 2008
Industry	Hellenic Petroleum Cyprus Ltd (relevant contact for petrol stations)	17th October 2008
Industry	Hellenic Petroleum Cyprus Ltd (relevant contact for terminal storage installations and distribution)	14th October 2008
Industry	Lefkaritis Group	29th October 2008

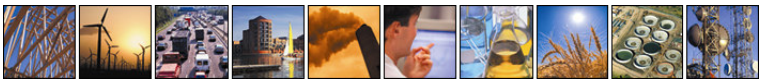
A4.2 Process for implementation

A4.2.1 Legal background

Directive 94/63/EC was transposed into Cypriot law via the following regulations:

- Regulation K.D.P 76/2003 was published on the 31st January 2003 and transposed the main part of Directive 94/63/EC into Cypriot law. This legislation is referred to as "Control of Atmospheric Pollution – Control of VOC from the storage of petrol and the distribution from terminals to service stations". This legislation covers terminals, loading and unloading of road tankers and petrol stations; and

- Regulation K.D.P 319/2002 was published on the 5th July 2002 and covers only road tankers and transposed Articles 2 and 5 of Directive 94/63/EC (and the relevant requirements for road tankers in Annex IV of Directive 94/63/EC) into Cypriot legislation. The K.D.P 319/2002 regulations have been incorporated as amendments (now referred as "Amendments, Number 2") to the Petroleum Law referenced as Chapter 272, Law 64 of 1975 (now referred as "Basic regulations"). This regulation came into force on 1st January 2003.



For the transposition of the Directive, the Ministry of Labour and Social Insurance prepared the draft law. The draft was checked by the Attorney General, then approved first by the Council of Ministers and finally by Parliament.

Initial implementation of Directive 94/63/EC began in Cyprus in 1999 (at least for the provisions and requirements included in the Directive such as vapour recovery systems during unloading of road tankers at petrol stations), when the Ministry of Labour and Social Insurance (MLSI) informed the private companies (which also own terminals) about the requirements of the Directive.

- Regulation K.D.P 76/2003, Article 5 (Paragraph 8) refers to terminals petrol stations and their throughputs. The Cypriot legislation has introduced the following provisions for terminals:
- New terminals and existing terminals of > 25,000 tonnes throughput - the requirements of the Cypriot legislation apply from 31st January 2003; and
- For all other existing terminals - the requirements of the Cypriot legislation apply from 31st December 2004.

Regulation K.D.P 76/2003, Article 8 (Paragraphs 6 – 8) refers to petrol stations and their throughputs. The Cypriot legislation has introduced the following provisions for petrol stations, which are in line with the requirements of Directive 94/63/EC on petrol stations (as set out in Article 6, paragraphs 3 and 4 of the Directive):

- New service stations and stations of > 500 m^3 throughput - the requirements of the Directive and Cypriot legislation apply from 31st January 2003.

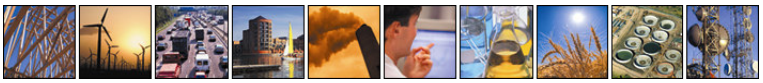
The requirements of the Directive and Cypriot legislation apply from 31st December 2004 for all other service stations;

- For service stations with 100 – 500 m^3 throughput - upon approval from the Minister, a derogation may be given to such stations; and
- < 100 m^3 throughput - the requirements of the Directive and Cypriot legislation do not apply and these service stations are exempt.
- For road tankers Regulation K.D.P 319/2002 set requirements that came into force on 1st January.

Derogations adopted

During discussions with the MLSI and the MCW it was highlighted that no derogations have been given for terminal storage installations, road tankers or petrol stations.

However for five petrol stations with a throughput of 100 – 500 m^3 per year, an extension was given with regards to compliance with the requirements of Directive 94/63/EC (i.e. installation of Stage 1b vapour recovery equipment) until 2008 or when maintenance of the petrol stations was planned, whichever took place earlier. For these five



petrol stations, installation of the Stage 1b vapour recovery equipment and full compliance with requirements of the Directive 94/63/EC took place by the end of 2007, hence currently there is no petrol station in Cyprus that has a derogation or extension with regards to compliance with the Directive's requirements.

Furthermore there is no petrol station with < 100 m^3 throughput in Cyprus and hence there are no derogations adopted with regards to petrol stations with a small throughput.

A4.2.2 Roles and responsibilities

The Ministry of Communications and Works (MCW) is responsible for the permitting and regulation of road tankers, while the Ministry of Labour and Social Insurance is responsible for permitting and regulation of terminal storage installations and petrol stations. Communication between the two ministries is undertaken when/if certain issues regarding the legislation have arisen but no central committee has been set up to discuss and update the progress of implementation and this Directive. As the roles and responsibilities of each ministry are quite clear with regards to the implementation of the Directive, consultation with the MLSI noted that a central body is not really necessary for this Directive.

A4.2.3 Permitting and inspection activities

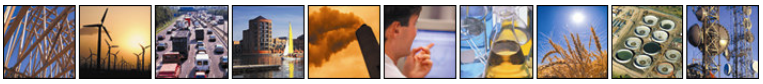
In Cyprus the responsible ministries for permitting and inspection of the implementation of the Directive 94/63/EC are as follows:

- For terminals and petrol stations: the Ministry of Labour and Social Insurance;
- For road tankers: Ministry of Communications and Works; and
- The remainder of this section describes how permitting and inspection is undertaken with regards to installations (terminals and petrol stations) and road tankers.

Terminals

The MLSI undertakes the permitting and inspection for terminal storage installations[25]. The permits are issued under the Atmospheric Pollution Control laws and the storage of petrol according to these laws is an activity for

[25] During consultation with the MLSI it was noted that MLSI is responsible for inspecting the terminals regarding the implementation of the provisions of Directive 94/63/EC. Other Ministries in Cyprus have also inspectors to inspect the terminals for matters for which they have the responsibility such as liquid effluent or solid/hazardous waste.



which an environmental permit is required; the permit conditions are based on the requirements of Directive 94/63/EC. The permit is called an "Air Emission Permit"[26]. Permits for terminals are usually valid for five years.

In Cyprus there are three terminal storage installations and all have been issued with air emission permits. Permitting of the installations had started before 2004 and was completed by the end of 2005[27].

Inspection of terminals is undertaken at least once a year, when inspectors check whether the permit conditions are met including calibration of equipment, monitoring of emissions, etc. During these inspections the MLSI performs ad hoc emission measurements using their mobile van unit to monitor compliance with the emission levels set out in the permit conditions. An inspection is also necessary and is carried out before a permit is renewed. Furthermore ad hoc site visits from the MLSI are also performed during the year at terminals.

A terminal operator also noted that the Ministry of Environment undertakes two site visits per year and any other ad hoc visits the Ministry may deem necessary (for the ad hoc visits the Ministry of Environment usually notifies the operator a day or so before the visit). No information has been provided on how frequently and by whom inspections are undertaken at terminals.

Road tankers

The MCW has contracted two private companies to undertake, on its behalf, the permitting of road tankers and to check/inspect that road tankers comply with all the requirements set in Directive 94/63/EC and the Cypriot regulation K.D.P 319/2002. These two companies have been inspected and certified by the MCW (technical officers visited the facilities of the two companies) with regards to their technical capability, equipment and resources to undertake the inspection and permitting of road tankers under the Stage I VOC provisions. Details of the permits issued to the two private companies are presented below[28]:

- One permit was issued on 21st August 2006 and is valid until 31st December 2008; and
- The other permit was issued on 15th March 2007 and is valid until 31st December 2009.

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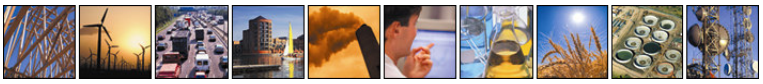
[26] This permit is not the only one needed for the operation of the terminal. A terminal operator is required to obtain several other permits as well. Because of this, in the cover letter of the General Director sending the permit (signed by the Minister), there is a phrase: "This Permit does not provide an exemption to the operator to obtain other Operating Permits required by other Laws".

[27] One terminal operator mentioned that the terminal had its first issue of the permit/license on the 1st January 2002, valid until 21st December 2007; it was renewed on 14th April 2008 and is valid until 14th April 2013.

[28] During consultation with the MCW it was highlighted that it was difficult to identify companies that had the technical capability and resources for permitting and inspecting of road tankers for Stage I VOC Directive requirements



Technical officers from the MCW undertake ad hoc visits and inspections at these two private companies about every 6 to 9 months to check if the provisions as set out in their permit are met, if any changes have occurred and if any other issues have arisen and need to be addressed.

The permitting process for road tankers is as follows:

- A road tanker operator takes its vehicle to one of the two authorised private companies. An inspection is undertaken and if the vehicle complies with all the mobile container requirements of Directive 94/63/EC, then a certificate is provided to the road tanker driver;
- The certificate is then submitted to the MCW and a "Certificate of periodic control of VOC emission for road tankers" is issued; and
- This "VOC certificate" is then presented to the Department of Public Transport in order for a vehicle to be issued with a "Circulation licence".

The "Circulation licence" is required to be renewed every year and the "VOC certificate" is a prerequisite before the licence is issued/renewed. Via this process an operator of a road tanker is required to take the road tanker for an inspection every year to renew and hence obtain a valid "VOC certificate".

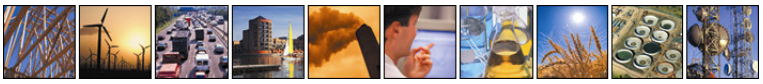
The MCW has stated that so far 41 inspections and permits have been undertaken and issued with regards to road tankers. The MCW has estimated that another 10 to 20 road tankers are still to be permitted, hence in total there are about 50 to 60 road tankers. These 41 permits have been issued in the period 2007-2008.

Petrol stations

The MLSI is responsible for permitting and inspecting of petrol stations. The permits are issued under the Atmospheric Pollution Control laws and the storage of petrol according to these laws is an activity for which an environmental permit is required; the permit conditions are based on Directive 94/63EC requirements. The permit is called an "Air Emission Permit". Permits for petrol stations are usually valid for 7-8 years and all the current permits will expire in the period 2011-2012. During consultation with MLSI it was stated that inspections will be undertaken before renewing the permits.

During the early stages of the implementation of Directive 94/63/EC, inspections were carried out on a number of petrol stations where the equipment for Stage 1b vapour recovery was installed (during the period 1999 to 2003). Representatives from the MLSI visited all the petrol stations during this time where works were taking place and checked that the equipment and pipeline network was set up correctly.

However for petrol stations where equipment was installed after 2003, the MLSI has not checked on a 100% basis whether the pipeline network has been installed correctly. As the installation of Stage 1b vapour recovery pipework was done correctly (as checked during the early inspections of the MLSI) in the first phase of the implementation and permitting of petrol stations, the Ministry considered that on site inspection at every petrol station installing Stage 1b equipment was not necessary. During consultation with the MLSI representative, it was



indicated that about 50% of petrol stations in Cyprus (i.e. about 125 stations) were checked for the correct installation of Stage 1b vapour recovery pipeline infrastructure[29].

At present, inspection of petrol stations is not done on a set frequency (e.g. on an annual basis), and only random checks and inspections are undertaken at randomly selected petrol stations.

A4.2.4 Guidance for inspectors and industry

No guidance documents on terminal storage installations, road tankers and petrol stations were developed by the MLSI or the MCW with regards to the implementation of Directive 94/63/EC.

The industry stakeholders consulted stated that experts from other Member States (e.g. Greece, UK) were invited to give advice on the requirements of Directive 94/63/EC (and on how to use the equipment) and seminars were held to provide training to operators of terminals and petrol stations. During these seminars the Ministry of Labour and Social Insurance was also present.

A4.2.5 Reporting

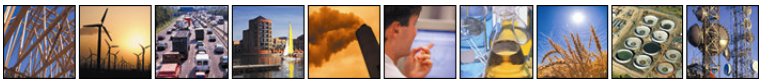
Reporting requirements are set out in the "Air emission permits" for both terminal installations and petrol stations. During consultation with the MLSI it was mentioned that operators of terminals report annually to the MLSI on total fuel volumes (i.e. throughput) and total emission losses.

With regards to petrol stations, permits state that the operator should report annually to the MLSI:

- the volume of petrol that escaped to the environment during storage procedures; and
- the results of the inspection of petrol storage tanks and the petrol distribution pipework.

During consultation with the MLSI it was noted that this reporting by the petrol stations operators is done every two years, when the MLSI sends a reminder to operators of their reporting requirements. This is because there are no significant annual fluctuations in throughput.

[29] It should be noted that all petrol stations had notified the MLSI of their readiness to have the installation of Stage 1b equipment checked, but the Ministry did not have enough resources to perform site visits to all petrol stations in Cyprus.



A4.3 Status of implementation

Terminals

In Cyprus that are three terminal storage installations and all have been issued with air emission permits in line with Directive 94/63/EC and national legislation requirements. During consultation with the competent authority and industry representatives it was noted that all terminals in Cyprus have fixed-roof tanks with internal floating roofs (there are no external floating roof tanks for storage of petrol in Cyprus).

At these three terminals, there are two Vapour Recovery Unit (VRU) systems installed and operated by the private companies that own them. Operation of one of the VRUs is shared between two terminal storage installations that are in close proximity, while the other terminal operates its own VRU. Although these VRU systems were ordered in 2003 and installation began in 2004, full operation only started in 2005[30] for both systems as a delay had occurred in the commissioning and operation of both VRU systems (both systems were ordered from the same company, Symex).

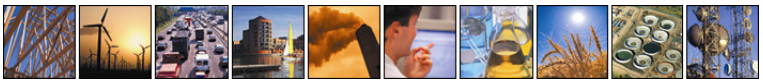
The competent authority (MLSI) highlighted that vapour recovery was already taking place at petrol stations by road tankers from 2004 onwards, but vapour recovery at the terminals on a continuous basis was not possible until the VRU systems were fully operational in 2005. During the period 2004-2005 i.e. before the VRUs were operating fully, vapours from petrol stations were recovered by road tankers and emissions were released to the atmosphere at the terminals (in some cases the terminal operators were undertaking vapour recovery at a experimental stage).

Consultation with the terminal operator indicated that, before the installation of the VRU system, the company had meetings with the Ministry of Environment to discuss and to agree on the installation of the VRU, including for example any specific arrangements, environmental conditions, etc. The operation of the VRU has not faced any major problems/issues, particularly in the last year and a half (to autumn 2008). Measurements of VOC emissions and monitoring are continuous at the VRU systems (consultation with MLS and industry) and the emission levels are usually about 2 – 5 g/Nm^3 i.e. (level of VOC emissions that is lost), which is well within their permit conditions for VOC emission limits of 35 g/Nm^3.

Road tankers

From consultation with the MCW it was estimated that 10 to 20 road tankers are still to be permitted and it is anticipated that these remaining road tankers will obtain VOC permits within the next year or so i.e. 2008 / 2099, as

[30] For the VRU system shared by the 2 terminals, the operator confirmed that full operation started in November 2005. All VOC emissions are now recovered, except for aviation fuel which at the time of the installation was not considered to be incorporated in the recovery process.



their annual "circulation license" will be expiring and they will have to go through the permitting process to obtain a VOC certificate before they can renew their "circulation license".

It was stated by the stakeholders (industry) that all road tankers are bottom loading (for all three terminal companies in Cyprus), hence making the recovery of VOCs possible (top loading tankers would make VOC recovery difficult to almost impossible based on the view of the industry representative).

In terms of derogations it is understood that none were taken up with regards to road tankers.

Although the Cypriot national legislation (K.D.P 319/2002) regarding road tankers came into force on the 1st January 2003, it was only from 2007-2008 that permits started being issued for road tankers. From consultation with the MCW, it was identified that this delay in issuing permits for road tankers was due to the lack of vapour recovery units (VRUs) at the three terminal storage installations in Cyprus. Since the VRUs were not fitted and fully operational at the terminal storage installations until 2005, vapours recovered from the road tankers during unloading at petrol stations were released at the terminals during the loading procedures (as described above). Once the VRUs were installed at the terminals, the MCW initiated the process for permitting road tankers.

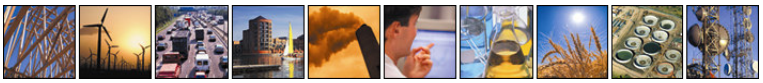
Petrol stations

In terms of petrol stations, the MLSI contact provided a database that contains the names of petrol stations and details on location, throughputs and annual emissions. This database was developed in 2004 and contains 255 petrol stations in total[31]. The MLSI contact estimated that about 10-15 new petrol stations have been built since 2004 and confirmed that the total number of permits issued to date is 259 and there are a few more petrol stations for which the permitting procedure has not yet been completed. It is expected that permitting of the remaining petrol stations and the updating of the database of the MLSI will be completed by the end of 2008, based on the discussion with the MLSI contact.

All petrol stations had installed Stage 1b vapour recovery equipment before the end of 2004, except for two petrol stations with low throughput that are situated in remote areas of Cyprus, based on consultation with the competent authority and the private company that owns these stations[32]. For newly built petrol stations and for petrol stations that have undergone or are planned to undertake renovation, MLSI has required the private companies that own the petrol stations to make provisions and to install the necessary underground parts and pipeline network for Stage 2 vapour recovery equipment as well; this was also highlighted from consultation with industry. Stage 2 recovery

[31] The database is intended to be renewed/updated annually but due to lack of resources at the Ministry this had not been possible.

[32] Consultation with the private company identified that 2 out of the 96 petrol stations they own (the 2 stations are between 100 – 500 m^3) have not installed Stage 1b vapour recovery. The competent authority mentioned that the company is planning to have everything completed i.e. installment of the Stage I vapour recovery, early 2009.



systems have been installed in about one third of all petrol stations in Cyprus (of a total of about 250 – 260 petrol stations).

In terms of assigning responsibilities, the private companies that own the petrol stations are responsible for the equipment (i.e. any faults, maintenance), while the petrol station operator is responsible for ensuring that the Stage 1b VR system is used appropriately by the drivers of the road tankers.

A4.4 Technical issues

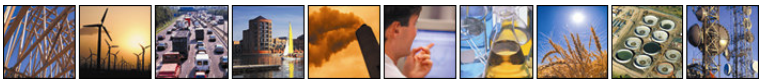
During discussion with the MLSI it was mentioned that no major technical issues/problems were encountered with the implementation of Directive 94/63/EC requirements for terminals and petrol stations. However for some specific technical requirements for terminals the competent authority highlighted that it has not yet investigated/explored ways on how to check and monitor them (although these requirements are included in their air emission permits) including:

- total radiant heat reflectance of 70% or more; and
- for fixed roof tanks, the internal floating roof and primary seal should ensure containment of vapours of 90% or more.

Due to lack of resources it has not been possible for the MLSI to investigate this further and it is understood that this will not be possible in the near future. The MLSI has asked the private terminal companies to inform the MLSI on how these specific requirements are checked and monitored by the operators; the operators are likely to provide feedback to the MLSI on this issue by the end of 2008. However during discussion with a terminal operator it was stated that all storage installations are painted with a single white colour and they meet the 70% heat reflectance requirement, which is line with the BREF document on storage (p 126).

In addition industry terminal operators highlighted that they did not face any major technical problems during the implementation of the Directive. A small issue with the measurements of the gas analyser at the VRU was encountered, but this was resolved with the gas analyser supplier (i.e. how to convert measurements from ppm to mg/Nm^3 units).

In terms of road tankers, the MCW noted that no major technical problems were identified during the implementation of the Stage I VOC Directive, as all tankers are purchased from EU countries and are usually in line with the requirements of the Directive. Some technical issues encountered were around the replacement of valves and how to undertake correct maintenance of the road tankers, but this reportedly did not cause any major problems.



A4.5 Problems of interpretation

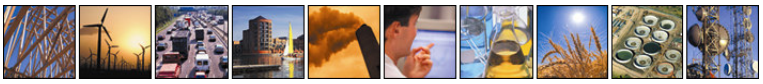
During the consultation with the competent authorities (MLSI and MCW) and industry, no interpretational problems were identified for the implementation of Directive 94/63/EC.

A4.6 Potential for simplification

No suggestions on potential simplification of Directive 94/63/EC requirements were provided by the relevant Cypriot stakeholders. The competent authorities noted that no further simplification is considered necessary since the Directive's requirements are now in place and they had not caused any major problems during their practical implementation.

In addition, stakeholders were not aware of any recent development of any state-of-the-art abatement measures for VOC recovery. The MCW commented that the volume of work and distribution of petrol in Cyprus is quite small and nobody would invest resources and capital in developing state of the art abatement measures.

In addition it was noted that in the case of Cyprus, it is generally preferred to transpose EU Directives into Cypriot legislation as published. This is because, even if a technical requirement is not compatible with the infrastructure or the way the system is set up, the cost to comply with that requirement will be relatively small compared to the resources required to discuss with the Commission the potential for allowing a derogation for Cyprus.



A5. Czech Republic

A5.1 Data sources

The following stakeholders have been interviewed to gather information on the status of implementation of the Directive in the Czech Republic:

- Czech Ministry of Environment http://www.mzp.cz, Ing. Petr Vodička
- Czech Hydro Meteorological Institute http://www.chmi.cz, Bc. Jan Klupák

A5.2 Process for implementation

A5.2.1 Legal background

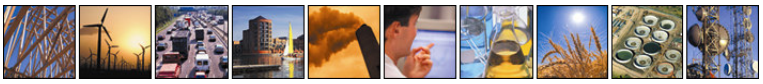
The directive was transposed into Czech legislation by regulation nr. 509/2005 Sb., that replaced an older regulation 355/2002 Sb. This regulation is the implementing legislation for the law 86/2002 Sb. (on air protection).

Regulation nr. 509/2005 Sb. implemented three European Directives in one go:

- EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE 94/63/EC on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations;
- COUNCIL DIRECTIVE 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations;
- DIRECTIVE 2004/42/CE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC.

Annex IV of regulation 509/2005 Sb. implements the technical requirements of Directive 94/63/EC. It concerns *technical construction and operation of storage of petrol and its distribution from terminals to service stations* and contains requirements for:

i. storage installations of the terminals;
ii. tapping and filling installations;
iii. installations of bottom filling, collecting the vapours and protecting the overfill of mobile road tankers;



iv. filling of storage installations in terminals and service stations, where also the storage of vapours takes place;

v. operating of service stations.

A5.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A5.1 Roles & Responsibilities

Role and Responsibility	Organisation
Transposing EU legislation to the CZ	Czech Ministry of Environment http://www.mzp.cz
Review/approve alternative technical measures Collecting the data and transferring the regulations Comments on regulation and feed backing	Czech Hydro Meteorological Institute http://www.chmi.cz
Inspections and monitoring of medium and large emission sources	Environmental Inspectorate
Inspections	Regional Councils
Permitting of activities producing VOC emissions	Municipal Offices

A5.2.3 Permitting & inspection activities

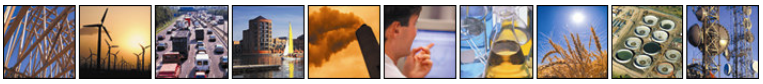
In the legislation, permitting and inspection activities aren't specified specifically for 94/63/EC only. The system is determined as whole by the law nr. 86/2002 Sb. (on atmospheric protection).

A5.2.4 Guidance for inspectors & industry

No specific guidance appears to have been developed for inspectors or industry. Requirements for permitting, inspections and compliance are specified in the legislation.

A5.2.5 Reporting

There are no specific requirements for reporting under the Directive. The system for reporting is determined as a whole by law nr. 86/2002 Sb. (on atmospheric protection).



A5.3 Status of implementation

No data is collected specifically for the Directive. However, discussions with stakeholders indicate that all of the requirements have been implemented and applied correctly. The table below provides an overview of the number of service stations in the Czech Republic.

Table A5.2 Number of service stations (1st half 2008)

Category by number of service stations in the network	Number of operators		Number of petrol stations		Throughput	
	Total	%	Total	%	Volume (thousand litres)	%
1-4	789	90	1,146	36	674,251	23
5-20	64	7	509	16	393,725	13
21-100	11	1	436	14	534,078	18
>100	5	1	1,022	32	1,189,712	40
Supermarkets	4	1	63	2	208,918	7
TOTAL	873		3,176		3,000,684	

A5.4 Technical issues

No particular technical issues were identified.

A5.5 Problems of interpretation

No particular problems were identified related to interpretation of the Directive.

A5.6 Potential for simplification

By implementing Directive 94/63/EC and combining it with other related Directives in **509/2005 Sb.** (355/2002 Sb. respectively) the situation in the Czech Republic has already been simplified. This has resulted in reduced administrative load for operators and regulators and a simplification of the systems for reporting by regional councils etc.

A6. Denmark

A6.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Denmark's implementation of Directive 94/63/EC.

Stakeholder	Organisation name	Date interviewed
Government Department	Miljøstyrelsen: Danish Environmental Protection Agency (Ministry of Environment)	No response provided
Industry	Energi-og Olieorganisationerne (Danish Petroleum Industry Association)	24th November 2008

A6.2 Process for implementation

A6.2.1 Legal background

It is understood that legislation in Denmark implementing Directive 94/63/EC is set out in Statutory order no. 852 of 11 November 1995 on reduction of discharges of vapour when storing and distributing petrol.

It is understood[33] that the emission limit value set for petrol vapours is 0.15 g/Nm^3 instead of 35 g/Nm^3 as in the Directive, though the details of this have not been confirmed..

A6.2.2 Roles and responsibilities

Roles and responsibilities are indicated in the table below.

[33] Personal communication, Danish Environmental Protection Agency, 26 August 2005.

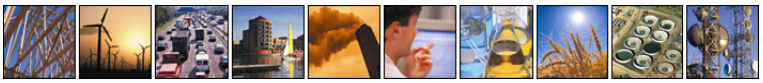


Table A6.1 Roles and Responsibilities

Role and Responsibility	Organisation
Permitting and inspection activities	Municipalities
Drafting Guidance notes and Legislation	Danish Environmental Protection Agency
Emissions Measurement	Independent, accredited laboratories

This information is subject to change; it is currently based on communications from a previous study[34].

A6.2.3 Guidance for inspectors and industry

In 2002 the Danish Environmental Protection Agency released guidance[35] on air emission regulation for all types of installations. This guidance note outlines the recommended procedures for measuring emissions to air from a variety of different types of installations. It also advocates the use of paints with a total heat reflectance of 70% or more on external storage tanks and specifies the use of primary and secondary seals for tanks fitted with external floating roofs; it should be noted that this is document is not legally binding.

A6.2.4 Reporting

No information has been made available on reporting on implementation in Denmark.

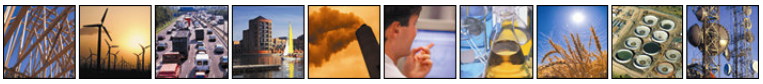
A6.3 Status of implementation

The Danish EPA had not received any information from the municipalities, which are responsible for the permitting and inspection activities; they surmise that the Directive is working satisfactorily[34]. The Danish Petroleum Industry Association report that the Directive has been implemented in Denmark with the time limits, technologies and derogation conditions set out in the Directive; 95% of all petrol stations have now been fitted with Stage I and II controls[36].

[34] E-mail from Finn Juel Anderson at the Danish Environmental Protection Agency on the 26th August 2005

[35] Danish Environmental Protection Agency, 'Environmental Guidelines Nr.1 2002: Guidelines for Air Emission Regulation: Limitation of air pollution from installations'. 2002

[36] Personal Communication with Energi Og Olieorganisationerne on the 24th November 2008.



A6.4 Technical issues

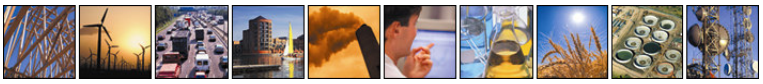
No problems with implementing the Directive are known of, as the technology for reducing vapour emissions was already available[34].

A6.5 Problems of interpretation

The Danish Petroleum Industry Association reports that there have not been any problems with interpretation[36].

A6.6 Potential for simplification

The Danish Petroleum Industry Association reports that their members do not have any suggestions for simplification[36].



A7. Estonia

A7.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for the UK's implementation of Directive 94/63/EC.

Table A7.1 Stakeholders consulted for Estonia

Stakeholder	Organisation name	Date interviewed
Government department	Ministry of the Environment, Air Quality and Radioactivity Bureau	2008-10-22
Government body	Environmental Inspectorate	2008-10-30
Government body	Technical Inspectorate	2008-10-30
Research body	Estonian Environment Information Centre (EIC)	2008-10-28
Trade association	Estonian Oil Association	2008-10-30
Industry	Pakterminal	2008-11-04

A7.2 Process for implementation

A7.2.1 Legal background

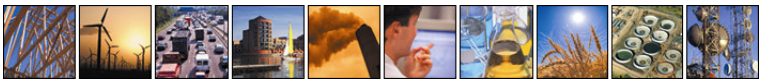
Directive 94/63/EC[37] was transposed into Estonian legislation through the Ambient Air Protection Act (RT[2] I 2004, 43, 298)[38]. According to the Act the Ministry of the Environment shall establish the requirements for transport of petrol and storage thereof in terminals and service stations for the purposes of limiting emissions of VOCs.

The requirements were established in the Ministry's degree no 4, 31.01.2005 (RTL, 10.02.2005, 19, 203)[39].

[37] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0063:EN:HTML

[38] http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X80049K1&keel=en&pg=1&ptyyp=RT&tyyp=X&query=V%E4lis%F5hu+kaitse+seadus

[39] http://www.riigiteataja.ee/ert/act.jsp?id=846392



Related policy, targets and measurements have been designed in a draft Program for reducing emission levels of pollutants to ambient air 2006-2015[40] and also a Transport development plan for 2006-2013[41].

A7.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A7.2 Roles & Responsibilities

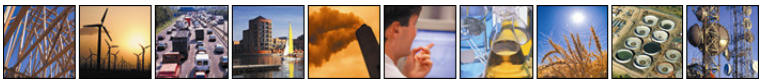
Role and Responsibility	Organisation
• Transposing EU legislation to Estonia	The Ministry of the Environment (MoE)
• Issuing permits • Monitoring of limit values of emissions • Informing public in event of content of pollutants exceeding alert thresholds	County Environmental Department (CED)
• Co-ordination of inspection activities	State Environmental Inspectorate (EI)
• Inspections	County Environmental Inspectorates
• Data collection	Estonian Environment Information Centre (EIC)
• Communication with the operator of a source of pollution when representing interests of local community • Review of a plan for reducing emissions submitted by the operator of a source of pollution	Local government body
• Submission of ambient air pollution permit • Reporting to the CED of the location • Annual reporting to EIC • Development and submission of a plan for reducing emissions	Operator

A7.2.3 Permitting & inspection activities

There are 15 County Environmental Departments that are responsible for issuing permits, following an application, and for ensuring that the requirements are fulfilled (though not for inspection, which is the responsibility of the State and/or County Inspectorates). The relevant County Inspectorate will be sent a copy of the permit and all

[40] http://www.envir.ee/orb.aw/class=file/action=preview/id=375957/nec_final020107.pdf

[41] https://www.riigiteataja.ee/ert/get-attachment.jsp?id=12784610



permits that are currently in place are posted on the internet (except non-approved and expired permits)[42]. Eight County Inspectorates check compliance, working in conjunction with the State Environmental Inspectorate (the latter is responsible for regulating larger processes). The Environmental Inspectorate audits an operator once a year on the basis of the permit in the absence of any specific problems or complaints. The Inspectorate shall forward the results of the audit to the permit issuer and operator within 14 days after the inspection. The County Inspectorates are also consulted on technical requirements on the permits issued.

The permits generally just contain broad conditions regarding the types of technologies used, their efficiencies and stating that the relevant legislation must be complied with (a reference is made to the framework legislation in the permit; the January 2005 legislation was introduced under the framework legislation). Permits may also specify the dates by which specific equipment must be installed.

There is no requirement for a formal permit to be issued for service stations with a throughput less than 2,000 m^3/year. These stations are regulated separately and are only regulated along with other environmental requirements (e.g. those relating to groundwater). For those stations below this threshold, the inspectors have an extensive list of items to check, some of which will relate to VOC emissions.

The Inspectorates are also responsible for checking compliance of mobile containers, although the Car Registry also checks that the technical requirements for transport of hazardous substances are fulfilled (twice per year). In addition, the Technical Control Centre gives the final approval on the tanks and mobile containers. The regional inspectors are responsible for identifying installations that are exempt or are subject to a transition period.

The Environmental Information Centre undertakes monitoring of VOCs and provides information online[43].

A7.2.4 Guidance for inspectors & industry

There are no specific guidance documents related to the implementation and regulation of Directive 94/63/EC in Estonia.

A7.2.5 Reporting

Operators must submit quarterly reports on its activities to the County Environmental Department and annual emissions data to the Environment Information Centre, which holds the corresponding register in Estonia.

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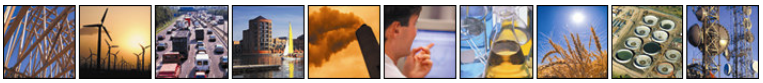
[42] http://klis.envir.ee/klis (under Keskkonnaload).

[43] For example, data for the Muuga terminal are at: http://www.envir.ee/eerc/uus/jada.php?sec=95.



A7.3 Status of implementation

The following tables summarise the numbers of terminals and mobile tankers in Estonia in 2007. There were 151 service stations in Estonia in 2007.

Table A7.3 Storage installations in terminals and mobile containers (2007)

Terminal throughput (tonnes/year)	Number	Mobile container type	Number
<25	1,159	Road	7,220
25-50	13	Rail	27,490
>50	16	Vessels	1,406
Total	1,188	Total	36,116

All terminals, mobile containers and service stations (including loading and unloading equipment) meet the requirements of the Directive.

A7.4 Technical issues

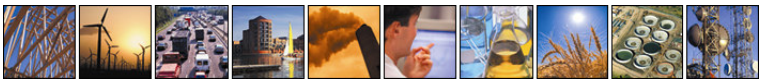
There were no significant technical problems in implementing and achieving the targets of the Directive. The corresponding requirements were established in the Ministers degree no 4, 31.01.2005 (RTL, 10.02.2005, 19, 203). A trade association, representing the oil companies, found the relevant equipment to be easily available and installed. In some cases financial problems occurred, especially in case of small and old service stations.

A7.5 Problems of interpretation

There have not been any specific problems of interpretation. Some stakeholders identified the fact that the national legislation contains a lot of cross-references to other articles which makes it difficult to follow.

A7.6 Potential for simplification

No suggestions were provided by any stakeholders.



A8. Finland

A8.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for the Finland's implementation of Directive 94/63/EC.

Table A8.1 Stakeholders Consulted for Finland

Stakeholder	Organisation Name	Date Interviewed
Government Department	Ministry of Transport and Communications	25th September 2007
Government Department	Ministry of Environment	1st October 2008
Trade Organisation	Finnish Oil and Gas Federation	30th October 2008

A8.2 Process for implementation

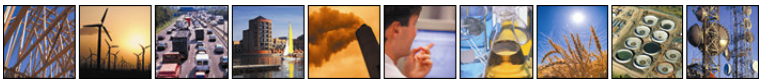
A8.2.1 Legal background

In 1990, prior to the publication of Directive 94/63/EC, the Finnish Gas and Oil Federation led a voluntary initiative to introduce Vapour Recovery Units (VRUs) to all of the terminals with a throughput over 50,000 tonnes of petrol per year. The plan was finalised in accordance with the Directive and investment plans were drawn up to equip the terminals with VRUs. Plans for the petrol stations to also be equipped with vapour recovery once the supply terminal had been equipped[50].

The technical requirements for tank design were prescribed into Finnish legislation by the 'Department of Transport Industry and Trade' via the following legislation (existing legislation covered the other technical requirements for tank design)[44]:

Decree of the Ministry of Transport and Communications on the Transport of Dangerous Goods by Road (277/2002)[45]

[44] Personal communication, Traffic Safety, Senior Adviser, Transport of Dangerous Goods, Finnish Ministry of Transport and Communications, 25th September 2008.



Decree of the Ministry of Transport and Communications on the Transport of Dangerous Goods by Rail (278/2002)[46].

The sections of the Directive relating to terminals and service stations, was introduced to Finnish law through the following legislation:

- The Government Decision to reduce emissions of volatile organic compounds due to the storage and distribution of petrol (468/1996)[47].
- The decision by the Ministry of Trade and Industry on the storage and handling of petrol (471/1996)[47].
- The Environmental Protection Act (86/2000) and Decree (169/2000): this states which authorities are responsible for issuing permits and the procedures for this[48].

A8.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A8.2 Roles and Responsibilities

Roles and Responsibilities	Organisation
Appointing the 'authorised inspection service' for inspecting tankers	Safety Technology Authority (part of the Department for Trade)
'Authorised Inspection Service'	Conducting inspections of tankers; 'tightness tests' and equipment testing
Drafting the legislation	'Department of Transport, Industry and Trade' and 'Ministry of the Environment'
Collecting information on the total volume of petroleum products transported and the number of operating tankers	Finnish Oil and Gas Federation
Issuing permits to storage installations and inspecting the facilities	Regional Environmental Centres

*Since the legislation was implemented, the departmental structure of the Finnish Government has been reorganised.

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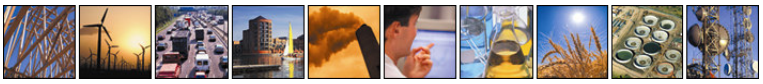
[45] http://www.finlex.fi/fi/laki/alkup/2002/20020277

46 http://www.finlex.fi/fi/laki/alkup/2002/20020278

47 http://www.finlex.fi/fi/laki/kokoelma/1996/?_offset=6

[48] The Environmental Protection Act (86/2000); amendments up to and including 137/2006 February 4, 2000



A8.2.3 Permitting and inspection activities

The 'Regional Environmental Centres' are responsible for issuing permits to storage installations and for inspecting the facilities[49]. Installations self-monitor and report their throughput and emissions and to the VAHTI 'Watchdog' database on an annual basis[49].

Tankers are regulated by the 'Safety Technology Authority' (STA) which operates under the authority of the Department of Trade. The STA is responsible for appointing an 'authorised inspection service' who will conduct a 'tightness test' on tankers once every 3 years and a more comprehensive set of tests (that include tests on bottom loading equipment) once every 6 years[44].

A8.2.4 Guidance for inspectors and industry

No guidance notes were produced[49].

A8.2.5 Reporting

In accordance with the reporting requirements included in the permits, terminal operators shall report annually to the Regional Environmental Centres (RECs) on: the throughput of petrol, the total emissions to air, the total loss of petrol resulting from the storage installations at the terminal, a summary of the emissions measurements from the 'vapour recovery unit' (VRU) and information on the monitoring of groundwater[50]. Service stations also report throughput and emissions data to the RECs, but the RECs tend to concentrate on the data from terminals[49]. If the throughput level changes, the permitting requirements change accordingly[49]. In addition, the Finnish Gas and Oil Federation conduct an 'environmental statistics' surveys on the status of implementation once every five years; the last was conducted in 2004[51].

A8.3 Status of implementation

Currently, 15 permits have been granted to terminals and one additional permit is under consideration[52]. Derogations have been granted to two terminals: one which has a throughput of less than 10,000m^3 per year and the

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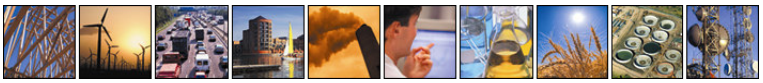
[49] Personal communication, Finnish Ministry of the Environment, 1st October 2008.

[50] Personal communication, Finnish Ministry of the Environment, 17th October 2008.

[51] Personal communication, Finnish Gas and Oil Federation, 30th October 2008.

[52] Based on the information given by the Regional Environmental Centres: Personal communication, Finnish Ministry of the Environment, 17th October 2008.



second which has a throughput of 10-20,000m^3 per year and is located in a remote area[49]. When the legislation was introduced installations were allowed to delay painting the roofs and walls of external storage tanks until a time when they planned to repaint as part of their normal business[49].

The Finnish Gas and Oil Federation survey in 2004 found that the Directive had by then been fully implemented for terminals, although alternative technology is used; see the issues for arctic countries in the technical issues section below[51]. According to the 2004 survey, around 90% of the service stations had fully complied with the Directive; they now estimate that all petrol stations will be in compliance[51]. The target reference values are now achieved at all stages throughout the distribution chain[51].

No derogations, other than those mentioned above are known of.

A8.4 Technical issues

The same issues persist for Finland for the regulations referring to the technical requirements set out in Annex IV, for rail and road transport tanks, as were raised at the 'Environmental Fuels Expert Group'[53] in 1997. Indeed, the CEN working group[54] on the 'Guideline for loading, transporting and unloading of dangerous liquid goods' suggests that some of the requirements in the technical annexes of Directive 94/63/EC are out of date or in contradiction with the CEN Standards and a Committee Report on 'Operating Conditions'. The suggested amendments to the directive from the working group[54] that specifically relate to arctic countries are detailed below:

- **Annex IV, Section 1: Couplings –** Bottom loading tankers have been in use in the arctic Member States for 20 years before the implementation of Directive 94/63/EC, but the adapters in use are 3" rather than 4". Modifying the transport tanks stock would have entailed excessive cost while not achieving any additional VOC emission reductions[53]. As such it was recommended to make the following amendment, '*The option to use 3 inch (76.2mm) self-sealing industry standard self-sealing liquid couplers is allowed in the arctic Member States. However, in this case adapters to permit the loading of road transport tanks equipped with 4 inch liquid couplers shall be available for at least one gantry at each terminal*'[53]: a similar amendment was written for the use of cam and groove industry standard vapour collection couplers.

- **Annex IV, Section 2.1: Liquid Loading Rates –** Because 3" couplers are already in use in the arctic states, they cannot achieve the liquid loading rate of 2,300 litres/minute required by the Directive. As such the following amendment was suggested, '*When operating with 3 inch (76.2mm) liquid couplers, the option to use a maximum loading rate for design purposes of 1,800 litres per minute per loading arm is allowed in the arctic Member States*'[53].

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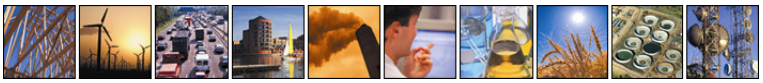
[53] Environmental Fuels Expert Group (EFEG) Technical sub-group on the implementation of Directive 94/63 VOC Stage 1: Meeting of 20th October 1997

[54] CENT C 296 WG 9, 'Guideline for loading, transporting and unloading of dangerous liquid goods'



- **Annex IV, Section 3: Detectors -** In the arctic Member States the high level detector is a thermistor with a positive temperature coefficient, as the use of a thermistor with a negative temperature coefficient would be unsafe in a cold climate[53]. As such the committee suggested amendments to the directive that would allow arctic countries to continue using high level thermistors with a positive temperature difference and in order to permit cross-border trade, overfill detection control units compatible with all types of transport tank to be installed at one gantry[53].

- **Annex IV, Section 4: Length of envelopes –** In the arctic Member States where the supply distances are long and the population density is low, 60 tonne, 24m length transport tanks are used to minimise costs. The envelope of 2.5m specified in section 4.1.3 is too small for these large vehicles and an the committee[53] proposed and this should be amended to, '*The option that all liquid adapters must be located within an envelope not exceeding 2.8 metres in length is allowed in the arctic Member States'*.

- **Annex IV, Section 5.1: Earth/overfill detection –** In the arctic Member States separate earth and overfill connection are used with corresponding separate earth and overfill control units; while the Directive specifies that, *'Loading must not be permitted unless a permissive signal is provided by the combined earth-overfill control unit'*. The working group proposed that the use of separate control units and connections that provide separate provide permissive signals should be allowed in the arctic Member States[54].

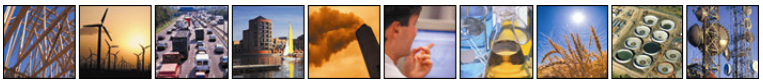
Finland has implemented the Directive as if these amendments (above) had been made to the legislation[44] and as such does not comply with Annex IV of the Directive as it currently reads.

A8.5 Problems of interpretation

One problem of interpretation identified by the representative of the Finnish Ministry of the Environment is that the Directive does not specify the conditions under which the VRU exhaust concentration is to be measured[49]. No other problems with interpretation were encountered.

A8.6 Potential for simplification

The representative for the Finnish Ministry of Transport and Communication suggested that Annex IV should be abandoned and replaced by the CEN standards, as these incorporate all of the suggested amendments relating to the technical issues relating to arctic Member States[44]. The representatives of the Finnish Ministry of the Environment and the Finnish Gas and Oil Federation suggested that the technical annexes of the Directive were too prescriptive[49]. Instead, they suggest that Member States should be given the freedom to meet the objectives in the least cost manner for their situation.



A9. France

A9.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for France's implementation of Directive 94/63/EC.

Table A9.1 Stakeholders Consulted for France

Stakeholder	Organisation Name	Date Interviewed
Government Department	Ministry of Ecology, Energy, Sustainable Development and Spatial Planning	6th November 2008
Industry	Union Française de l'Industrie Pétrolière (UFIP)	Awaiting Response

A9.2 Process for implementation

A9.2.1 Legal background

The Directive was transposed into French legislation in the regulatory act 'Arrêté du 8 décembre 1995 relatif à la lutte contre les émissions de composes organiques volatils résultant du stockage de l'essence et de sa distribution des terminaux aux stations service'[55] on the 8th December 1995. Regulatory acts are the least powerful national instrument and are typically used for technical measures such as this. The regulatory act was designed by the Ministry in charge of controlled installations and transposes the Directive into French law without changing any of the dates, threshold limits or options for derogations.

A9.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

[55] http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=6941CAC4ED73379BCB0BEFEC64B6BF1C.tpdjo10v_1?cidTexte=LEGITEXT000005620142anddateTexte=20081112

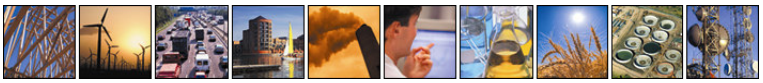


Table A9.2 Roles and Responsibilities

Roles and Responsibilities	Organisation
Drafting the Legislation	Ministry of Ecology, Energy, Sustainable Development and Spatial Planning
Enforcing implementation	Local Authorities
Permitting and inspection activities	'"l'inspection des installations classées"
Implementation of Article 5	Ministry of Ecology, Energy, Sustainable Development and Spatial Planning

A9.2.3 Permitting and inspection activities

Permitting and inspection activities are performed by '"l'inspection des installations classées", which is part of the "direction régionale de l'industrie, de la recherche et de l'environnement"[56]. The controlled installations, include a wide range of industrial installations that are regulated by the French government[57] and not exclusively to VOC-emitting installations. The "direction régionale de l'industrie, de la recherche et de l'environnement"[58] is the regional directorate for industry, research and the environment and acts as the local body responsible for the implementation of industrial environmental legislation.

A9.2.4 Guidance for inspectors and industry

Guidance on regulation relating to reducing VOC emissions from petrol storage and distribution was published in 2003.

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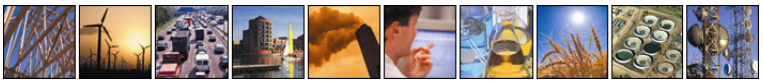
[56] Personal Communication from the Deputy Head of BRTICP (Bureau des Risques Technologiques et des Industries Chimiques et Pétrolières (Technological risks, chemical and oil iindustries office) (Ministry of Ecology, Energy, sustainable development and spatial planning) on the 6th of November 2008.

[57] Direction de la prevention des pollution et des risques, Octobre 2007, 'Nomenclature des installations classees liste des activites soumises al la TGAP'

[58] Personal Communication from the Deputy Head of BRTICP (Bureau des Risques Technologiques et des Industries Chimiques et Pétrolières) (Technological risks, chemical and oil iindustries office) (Ministry of Ecology, Energy, sustainable development and spatial planning) on the 6th of November 2008.



A9.2.5 Reporting

There is no prescribed process for reporting feedback from installations to the administration. However, the enforcement services undertake inspections to regulate compliance and conduct intermittent inspection campaigns where the results are collated; the last of these took place in 2004 and the next is scheduled to occur in 2009.

A9.3 Status of implementation

All terminals, mobile containers and service stations currently meet the requirements of the Directive as set out in Articles 3 to 6, except for the following cases. Small terminals with less than 10,000 tonnes of annual throughput continue to use top loading containers. All road tankers of more than 7.5t are fitted with vapour recovery equipment, but it is rare for those of less than 7.5t to be fitted with this equipment.

A9.4 Technical issues

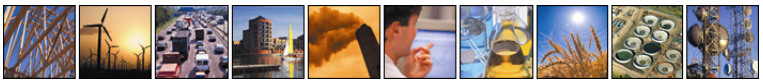
No technical issues associated with the implementation of the Directive have been identified for France.

A9.5 Problems of interpretation

No problems of interpretation have been identified for France.

A9.6 Potential for simplification

The Deputy Head of BRTICP (Bureau des Risques Technologiques et des Industries Chimiques et Pétrolières) suggested that the Directive should not determine the techniques to be used, but set objectives and leave the choice of technique to be used to the individual Member State and industry.



A10. Germany

A10.1 Data sources

The following table lists the stakeholders consulted in order to gather information for Germany's implementation of Directive 94/63/EC.

Table A10.1 Stakeholders consulted for Germany

Stakeholder	Organisation name	Date
Government department	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit	22 October 2008
National Agency	Umweltbundesamt	22 October 2008

A10.2 Process for implementation

A10.2.1 Legal background

In Germany the Stage I VOC Directive is enabled to be transposed into national law through the primary legislation of the 'Bundes-Immisionsschutzgesetz' (Federal Immission Control Act), referred to as BImSchG[59]. The secondary legislation that transposes the Stage I VOC Directive is the 'Zwanzigste Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (Verordnung zur Begrenzung der Emissionen flüchtiger organischer Verbindungen beim Umfüllen und Lagern von Ottokraftstoffen)', translated as the 'Twentieth Federal Immission Control Ordinance (Regulation to Limit Emissions of Volatile Organic Compounds in the Transfer and Storage of Petrol)', and which is referred to as the 20th BImSchG.[60] The Regulation was implemented on 27th May 1998 (BGBl. I P. 1174), and was last changed by Article 3 of the Regulation from 24 June 2002 (BGBl. I P. 2249). The 20th BImSchV came into force on 4th June 1998. The ordinance details the timescales for implementation for existing stations, shown in Table A10.2.

[59] Long title: 'Gesetz zum Schutz vor schädlichen Umwelteinwirkungen durch Luftverunreinigungen, Geräuschen, erschütterungen und ähnliche Vorgänge' ('Act on the Prevention of Harmful Effects on the Environment caused by Air Pollution, Noise, Vibration and Similar Phenomena')

[60] http://www.gesetze-im-internet.de/bimschv_20_1998/index.html

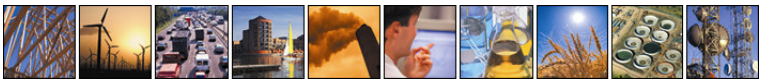


Table A10.2 Implementation timescales for existing installations in Germany

Reference to 20. BImSchV	Threshold (t/year)	Legal compliance date for existing installations
§ 3, floating roof tanks of storage installations at terminals	-	1 January 1999
§ 3 (2,3,4) existing storage installations at terminals	>50,000	1 January 1999
	<50,000	1 July 1999
§ 4 (1,3) existing storage installations at terminals	-	1 July 2003
Annex II Nr. 2 (1) (existing vapour recovery units)	-	1 January 1999
§ 4 (4) existing mobile containers at terminals	>150,000	1 January 1999
	<150,000	1 January 2002
Annex IV (bottom-loading, vapour collection and overfill protection of existing Road Tankers)	-	1 January 2005
§ 5 (existing railway tankers and inland waterway crafts)	-	1 January 1999

Note 1: The above dates do not apply to storage installations with fixed roof tanks erected before 4 June 1998 and with an annual throughput of less than 25,000 tonnes.

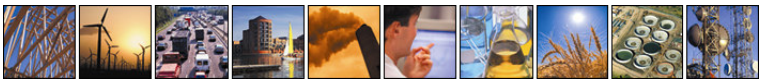
Note 2: The above dates do not apply to service stations erected before 4 June 1998 and with an annual delivery quantity of petrol below 100 m^3.

Pursuant to the Federal Immission Control Act, the Federal Government decreed a general regulation to provide technical instructions on air quality control – the First General Administrative Regulation Pertaining the Federal Immission Control Act – which was most recently revised in 2002[61]. The Technical Directives (TA) of the BImSchG are regulations which are binding on administrative bodies with respect to approval and monitoring. The TA Luft is designed to protect the general public and local neighbourhoods against the detrimental environmental effects of air contaminants, and includes preventive measures. The TA Luft provides guidance on the gaseous emissions during the processing, hoisting, decanting or storage of liquid organic substances in section 5.2.6.

A10.2.2 Roles and responsibilities

The Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) is responsible for enacting the Stage I legislation. The Umweltbundesamt (Federal Environmental Agency) provides scientific information to the Ministry. The 16 individual Länder are responsible for the enforcement of the Stage I legislation.

[61] http://www.bmu.de/files/pdfs/allgemein/application/pdf/taluft_engl.pdf



A10.2.3 Permitting and inspection activities

For the control and enforcement of inspections of petrol stations (control-visits) the competent Länder authorities (e.g. emission control) are responsible. The measurements and expert judgements are undertaken by accredited experts and measurement institutes.

Inspections of installations' connection lines and pipe installations for vapour-tightness and leaks are performed every five years by the TÜV Company. Guidance for these inspections is detailed below.

Throughput thresholds of operators are determined from data provided by the operator. The data are confirmed both by delivery notes and the calibrated counters at the filling pump.

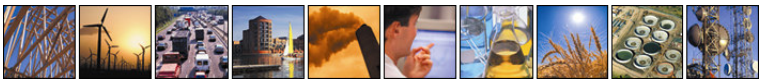
A10.2.4 Guidance for inspectors and industry

The following technical standards assist organisations responsible for storage installations:

- 'Technische Regeln für brennbare Flüssigkeiten' (Technical Rules on Flammable Liquids) provide the technical safety standards for petrol:
  - standard TRbF-20 for storage;
  - standard TRbF-30 for gantries, installations for emptying tanks and airfield refuelling points; and
  - standard TRbF-40 for petrol stations.
- The mandatory requirements of the 'Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen und über Fachbetriebe' ('Ordinance Governing Facilities Handling Substances Hazardous to Water', 'VAwS') have to be observed for equipment that deals with water polluting substances. Relevant in this context is worksheet 781 of the Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall (German Association for Water, Wastewater and Waste, ATV-DVWK) entitled 'Technische Regel wassergefährdender Stoffe (TRwS): Tankstellen für Kraftfahrzeuge' (Technical Rule for Substances detrimental to Water Quality (TRwS): Filling Stations for Vehicles').[62]

Inspections of installations' connection lines and pipe installations for vapour-tightness and leaks are performed every five years by the TÜV Company. Guidance for these inspections is the VdTÜV bulletin number 958, titled „Prüfung von nicht genehmigungsbedürftigen Anlagen und beweglichen Behältnissen nach der 20. BImSchV; Tankanlagen 958" ('Examination for the 20th BImSchV of installations not subject to licensing and mobile containers').

[62] http://www.netinform.de/Vorschriften/TRwS_A_781/TRwS-_A_781.htm



Furthermore, the VdTÜV has compiled, together with the mineral oil trade association (MWV), the guidance document VdTÜV bulletin number 959 titled „Freiwillige Anforderungen an die Schnittstellen zwischen Tankfahrzeugen und Füll-/Tankstelle nach 20. BImSchV; Tankanlagen 959“ (‘Voluntary requirements for the 20th BImSchV for the interfaces between road tankers and petrol stations’). The experts use and test equipment according to these bulletins.

A10.2.5 Reporting

For installations not subject to licensing the following regulations apply:

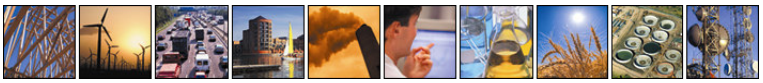
- The operator of the installation has to inform the competent authority prior to the commissioning of the facility.
- The operator of an installation equipped with a vapour recovery unit (VRU) is required to utilise an expert to check the facility’s compliance with the legislation, first before the commissioning and then every five years.
- The operator of an installation with an exhaust gas cleaning system is required to use an accredited company to measure emissions of the system first between three months and six months after commissioning and then repeatedly every three years.
- The operator of the installation must compile a report about the results of the checks. This report must be retained at the place of operation, and for mobile containers additionally at the place of business.
- The operator must provide a copy of this report within four weeks to the responsible local authority. For mobile containers, reports need only be provided upon request.

A10.3 Status of implementation

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety has confirmed that Directive 94/63/EC has been implemented completely; all terminals, mobile containers and service stations meet the requirements of the Directive (and in some cases meet stricter limits). No derogations have been implemented.

German Stage I legislation goes beyond the requirements of Directive 94/63/EC in its requirements for loading and unloading installations at terminals – at those installations which are subject to licensing. Annex II of Directive 94/63/EC requires in Point 2 that “*the mean concentration of vapours in the exhaust from the vapour recovery – unit corrected for dilution during treatment – must not exceed 35 g/normal cubic metre (Nm³) for any one hour*”. Article 4 (3), point 1 of the 20th BImSchV places this limit of 35g/Nm^3 for those installations which are not subject to licensing.

For those installations which are subject to licensing, Article 4 (3) point 2 of the 20th BImSchV places a stricter limit than the Directive on loading and unloading installations with exhaust gas cleaning at terminals, depending on their vapour mass flow rates. It requires VOC emissions to not exceed **0.15 g/Nm^3** for units with vapour mass flow



rates 3 kg/hour or more, and for VOC emissions to not exceed **5 g/Nm^3** for units with vapour mass flow rates less than 3 kg/hour:

- **§ 4 Befüllung und Entleerung von Lagertanks oder beweglichen Behältnissen in Tanklagern**
  (...)
  (3) Abgasreinigungseinrichtungen hat der Betreiber so zu errichten und zu betreiben, daß

- 1. bei nicht genehmigungsbedürftigen Anlagen
  a) ein Reinigungsgrad von 97 vom Hundert nicht unterschritten wird und
  b) die Emissionen an Dämpfen im Abgas eine Massenkonzentration von 35 g/Nm^3 als Stundenmittelwert nicht überschreiten und

- 2. bei genehmigungsbedürftigen Anlagen
  a) die Emissionen an Dämpfen im Abgas eine Massenkonzentration von 0,15 g/Nm^3 nicht überschreiten, soweit der Massenstrom der Dämpfe insgesamt 3 Kg je Stunde oder mehr beträgt,
  b) die Emissionen an Dämpfen im Abgas eine Massenkonzentration von 5 g/Nm^3 nicht überschreiten, soweit der Massenstrom der Dämpfe insgesamt weniger als 3 Kg je Stunde beträgt.

VOC emission factors for VOC emissions released from the whole Stage I chain have been calculated pre- and post- Stage I legislation[63,64]. In 1991, the total VOC emission factor was 5.5 kg per tonne of petrol throughput (0.55% w/w), compared to a post-legislation figure of 0.24 kg/t in 2006 (= 0.024% w/w). By comparison, those provisions in the Directive where a reduction is specified are intended to achieve emissions less than 0.025%. The 2006 calculations take into account breathing losses of 0.01 kg/t; the efficiency of vapour balancing systems (97%) compared to the efficiency of pipelines (100%); the fraction of systems with vapour balancing installed (100%); the split by different modes (35% by road tanker, 25% by pipeline, 40% by ship); and ventilation from ships (20%). Considering a 2006 total throughput of 22.2 Mt, the total VOC emissions from Stage I in 2006 was estimated to be 5,240 kg.

A10.4 Technical issues

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety has reported that there were no technical issues encountered during implementation of Directive 94/63/EC in Germany.

A10.5 Problems of interpretation

The Ministry has reported that there were no problems in interpretation of Directive 94/63/EC.

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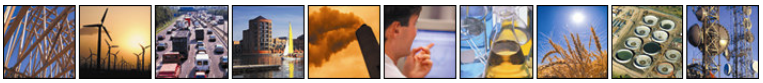
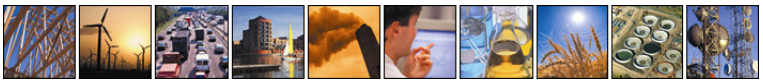
[63] http://www.vecc-sepa.org.cn/news/e_home_gg/VOC Recovery at Fuel Stations and Tank Farms in Germany - Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.pdf

[64] Personal communication with the Umweltbundesamt, 18th December 2008.



A10.6 Potential for simplification

The Ministry could not suggest any simplifications of the provisions of the Directive and its technical annexes.



A11. Greece

A11.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Greece's implementation of Directive 94/63/EC. For Greece a site visit was undertaken on the 24th October 2008 where a meeting was held at SEEPE's (Hellenic Petroleum Marketing Companies Association) offices in Athens to discuss the implementation of this Directive and the data collection proforma that was provided to the stakeholders prior to the meeting.

Table A11.1 Stakeholders consulted for Greece

Stakeholder	Organisation name	Date interviewed
Government department	Ministry of environment, physical planning and public works (YPEXODE)	24th October 2008
Industry	Hellenic Petroleum Marketing Companies Association, www.seepe.gr (SEEPE, Syndesmos Etairion Emporias Petrelaiodon Ellados) – Note 1	24th October 2008
Industry	REVOIL - Terminals' Committee SEEPE	24th October 2008
Industry	SHELL - Terminals' Committee SEEPE	24th October 2008
Industry	BP - Distribution Committee SEEPE	24th October 2008
Industry	CYCLON - Service Stations' Technical Committee SEEPE	24th October 2008
Industry	AEGEAN - Service Stations' Technical Committee SEEPE	24th October 2008

Note 1: SEEPE has 12 petroleum companies as members and covers about 90% of the total petrol throughput in Greece. In total there are 21 petroleum marketing companies in Greece.

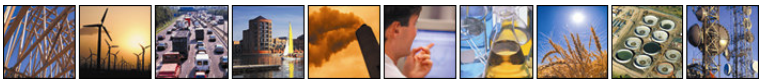
As part of the consultation process the Athens Local authority and the Ministry of Transport and Communications are still to be contacted to discuss the study (the relevant contacts have been identified).

A11.2 Process for implementation

A11.2.1 Legal background

Directive 94/63/EC was transposed into Greek national law via the following regulations:

- Jointed Ministerial Decision K.Y.A.10245/713/1997 (FEK 311/1997) published on 16th April 1997 that transposes Directive 94/63/EC into Greek legislation. This legislation is referred as "Measures



and requirements for the control of VOCs arising from the storage of petrol and the distribution from terminals to service stations". This legislation covers terminals, road tankers and petrol stations;

- Ministerial Decision Y.A.2801/2000 (FEK 46/2000) published on 3rd March 2000 that considers petrol stations only. Article 4 (paragraph 4.1) of this regulation sets requirements for existing petrol stations that are located at the ground floor of buildings that are being used for the following uses: accommodation, shops, training centres, theatres, cinemas, etc. or any other public congregation spaces, except for offices and hotels. Paragraph 4.1 requires the installation of a vapour balancing/vapour return equipment for Stage 1b in accordance with the requirements of Greek legislation Y.A.10245/713/1997 (FEK 311/1997) (Annex III) within 3 months from the publication of this legislation i.e. by 3rd June 2000.

The Ministry of Environment, Physical Planning and Public Works (YPEXODE), the Ministry of Transport and Communications and the Ministry of Development (YPAN) were responsible for the transposition of Directive 94/63/EC into Greek legislation.

For new installations (terminals, mobile containers and petrol stations), the requirements of Y.A 10245/713/1997 (FEK 311/1997) were valid from the date of publication i.e. 16th April 1997 (Article 3 gives a definition of "new" installations), while for existing installations various timescales were applied, the latest being 8 years from the publication of the legislation i.e. 16th April 2005.

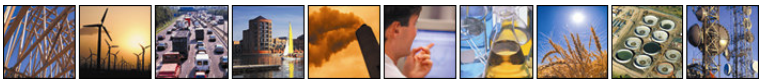
However some of the requirements laid out in the Directive 94/63/EC and the Ministerial Decision Y.A.10245/713/1997 that transposed this Directive were previously required by Greek legislation. During the meeting with stakeholders, it was indicated that since 1980 around the Attiki region (area including Athens and its surroundings) the petroleum marketing companies situated therein were asked to install internal floating roofs in storage tanks at terminal installations; requirements for heat reflectance were also prescribed. These requirements were set for terminal installations in Greece via legislation Y.A. 34628/85.

Derogations adopted

For terminals: One industry stakeholder mentioned that to his personal knowledge he is aware of one terminal located on an island and two inland terminals that have derogations due to their small throughput. None of the other consultees could confirm whether there are any other terminal storage installations with derogations.

Road tankers: No derogations have been applied

Petrol stations: No derogation has been for petrol stations, particularly since the Ministerial Decision Y.A.2801/2000 (FEK 46/2000) published on 3rd March 2000 which covers all petrol stations, regardless of throughput levels.



A11.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A11.2 Roles and Responsibilities

Role and Responsibility	Organisation
Transposing Directive 94/63/EC in Greece	Ministry of Environment, physical planning and public works (YPEXODE), the Ministry of Transport and Communications and Ministry of Development (YPAN)
Permitting and inspection of terminals	Ministry of Environment/Regional authorities/local authorities (competent authority for issuing permits is capacity-dependent)
Permitting and inspection of road tankers	Ministry of Transport and Communications (MTC) is responsible for issuing "Circulation" permits to road tankers. Inspection undertaken by certified inspection bodies and KTEO (Centres of Technological Inspections of Vehicles)
Permitting and inspection of petrol stations	Department of Transport and Communications of each local authority is responsible for issuing the "operation" licence/permit for petrol stations. No formal body for undertaking inspection was identified from the consultation.

In Greece there are 13 Regional authorities and 54 Local Authorities. These authorities are involved in the permitting of installations under the Stage I VOC Directive.

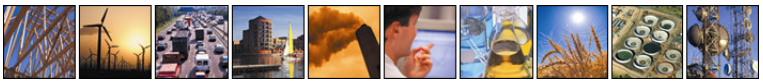
A11.2.3 Permitting and inspection activities

Terminals

For a terminal to be operated, an operation license/permit is required. This operation licence is issued by:

- For terminals with storage capacity > 25,000 m^3: the Ministry of Development (YPAN) is responsible; and
- For terminals with storage capacity < 25,000 m^3: the local authorities (Nomarxies) are responsible for issuing operation permits.

As part of this operation permit, there are environmental conditions included and an approval of the environmental requirements is required before the operation permit is issued. With regards to the approval of the environmental conditions, the permit is issued as follows:



- > 100,000 m^3 storage capacity (capacity thresholds include all product fuels at terminals and not just petrol): Ministry of Environment (YPEXODE) is responsible for issuing the approval of environmental conditions. Consultation with YPEXODE stated that there are only 3 terminals in Greece of this storage capacity that they issue permits for;

- 10,000 – 100,000 m^3 storage capacity: Regional authorities are responsible;

- 1,000 – 10,000 m^3 storage capacity: either regional or local authorities are responsible. Regional authorities decide on a case by case basis whether a terminal within this range is dealt by them or to pass the responsibility for authorisation to local authorities. The decision is based on criteria such as geographical location and proximity to urban areas (amongst others); and

- < 1,000 m^3 storage capacity: Local authorities are responsible for issuing the approval of environmental requirements.

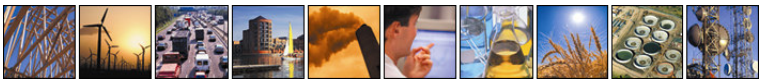
The Ministry of the Environemnt (YPEXODE) noted that approvals for environmental conditions have been given to terminals since 1990 (to be incorporated into their operation licence). Therefore, when the Stage I VOC Directive was published and transposed in Greece, the approvals were updated to include the requirements of the Directive.

Permits for terminals are renewed every five years (on average this the validity of most terminal permits). However this is not a rule and the are exceptions when permits may be valid for fewer or more years e.g. a terminal which is undertaking maintenance and construction works during the issue/reissue of its permit may be given a three year permit validity in order for the permitting authority to have better control over the progress of the works at the installation.

With regards to regulation, the frequency of inspections at terminals is based on the decision of the relevant competent authority that issues the approval of the environmental requirements for a terminal (e.g. ministry of environment; regional or local authorities). As a minimum the competent authority that issued the approval of the environmental requirements is responsible for undertaking inspections before the renewal of the operation permit and the re-approval of the environmental requirements.

In practice there are no annual inspections of terminal storage installations. The Department of Environmental Inspectors at the Ministry of Environment (YPEXODE) undertakes site visits and environmental inspections randomly or in cases where an incident has been reported.

During consultation with YPEXODE it was mentioned that, during a site inspection by it at a terminal, the general requirements are checked for compliance e.g. correct operation of Vapour Recovery Unit (VRU), emission limit values and emission measurements at VRUs undertaken by operators. However no emission measurements are taken by YPEXODE during a site visit; if any non compliance issues are identified during the inspection then YPEXODE, in collaboration with the internal department of Laboratories, will visit the terminal to take samples; consultation with YPEXODE stated that samples are taken only for waste water and not air emissions though.



Road tankers

The Ministry of Transport and Communications (MTC) is responsible for issuing "Circulation" permits to road tankers. The process for permitting road tankers is as follows:

Certified inspection bodies from the ESYD (Ethniko Systima Diapisteyshs) (these could be universities, private companies, etc.) undertake a check/inspection using certified inspectors by MTC on road tankers in accordance with the ADR regulation (the latest publication is 2007) – this regulation sets requirements on road tankers that carry hazardous and dangerous fuels e.g. equipment installed, pressure, technical provisions. The ADR requirements[65] also cover the requirements for road tankers in the Stage I VOC Directive. If a road tanker meets the ADR requirements then an ADR certificate is issued for the vehicle by the certified inspectors. The ADR certificate is valid for 3 years.

In addition, the Centres of Technological Inspections of Vehicles (KTEO) undertake checks/inspections on road tankers (note that inspection is not as detailed as during the ADR check) for maintenance and operation of vehicle e.g. brakes, pressure. The check by KTEO is done on an annual basis and a safety certificate with regards to vehicle conditions is issued for the vehicle. As part of the KTEO check, a valid ADR certificate is also requested.

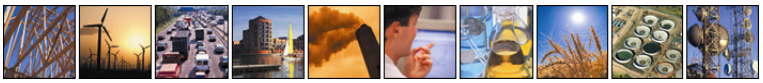
Petrol stations

The Department of Transport and Communications of each local authority is responsible for issuing the "operation" licence/permit for petrol stations. The Department of Environmental Protection Management at each Local authority is responsible for issuing an approval of the environmental requirements that is incorporated as part of "operation" licence (similar to how the permitting is done for terminal installations).

The "operation" licence of a petrol station is valid indefinitely but the approval of the environmental requirements is renewed every three years on average (note that the time period for renewals could be more, based on how often local authorities decide to reissue permits to each petrol station; this is decided on a case by case basis). However if there is any change/modification at a petrol station, then the operator is required to notify this change to the local authority and a renewal of the approval of the environmental requirements is needed.

In terms of regulation of petrol stations, there is no practical inspection of petrol stations as such in terms of the correct operation of vapour balancing equipment during the unloading of road tankers and other environmental requirements. During consultation with the industry stakeholders, it was mentioned that from a legislative aspect there is no official body to undertake an inspection of petrol stations. Certified engineers prepare the assessment study of a petrol station that is submitted to local authorities for approval; if the assessment of the petrol station is sufficient in terms of protection of the natural environment and requirements of Stage I VOC Directive (e.g. VRUs installed), then an approval of environmental conditions is issued. It was noted by the industry stakeholders that

[65] ADR requirements (http://www.unece.org/trans/danger/publi/adr/adr2007/07ContentsE.html)



usually the approval of environmental requirements is given without the local authority inspecting/checking the conditions of the petrol station. The Ministry of environment highlighted that due to the limited resources at local authorities, inspections at petrol stations are limited[66] although it would be expected to do them more frequently.

A11.2.4 Guidance for inspectors and industry

Industry undertook seminars, presentations and trainings to operators of terminals; road tanker owners and drivers; and petrol stations for the Stage I Directive requirements and the correct use of installed equipment.

Other information leaflets have also being prepared by SEEPE for the petroleum industry such as:

"Training Leaflet 1 – Petrol vapour recovery at petrol stations": this leaflet in Greek language provides an overview of petrol vapour recovery at petrol stations, the scope and environmental benefits of vapour recovery, the legislative context for vapour recovery and detailed diagrams that demonstrate how vapour recovery should be undertaken at petrol stations.

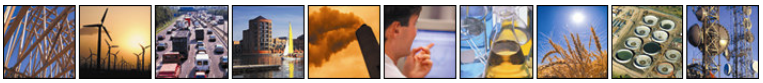
A11.2.5 Reporting

The Ministry of Environment indicated that, during 2005/2006, questionnaires were prepared and sent to local authorities to fill in. These questionnaires covered terminals, road tankers and petrol stations and collected data on installation numbers, throughput, tanker characteristics, installed vapour recovery, emission levels, etc. These questionnaires were developed in order to collect data centrally at the Ministry of Environment in order to meet their expected reporting obligations under Directive 94/63/EC.

The Ministry of Environment noted that about 50% of local authorities completed and returned these questionnaires, but no reporting by local authorities to the relevant ministry has been undertaken since 2006.

With regards to further reporting requirements, terminal operators report their throughput every month to the Ministry of Development and petrol stations report their capacity to the local authorities once a year. In terms of the throughput at petrol stations this is generally only reported for the approval of the environmental requirements as part of the operation licence and no reporting of petrol station throughput is done afterwards, based on the discussion with the relevant stakeholders.

[66] It is also noted that inspections by other bodies are undertaken at petrol stations as mentioned by industry stakeholders. EYDAP (water services) undertakes inspections at petrol stations but only in relation to the quality of water and water sewages.



A11.3 Status of implementation

With regards to the status of implementation of the Stage I VOC Directive, the findings presented here reflect the situation and the views primarily of the 12 marketing companies that are members of SEEPE and which were represented at the meeting. However it is anticipated that as SEEPE's members are responsible for 90% of petrol throughput in Greece (see note 1, Table A11.1), they should give a representative overview of the status of implementation of the Directive in Greece.

In Greece there are approximately:

- 450 terminal storage tanks with a total terminal storage capacity of greater that 1,300,000 m^3. It also noted that Greece has four refineries which have a larger capacity for storage of the order of 8,760,000 m^3 (IOBE 2007 report, Annex II Table 3)[67];
- Road tankers: Approximately 1,400 public licensed road tankers plus 270 company-owned road tankers (SEEPE estimate); and
- Petrol stations: about 8,200 stations for 21 petroleum marketing companies (SEEPE estimate).

For terminals SEEPE stakeholders at the meeting stated that all terminal storage installations comply with the requirements of the national legislation. As part of ensuring compatibility between terminal tanks and road tankers, the same optic fibre 5-wire system (for earth and overfill prevention and supporting the bottom loading system) has been applied to all terminals and road tankers; this has ensured compliance with Directive.

For road tankers it was mentioned during the meeting that they are all bottom loading and it is estimated by SEEPE there are about 60-70 that do not comply with Directive's requirements. However it was stated that new legislation for the presence of a Radio Frequency Identification (RFID) tag on each road tanker will ensure full compliance (Υ.Α.Γ5/39124/3125/FEK 213/11-2-2008); this legislation required the road tanker operators to have a RFID tag by the 30th June 2008. In the case of road tankers not having these RFID tags, the legislation stipulates that the circulation permits and vehicle number plates for these road tankers to be confiscated until the tags are fitted. However it was not made clear which organisation is responsible and how this will be implemented and checked in practice. .

Furthermore SEEPE members noted that all petrol stations have permits as there is an obligation and responsibility of the petroleum marketing companies to supply petrol only to permitted petrol stations. In case petrol is supplied to a non permitted petrol station, then the supplier is held liable. All petrol stations (i.e. the ones covered by the 12 petroleum marketing companies) have installed Stage 1b vapour balancing equipment, but for petrol stations not covered/supplied by SEEPE's members the % uptake and instalment is not known.

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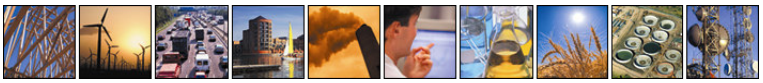
[67] IOBE (2007) "The petroleum products trading sector in Greece".



SEEPE estimate that about 20% of the 6,200 petrol stations supplied by its members use and operate the Stage 1b vapour balancing equipment correctly. This is about 1,200 petrol stations out of the total 8,200 petrol stations estimated to be present in Greece.

However, for a number of petrol stations, particularly for stations that are not operated by personnel of the petroleum companies but are only supplied by them, the installed Stage 1b vapour balancing equipment is not operated correctly, for different reasons:

- It is understood that, during early installation of Stage 1b vapour balancing equipment at petrol stations, personnel lacked the knowledge and experience of setting the pipework and infrastructure correctly e.g. ventilation valves for collection of vapours is too far or opposite the coupling/connection for unloading petrol in tanks at petrol stations and hence the system cannot be used – no official body was checking if installation was taking place correctly during the early stages before experience was obtained;

- Behaviour of operators of petrol stations e.g. (1) operators are not willing to use the vapour balancing systems installed as they say that this system delays the delivery and unloading of petrol, (2) they do not comply as they are not checked by anybody regarding their operation at the station, (3) even if the system is used, petrol station operators sometimes open the top lid of the road tankers to check if all petrol has been delivered into the storage tank[68]; and

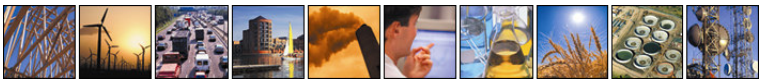
- Behaviour of drivers of road tankers: SEEPE mentioned that Greek legislation exists that forbids the drivers of road tankers to go through tunnels with their tanks full with VOC vapours, due to safely reasons. Hence drivers going through tunnels on their route do not undertake VR or release vapours during unloading of petrol. This attitude may be also be adopted by drivers that do not go through tunnels as well - police order (2502/2/38-oβ'/17.12.2007) for vehicles driving through Egnatia highway.

During discussion at the stakeholder meeting regarding compliance with the Directive's requirements, particularly for petrol stations, it was noted that there is currently no planned timescale for compliance for the stations described above.

A11.4 Technical issues

The stakeholders mentioned during the consultation that no major technical issues were faced. As many companies operating the terminals are international, they reportedly always try to apply similar systems and equipment across their installations; hence knowledge and expertise was brought to Greece on how to implement this Directive and its requirements.

[68] SEEPE had made a proposal to the Ministry of Development (YPAN) to forbid the opening of lids of road tankers by petrol station operators – this proposal was also presented to Entec.

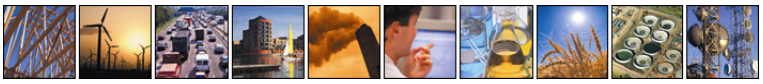


A11.5 Problems of interpretation

The stakeholders mentioned from the consultation that no interpretation problems were faced.

A11.6 Potential for simplification

SEEPE expressed their concern if the average 35 g/Nm3 per hour emission limit value set at vapour recovery units (Annex II of the Directive) in terminals were lowered further e.g. to 5 g/Nm^3. During the discussion with industry it was noted however that the current levels achieved by the VRUs at terminals are significantly lower than the hourly 35 g/Nm^3 that is set out in the State I VOC Directive's requirements.



A12. Hungary

A12.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Hungary's implementation of Directive 94/63/EC.

Table A12.1 Stakeholders consulted in Hungary

Stakeholder	Organisation name	Date interviewed
Government department	Hungarian Ministry of Environment and Water Department of Environmental Development	30 October 2008
National Authority	National Inspectorate for Environment, Nature and Water Middle - Danube - Valley Inspectorate for Environment, Nature and Water	4 November 2008 7 November 2008
Certifying Authority	Regional Authority of Metrology and Technical Safety under the Hungarian Trade Licensing Office	5 November 2008
Trade associations	Hungarian Tank Storage Association	4 November 2008
Trade associations	Hungarian Petroleum Association	5 November 2008

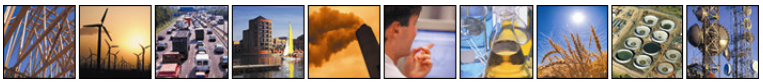
A12.2 Process for implementation

A12.2.1 Legal background

Directive 94/63/EC was transposed into the Hungarian legislation through the implementation of the regulation 9/1995. (VIII.31.)[69] KTM on *hydrocarbon emission control resulting from the storage, loading, transportation and off-loading of petrol*. The regulation covers every stage of storage and distribution of petrol as storage at terminals, loading and unloading of mobile containers, loading into storage installations at service stations, covering even Stage II Vapour Recovery with automobile refuelling at service stations.

Regulations 6/2004. (IV.27.) Decree of Ministry for Environment and 118/2008. (V.8.) Government Decree repealed certain articles and sub-articles of regulation 9/1995 KTM as the specifications of the sections in question

[69] 9/1995. (VIII.31.) KTM rendelet



were already fulfilled in Hungary. Besides 6/2004. (IV.27.) Decree of Ministry for Environment inserted an additional annex to 9/1995 KTM with specifications for load tankers in conformity with Directive 94/63/EC.

No derogations were adopted by Hungary from Directive 94/63/EC.

A12.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A12.2 Roles & Responsibilities

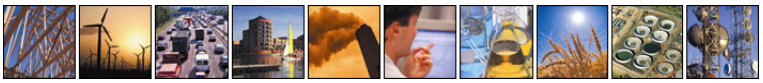
Role and Responsibility	Organisation
• Transposing EU legislation to Hungary • Review/approve alternative technical measures • Consult with the regulator, the Authority of Measurements and Technical Security, the Hungarian Tank Storage Association and with the Hungarian Petroleum Association	Hungarian Ministry of Environment and Water (Környezetvédelmi és Vízügyi Minisztérium), Department of Environmental Development (Környezetfejlesztési Főosztály)
• Grants certifications for storage installations, transfer vehicles and service stations	Regional Authority of Metrology and Technical Safety (Területi Mérésügyi és Műszaki Biztonsági Hatóság) under the Hungarian Trade Licensing Office (Magyar Kereskedelmi Engedélyezési Hivatal)
• Carry out inspections of storage installations, transfer vehicles and vapour-recovery units of automobile refuelling	Hungarian Tank Storage Association (Magyar Tartálytechnikai Szövetség)
• Role: regulator • Verifies the certifications • Periodically review certifications	Regional Inspectorates for Environment, Nature and Water (Környezetvédelmi és Természetvédelmi és Vízügyi Felügyelőségek)

A12.2.3 Permitting & inspection activities

In Hungary the regional Inspectorate for Environment, Nature and Water, the Authority of Meteorology and Technical Safety and the Hungarian Tank Storage Association are involved in the permitting and inspection activities.

The establishment and putting into operation of stationary storage installations and service stations may be authorized according to the technical specifications of the responsible regional Inspectorate for Environment, Nature and Water.

During the authorization process the operator has to certify the compliance with the requirements of Annex 1 of the regulation 9/1995 KTM applying to systems of storage installations, transfer vehicles, loading into storage



installations at service stations (Stage I) and vapour-recovery units for automobile refuelling (Stage II). The Hungarian Tank Storage Association has the responsibility for inspecting systems of storage installations, transfer vehicles and vapour-recovery units of automobile refuelling. Following the inspection the Regional Authority of Metrology and Technical Safety (belonging to the Hungarian Trade Licensing Office) verifies the certification. The results of this inspection have to be included in minutes and the minutes should be sent to the responsible regional Inspectorate for Environment, Nature and Water.

During operation of storage installations and service stations the compliance with the permitted limit values must be verified in every two years. The related technical records should be kept in place for five years and if required should be presented to the Inspectorate.

A12.2.4 Guidance for inspectors & industry

No specific guidance material was developed in Hungary for regulators and operators, as the petrol industry by the time of implementation was already familiar with the technologies specified in the regulation.

A12.2.5 Reporting

According to section (1) under item 7.§ of regulation 9/1995 KTM the operators have to report new stationary storage installations at the time of setting up to the regional Inspectorate for Environment, Nature and Water sending a registration form specified in Annex 1 of regulation 11/1994. (III.25.) IKM[70].

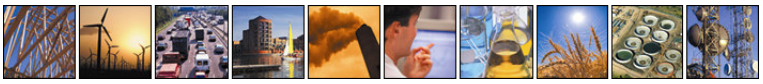
During operation of storage installations and service stations the compliance with the permitted limit values must be monitored and the related technical statement has to be sent to the responsible environmental inspectorate (8.§ (3) of regulation 9/1995 KTM).

A12.3 Status of implementation

Directive 94/63/EC and the related regulation 9/1995 KTM with the set deadlines was successfully implemented everywhere in Hungary by 31 December 2005. The stationary storage installations, the transport vehicles, the service stations and automobile refuelling systems in Hungary comply with the technical requirements of Annex 1 and 2 of regulation 9/1995 KTM (based on the requirements of Directive 94/63/EC).

According to the trade associations, companies made the essential changes at their stations or sometimes closed those petrol stations where the installations would not have been financially reasonable because of the small turnover of the station.

[70] 11/1994. (III.25.) IKM rendelet



Apart from loading, transport and terminal operations (Stage 1A controls) and delivery to service stations (Stage 1B); the requirements related to the control of emissions resulting from refuelling known as Stage II Vapour Recovery were also included into regulation 9/1995 KTM following the transposition of Directive 94/63/EC.

Storage installations at terminals in Hungary are equipped with floating roofs and in the majority of cases these are internal floating roofs.

The number of permitted service stations (>100 m^3) in Hungary was 1,500 on 31st December 2007.

A12.4 Technical issues

No particular technical issues were identified.

A12.5 Problems of interpretation

No particular problems were identified related to interpretation of the Directive.

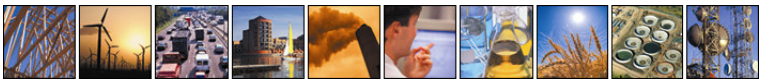
A12.6 Potential for simplification

The consulted stakeholders indicated that they would not be in favour of changes to the Directive for the following reasons:

- The Directive seems to be working satisfactorily; and
- It controls the majority of the potential emissions.

The Directive was successful in Hungary due to the fact that interests of the economic stakeholders coincided with those of the environment. Petrol companies are willing to reduce evaporation losses for economical reasons that also have environmental benefits.

As the regulation covers each stage of the storage and distribution of petrol including Stage I and II of vapour emission controls it is termed as the 'petrol-chain regulation'. Apart from Stage 1, by 31 December 2005 every service station (>100 m^3) in Hungary were complying with the Stage 2 requirements (recovery of petrol gas at refuelling pistols). Combining Stage 1 with Stage 2 in emission control proved to be successful in Hungary, moreover it did not put significant additional burden on the operators.



A13. Ireland

A13.1 Data sources

The following table lists the stakeholders contacted in order to gather information for Ireland's implementation of Directive 94/63/EC.

Table A13.1 Stakeholders consulted for Ireland

Stakeholder	Organisation name	Date interviewed
Governmental Department	Environmental Protection Agency	8th December 2008
Industry	Irish Petroleum Institute	11th November 2008

A13.2 Process for implementation

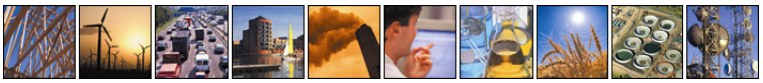
A13.2.1 Legal background

The Irish Department of the Environment was responsible for drafting legislation which transposed the Directive into Irish law[71]. This legislation is composed of two statutory instruments which were issued under the Environmental Protection Act:

374/1997 – Environmental Protection Agency Act, 1992 (Control of Volatile Organic Compound Emissions Resulting from Petrol Storage and Distribution) Regulations, 1997[72]. This piece of legislation covers the sections of the Directive concerning storage terminals and exactly transposes these into Irish law; including the timelines for compliance, emission limits and derogations.

[71] Personal communication, Irish EPA on the 8th December 2008

[72] 374/1997 – Environmental Protection Agency Act, 1992 (Control of Volatile Organic Compound Emissions Resulting from Petrol Storage and Distribution) Regulations, 1997 http://www.irishstatutebook.ie/1997/en/si/0374.html



375/1997 – Air Pollution Act, 1987 (Petroleum Vapour Emissions) Regulations, 1997[73]. This piece of legislation covers the sections of the Directive concerning mobile containers and service stations and exactly transposes these into Irish law; including the timelines for compliance, emission limits and derogations.

A13.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A13.2 Roles and Responsibilities

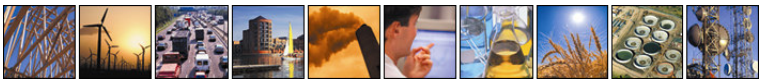
Role and Responsibility	Organisation
Transposing EU Directive into Irish Legislation	Department of the Environment
Granting Permits, Inspection and Enforcement (terminals)	Office of Environmental Enforcement (part of the EPA)
Appointment of persons to function as an approved assessor (mobile containers and issuing Licence Certificates for service stations	Local Authority (council of a county or the corporation of a county or other borough)
Inspecting mobile containers and petrol stations.	Approved assessor (mobile containers and petrol stations)
Checking that a service station has a current certificate prior to unloading and recording the time, date and quantity of all deliveries of petrol	Carriers

A13.2.3 Permitting and inspection activities

The Office of Environmental Enforcement (part of the Environmental Protection Agency, EPA) is comprised of the licensing department and the enforcement department[71]. The licensing department is responsible for granting permits to terminals and will review the permit once every three years, or at any time where it has reason to believe that a provision of the permit has been breached or if it considers that emissions from the terminal constitute a significant risk[72]. The permits contain a requirement for the equipment to undergo regular leakage checks and for the terminal to keep a record of emission tests undertaken on the VRUs; if there is non-compliance, then it is reported to the EPA immediately[71]. The throughput of a terminal is assessed by looking at the operator's on-site data during the course of re-issuing a permit[71].

The local authority is responsible for appointing an approved person to inspect mobile containers for the adequacy of vapour tightness and correct functioning of pressure valves and for issuing a certificate to that effect[73]. The

[73] 375/1997 – Air Pollution Act, 1987 (Petroleum Vapour Emissions) Regulations, 1997
http://www.irishstatutebook.ie/1997/en/si/0375.html



approved assessor is also responsible for assessing compliance at service stations and for issuing Licence Certificates; certificates must be renewed at least once every three years[73]. The carrier is responsible for checking that a service station has a current certificate prior to unloading and recording the time, date and quantity of all deliveries of petrol[73].

A13.2.4 Guidance for inspectors and industry

The Office of Environmental Enforcement has written internal procedures and guidance for drafting and issuing permits to terminals, but no guidance notes have been written for external parties[71].

A13.2.5 Reporting

For terminals, the permits contain a requirement for an annual report to be submitted to the EPA; the report includes records of inspections and of leakage checks, but not records of emission tests on the VRUs[71]. No data is collected on the weight by weight loss of petrol resulting from the loading and unloading of containers at terminals[71].

The approved assessor is responsible for submitting a report on the suitability of a service station to the local authority[73].

A13.3 Status of implementation

Based on the consultation undertaken, all large terminals at ports are permitted and there have been no reported incidences of non-compliance, except where a VRU has malfunctioned[71]. There are twelve of these larger terminals in total and it is estimated that they are responsible for ~95% of total terminal throughput. The remaining terminals are located inland and are not yet subject to permitting; the EPA report that they hope for these terminals to be in compliance by 2010, but the major issue is locating these remaining terminals[71]. Some of the terminals with a throughput of less than 10,000 tonnes/year have retained the use of top-loading equipment. There have been some instances of mobile containers that are not compatible with the connections set out in the Directive being unable to deliver to compliant service stations; it is unclear whether this is caused by connection size, or the top/bottom loading configuration[71].

The Irish Petroleum Institute[74] reports that there have been problems associated with obtaining Licence certificates for petrol stations, as the standards were being interpreted differently by the approved assessor in different counties; discussions were held with the H.S.A., but the issue remains unresolved[74].

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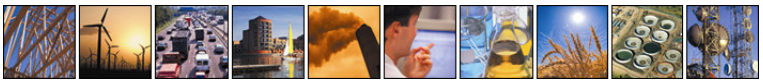
[74] Personal communication from the secretary of the Irish Petroleum Association. 11th November 2008.



A13.4 Technical issues

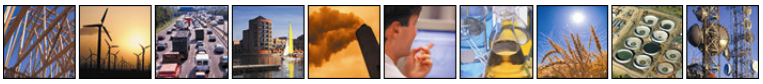
There are no known technical issues with the Directive for terminals[71].

A13.5 Problems of interpretation

There are no known problems of interpretation with the Directive for terminals[71].

A13.6 Potential for simplification

The Irish EPA has not identified any areas for simplification of the Directive for terminals[71].



A14. Italy

A14.1 Data sources

It has not been possible to gather data and information on the implementation of Stage I VOC Directive from the competent authority in Italy, the Ministry of Environment. The relevant person dealing with the Stage I VOC Directive is no longer at the Ministry of Environment and the person that has filled this position has not been able to provide information with regards to the implementation of the Stage I VOC Directive.

However consultation has also been undertaken with industry stakeholder, Unione Petrolifera[75], which has provided data and information on the implementation of this Directive. Additional data presented for Italy in this section have been taken from the previous study by Entec on Stage II Petrol Vapour Recovery (Entec, 2005)[76].

A14.2 Process for implementation

A14.2.1 Legal background

The requirements of Directive 94/63/EC were originally implemented in Italy under Decree no 107 of 21st January 2000 on the technical requirements of the installations, vehicles and vessels used for storage, loading and transport from one terminal to another or from a terminal to a service station, following consultation with Unione Petrolifera.

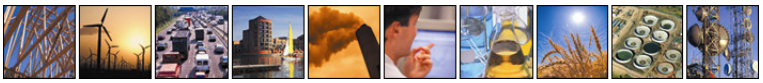
From discussion with the Italian Ministry of Environment (for a previous study) and the Unione Petrolifera it was noted that Decree no 152 of 3rd April 2006 was passed in order to streamline a number of Italian environmental laws, including Decree 107 January 2000. In Decree 152 2006, the Decree 107 January 2000 has been incorporated as Article 276 and Annex VII, while Article 277 and Annex VIII of the 2006 law represent the Italian legislation for Stage II vapour recovery.

With regards to the time periods for implementation of the Directive 94/63/EC as set out in the requirements of the Stage I VOC Directive, Italy appears to have applied them correctly without any additional time periods, following consultation with Unione Petrolifera. However this has not been discussed with the Ministry of Environment (see explanation above).

A derogation has been applied in the Italian transposition for existing terminal storage installations with a throughput lower than 10,000 tons/year – this is in line with Article 4 (4) of the Directive 94/63/EC which sets out

[75] http://www.unionepetrolifera.it

[76] Entec (2005) Stage II Petrol Vapour Recovery - Final Report



the same derogation, and will be valid until January 2010, based on consultation with Unione Petrolifera. No derogations have been applied to petrol stations.

No additional time periods have been adopted for the implementation of the Directive 94/63/EC.

A14.2.2 Roles and responsibilities

No information is available on roles and responsibilities thus far.

Based on consultation with Unione Petrolifera the following organisations have been involved in the implementation of the Directive 94/63/EC:

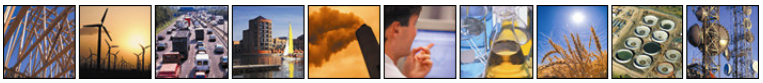
- Environmental Ministry - leading Ministry and responsible for all environmental aspects for terminals, road tankers and petrol stations;
- Industry Ministry;
- Internal Affairs - aspects related to safety;
- Health Ministry - aspects related to health protection;
- Labour Ministry - aspects related to the workers health;
- Transportation Ministry - aspects related to trucks and barges requirements; and
- Finance Ministry - fiscal aspects.

A14.2.3 Permitting and inspection activities

Based on consultation with Unione Petrolifera it was noted that the relevant law (see above) sets out the timetable for terminals, service stations and mobile containers to meet the requirements of the Directive. The inspections are carried out by the competent authorities (Environmental Ministry) through its technical units (at a national and local level).

A14.2.4 Guidance for inspectors and industry

No guidance has been developed for industry and inspectors, based on discussion with the Unione Petrolifera industry association.



A14.2.5 Reporting

The Unione Petrolifera contact commented that, to their knowledge, no reporting to competent authorities is undertaken. In terms of determining the throughputs for terminals and petrol stations, Unione Petrolifera noted that the relevant information is obtained from fiscal controls and communications.

A14.3 Status of implementation

The following table presents the number of service stations in Italy (Entec, 2005).

Table A14.1 Numbers of Service Stations and Average Throughput (petrol and diesel)

Year	Refuelling stations [1]	Average throughput (m^3) [2]
2003	22,450	1,643
2002	22,800	1,602
2001	23,400	1,539
2000	23,900	1,479

Source: Italian Ministry of Environment (2004).

[1] The total fuel distribution network was estimated by Unione Petrolifera (association comprising the main petroleum companies operating in Italy in the refining and distribution of oil).

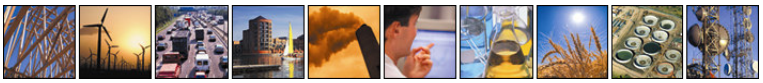
[2] Petrol and diesel average throughput was estimated by Unione Petrolifera

Consultation with Unione Petrolifera confirmed that all terminals, service stations and mobile containers meet the requirements of the Directive 94/63/EC and Italian legislation, except for terminals with throughput below 10,000 tonnes/year that are applying the derogation as set out Article 4 (4) of the Directive 94/63/EC and are using top loading activities. Therefore the few mobile containers that operate in these terminals apply top loading as well and do not meet the Directive's requirements[77] (Annex II of the Directive 94/63EC states that the provision for a vapour tight connection line "…*does not apply to top-loading tankers as long as that loading system is permitted*").

All terminals and road tankers that apply the abovementioned derogation will comply with the requirements of the Directive by January 2010, when the derogation is not longer valid, based on comments from Unione Petrolifera.

It is also noted that Italy has fully implemented and installed Stage II vapour recovery system to all petrol stations.

[77] Anecdotal evidence from Unione Petrolifera suggests that about 90-95% of road tankers in Italy are bottom loading, with the remaining being top loading.



A14.4 Technical issues

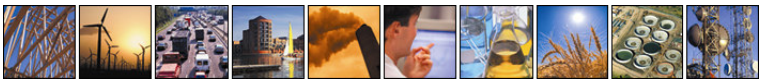
No technical issues were encountered based on discussion with Unione Petrolifera.

A14.5 Problems of interpretation

No problems of interpretation of the directive were encountered based on discussion with Unione Petrolifera.

A14.6 Potential for simplification

Unione Petrolifera highlighted that all the requirements and technical provisions of Directive 94/63/EC are fully implemented and the need for further clarification/simplification is not required.



A15. Latvia

A15.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Latvia's implementation of Directive 94/63/EC.

Table A15.1 Stakeholders consulted in Latvia

Stakeholder	Organisation name	Date interviewed
Government department	Ministry of Environment	9 March 2009
National Authority	State Environmental Service	9 March 2009
Regional Authority	Greater Riga Regional Environmental Board: - Permitting Division - Pollution Control Division	9 March 2009
Trade associations	Latvian Fuel Traders Association	6 March 2009

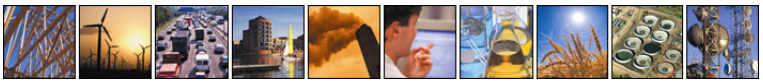
A15.2 Process for implementation

A15.2.1 Legal background

The Directive has been fully implemented with the transition periods in place via the following regulation: Regulation of the Cabinet of Ministers No 269 "Regulations Regarding Environmental Quality Requirements for Service Stations, Oil Terminals and Mobile Containers" (with Amendments 22.01.2002). The legislation, as well as the financial position used as a basis for determining the transition periods, is available on the internet, as is the position paper with the number of installations[78]. The transition period was predominantly focused upon terminals; all transition derogations for terminals, service stations and mobile containers have now expired.

On 16 May 2006, new Cabinet of Minister Regulation Nr.400 "Regulations on environmental requirements for petrol service stations, terminals and mobile storage vessels" (cisterns) were adopted replacing Regulation Nr.269. Articles 48 – 53 of this regulation define the specific details for technical requirements and monitoring in relation to the storage and distribution of petrol (including Stage II requirements).

[78] Available in English from home page of the Ministry of Environment www.varam.gov.lv/vide/LIK/gaiss/E269.htm



A15.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

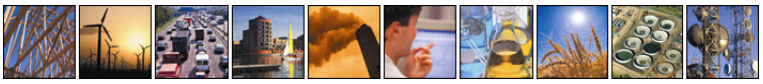
Table A15.2 Roles & Responsibilities

Role and Responsibility	Organisation
Drafted the legislation in conjunction with other Ministries. The Ministries to be involved are decided at a meeting of the State Secretaries (and the Environment Ministry proposes which other ministries should be involved). The legislation that has been agreed by Civil Servants is then passed to Government for approval	Ministry of Environment
Regulate installations with a Category A permit (i.e. those installations that require an Environmental Impact Assessment)	Environmental Impact Bureau (EIB)
Installations with Category B and C permits are regulated by the eight REBs in Latvia	Regional Environmental Boards (REBs)
Co-ordinates inspections and permitting by REBs	State Environmental Service (SES)
Responsible for regulation of road tankers	State Inspectorate (SI)
Responsible for regulation of rail tankers	Latvian Railway Administration (LRA)
Responsible for data and information storage on relevant installations	Environment, Geology and Meteorological Agency (EGMA)
Consulted during development of the national legislation and prior to the negotiation of the transition period for Latvia	Latvian Fuel Traders' Association (LFTA)

A15.2.3 Permitting and inspection activities

Inspection frequency is set according to a Ministerial Order. The minimum frequency was recently reduced from one per year to one per two years. However, there is also self-reporting through the questionnaire sent to REBs and some more general monitoring. At larger sites, annual inspections are undertaken including several organisations visiting at the same time (fire safety, health, labour, as well as environment). A check is undertaken each year in the Greater Riga area for all service stations and terminals. Inspectors will only check whether vapour recovery equipment is installed or not. The Latvian National Accreditation Bureau has the responsibility for inspecting VRUs. Compliance with the permitted limit values must be verified every year at service stations and terminals.

In case an operator is found to be not compliant with the requirements set out in the permit (and hence Directive 94/63/EC), the SES and REBs have powers to enforce implementation through warnings, administrative fines and site closure.



A15.2.4 Guidance for inspectors and industry

SES has produced guidance for inspectors on the main areas that must be controlled based on an integrated approach to all media as well as the technical aspects of dangerous installations. No specific guidance material was developed for operators, as by the time of implementation the petrol industry was already familiar with the technologies specified in the regulation.

A15.2.5 Reporting

During operation of storage installations and service stations, compliance with the permitted limit values must be monitored and the related technical statement has to be sent to the responsible environmental inspectorate by March each year.

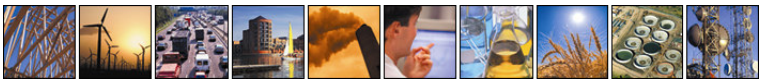
Each year, terminals and service stations report on a voluntary basis to the Regional Environmental Boards which use a questionnaire (which is adopted by an order of the Environment Ministry). This information is then transmitted to the Latvian Environment, Geology and Meteorology Agency. REBs collate the information from industry and this is sent to the Agency by the 1st April of each year. The Agency receives this data from REBs and imports it into a register of terminals and service stations.

A15.3 Status of implementation

An 'Inventory of Service Stations and Oil Terminals' hosted by Latvian Environment, Geology and Meteorology Agency provides indicative information on service stations and oil terminals. The database is composed of information supplied voluntarily by operators and is updated annually. The database is for internal use by environmental authorities as it only provides indicative information. VOC emissions from oil terminals, service stations, etc. are not part of "environmental indicators"; a report for the general public which is published annually, thus no summary information is readily available on the implementation of the Directive.

Based on discussions with a number of stakeholders in March 2009 (as outlined above), it is understood that, since all of the transition periods have now expired, the requirements of the Directive are fully in force. No additional derogations have been applied.

A number of the interviewees have indicated that they believe the actual compliance rate with the Directive will be high for the following reasons: a) the majority of the service stations and terminals belonging to the major oil companies are understood to be fully compliant with the requirements; b) the extensions (transition periods) were relevant to existing operators only – new installations would not be granted a licence/permit without (a priori) compliance with the requirements of the Directive; c) service stations that may be expected to face problems in implementation are generally very small and privately owned – these are likely to fall below the 100m^3 threshold.



As the transition periods in Latvia have only recently expired (at the time of writing, March 2009), it has not been confirmed that all relevant installations have implemented the Directive, and this information is not necessarily available for all installations in the aforementioned inventory/database.

A15.4 Technical issues

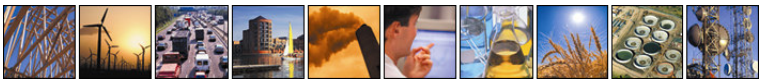
At the time of implementation the Ministry of Environment organised seminars to discuss the implementation of the Directive and the largest companies were invited. No major problems were identified with respect to understanding the requirements of the Directive.

A15.5 Problems of interpretation

No particular problems were identified related to interpretation of the Directive.

A15.6 Potential for simplification

No information has provided for Latvia in relation to the potential for simplification of the Directive..



A16. Lithuania

A16.1 Data sources

Stakeholders interviewed in order to collect information concerning implementation of Directive 94/63/EC in Lithuania are listed in Table A16.1.

Table A16.1 Stakeholders consulted for Lithuania

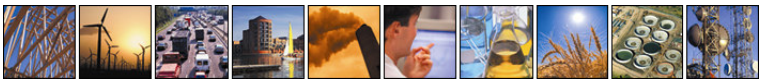
Stakeholder	Organisation	Date interviewed
Governmental authority	Lithuanian Ministry of Environment	21 October 2008
Governmental authority	State Environmental Protection Inspectorate	21 October 2008
Governmental authority	Ministry of Social Security and Labour	21 October 2008
Governmental authority	Ministry of Transport and Communication	21 October 2008
Regional authority	Regional Environmental Protection Departments	31 October 2008
Trade association	Lithuanian Oil Union	31 October 2008

A16.2 Process for implementation

A16.2.1 Legal background

VOC emissions are regulated by normative document LAND 35 - 2000 “Limitation of VOC from new equipments for gasoline storage, filling and transportation (Order No. 520/104/360, 11 December 2000) amended by Order of the Ministry of Environment, Ministry of Social Affairs, Ministry of Communication No. 600/172/454, 18 December 2001. This inter-ministerial order sets limitation for VOC emissions resulting from storage of petrol, distribution from terminals to service stations at existing equipment. Calculation methodology for VOC from storage, filling and transportation of light fuel oil is defined by normative document LAND 31-99/M-11. The Order of the Ministry of Environment No. 341, 05 July 2001 sets requirements for existing mobile containers used for gasoline transportation and new service stations. Monitoring and control requirements on the implementation of Directive 94/63/EC are included in national legislation regulating IPPC implementation.

Transitional periods for the implementation of Directive 94/63/EC in Lithuania were requested up to 1 January 2008.



All derogations from Directive 94/63/EC are incorporated into the LAND 35-2000 and Order of the Ministry of Environment, Ministry of Social Affairs, Ministry of Communication No. 600/172/454, 18 December 2001. Derogations from Directive 94/63/EC adopted in Lithuania are presented in Table A16.2.

Table A16.2 Derogations from Directive 94/63/EC in Lithuania

Article	Derogation	Status of adoption in Lithuania
Article 4. Loading and unloading of mobile containers at terminals	Article 4(4): By way of derogation, paragraphs 1 and 3 shall not apply: (a) to existing terminals with a throughput of less than 10 000 tonnes/year and; (b) to new terminals with a throughput of less than 5 000 tonnes/year located in small remote islands. Member States shall inform the Commission of terminals concerned by such a derogation through the reporting arrangements referred to in Article 9.	Adopted only for existing terminals with a throughput of less than 10 000 tonnes/year, as small remote islands mentioned in point (b) do not belong to the territory of Lithuania.
Article 5. Mobile containers	Article 5(3): By way of derogation, the provisions of paragraph 1, subparagraphs (a), (b) and (c) shall not apply to losses of vapours resulting from measuring operations using dipsticks in relation to: (a) existing mobile containers; and (b) new mobile containers which come into operation during the four years following the date referred to in Article 10.	Derogation is included in LAND 35-2000
Article 6. Loading into storage installations at service stations	Article 6(3): By way of derogation, paragraphs 1 and 2 shall not apply to service stations with a throughput of less than 100 m3/year.	Adopted
	Article 6(4): For service stations with an annual throughput of less than 500 m3/year, Member States may grant a derogation from the requirements of paragraph 1 where the service station is located in a geographical area or on a site where vapour emissions are unlikely to contribute significantly to environmental or health problems. Member States shall inform the Commission of the details of the areas within which they intend to grant such derogation in the framework of the reporting arrangements referred to in Article 9 and subsequently of any changes to such areas.	This derogation is applied for service stations with an annual throughput of less than 500 m3/year that, according to the Law of the Republic of Lithuania on Territorial Administrative Units and their Borders, are not in cities.
Annex I. Requirements for storage installations at terminals	The external wall and roof of tanks above ground must be painted in a colour with a total radiant heat reflectance of 70 % or more. These operations may be programmed so as to be carried out as part of the usual maintenance cycles of the tanks within a period of three years. Member States may grant a **derogation** from this provision where required for the protection of special landscape areas which have been designated by national authority	Adopted in Annex I of LAND 35-2000

A16.2.2 Roles & responsibilities

Table A16.3 presents main roles and responsibilities of different institutions in Lithuania concerning transposition and implementation of the requirements of Directive 94/63/EC.

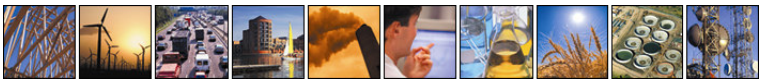


Table A16.3 Roles & Responsibilities

Role and Responsibility	Organisation
Transposing EU legislation to Lithuania, overall responsibility for the implementation of the Directive	Ministry of Environment
Inspections and enforcement of the implementation	State Environmental Protection Inspectorate
Control of industrial activities, permitting, inspections, reporting to the State Environmental Protection Inspectorate	Regional Environmental Protection Departments
Development and implementation of legislation related to maintenance of the potentially dangerous equipment. Regulation on technical inspections of mobile containers and storage installations	Ministry of Social Security and Labour
Inspection of storage containers of hazardous goods (petrol)	State Labour Inspectorate
Register installations/mobile containers, control of operators	Regional Labour Inspectorates
Technical standards and improvements in the railway sector	Ministry of Transport and Communication
Accreditation of inspection bodies	National Accreditation Bureau
Accredited private institutions that carry out technical inspections	Inspection bodies

A16.2.3 Permitting & inspection activities

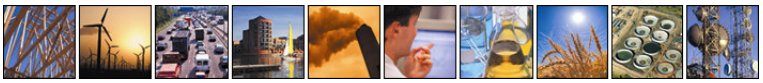
Regional Environmental Protection Departments (REPD) under the Ministry of Environment of the Republic of Lithuania are responsible for the control of companies' activities, granting permits and compliance with conditions set in their permits. State Environmental Protection Inspectorate supervises REPD permit granting, revision, correction and liquidation activities and has a right to withdraw a REPD decision.

Inspection activities of terminals and service stations are carried out by the inspectors of the Environmental Protection Agencies under the Regional Environmental Protection Departments. Inspections are carried out once per 3 years using a special questionnaire/check-list. An inspection report is later put on the database, which is also accessible by higher-level institutions.

A16.2.4 Guidance for inspectors & industry

There are no specific guidelines for inspectors and industry on the implementation of Directive 94/63/EC. However, in the frame of the project "Technical support for Regional Environmental Protection Departments under the Ministry of Environment concerning improvement of inspection and implementation of legislation" that was financed by the Danish Environmental Protection Agency "A Guidelines on Environmental Protection Inspection"[79] was developed and approved in February 2004. This document covers different environmental

[79] http://vaai.am.lt/VI/index.php#r/616 (in Lithuanian language)



protection sectors, including air pollution. Recommendations provided in the document help environmental protection inspectors to plan, organise and execute inspections.

Analysis of the interviews with environmental protection inspectors shows that there appears to be a need for more precise guidelines and additional training on the implementation of Directive 94/63/EC due to difficult technical requirements.

A16.2.5 Reporting

According to the IPPC permitting procedure, Regional Environmental Protection Departments periodically receive reports from operators concerning the implementation of conditions set in the permit, annual emissions to air, reasons for changes in emissions and implemented measures. Annex 2 of the IPPC permitting rules (Order of the Minister of Environment Nr. D1-330, 29 June 2005) determine that operators are obliged to submit reports to the competent authorities if emissions of pollutants to atmosphere are higher than 10 tonnes/year.

Due to changes to the methodology for calculating VOC emissions from storage and transportation of oil and oil products (in 2007), the number of units submitting air pollution reports to the Regional Environmental Protection Departments has significantly reduced. Since 2007 it is mainly the terminals submitting such reports.

A16.3 Status of implementation

25 terminals were registered in Lithuania in 2007[80]. These terminals are controlled by Vilnius, Kaunas, Klaipeda, Siauliai, Panevezys and Marijampole Regional Environmental Protection Departments, while service stations are under control of all 8 REPDs (including Alytus and Utena).

Every year operators provide reports on their throughput to the REPDs who are able to check this information with the Tax Inspectorate. During the transitional period (till 1 January 2008) the Lithuanian Ministry of Environment collected information about annual throughput at terminals (every year) and service stations (once per 2-3 years) in order to monitor trends. Data concerning throughput at terminals between 2005-2007 is provided in Table A16.4.

[80] http://www.oilunion.lt/files/apie_loj_emisijas.ppt (in Lithuanian language)

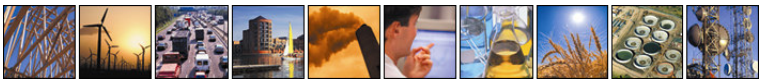


Table A16.4 Throughput in Lithuanian terminals in 2005-2007[81]

	2005	2006	2007
Mazeikiu nafta	> 150 000	> 150 000	> 150 000
Klaipedos nafta	> 150 000	> 150 000	> 150 000
Kroviniu terminalas**	-	> 150 000	> 150 000
Vilnius reg., Vaidotai*	> 25 000	> 25 000	> 10 000
Kedainiai	> 25 000	> 25 000	> 25 000
Jonava	> 25 000	> 25 000	> 25 000
Jonava reg.	> 10 000	-	-
Siauliai, Pakruojo str.	> 10 000	< 10 000	< 10 000
Siauliai, Vyturių str.	< 10 000	< 10 000	> 10 000
Marijampole	> 10 000	> 10 000	> 10 000
Vilnius, Liudvinavo str.**	> 25 000	> 25 000	> 25 000
Vilnius reg., Valciunai village	< 10 000	< 10 000	< 10 000
Vilnius, Granito str.	> 25 000	< 10 000	> 25 000
Kaunas, Palemono str.	< 10 000	-	-
Kaunas, Biruliskiu ave.	< 10 000	< 10 000	< 10 000
Panevezys, Pramones str.*	< 10 000	< 10 000	< 10 000
Panevezys, Tiekimo str.*	< 10 000	< 10 000	< 10 000
Panevezys, Tiekimo str.**	< 10 000	> 10 000	> 10 000
Anyksciai reg.	< 10 000	< 10 000	< 10 000
Klaipeda reg.	-	< 10 000	< 10 000

* gasoline will not be stored

** new

VOC emissions from Lithuanian service stations during the fuel loading process are presented in Table A16.5.

[81] Information prepared by the Ministry of Environment based on official data from the State Tax Inspectorate.

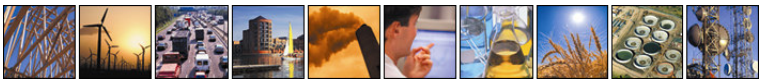


Table A16.5 VOC emissions in Lithuanian service stations during fuel loading process in 2006[82]

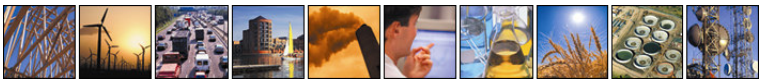
County	VOC emissions (kg)	
	With vapour recuperation system	Without vapour recuperation system
Alytus	2,073	16,120
Kaunas	9,712	75,541
Klaipeda	4,842	37,660
Marijapole	1,718	13,362
Panevezys	2,798	21,764
Siauliai	3,155	24,535
Taurage	840	6,537
Telsiai	1,393	10,833
Utena	1,760	13,684
Vilnius	15,185	118,107
Total	**43,476**	**338,143**

The most recent comprehensive assessment of the implementation status of Directive 94/63/EC in Lithuania was carried out in 2006 by the Institute of Energy Technologies of Kaunas University of Technology. This study was requested by the Lithuanian Ministry of Environment[83].

Based on the conclusions of this study, terminals with throughput more than 50,000 tonnes/year comply with LAND 35-2000 (and correspondingly Directive 94/63/EC) requirements. During the execution of this study not all terminals with throughput greater than 25,000 tonnes/year had vapour recuperation equipment installed, but this issue was expected to be resolved by the start of 2008. There are terminals in Lithuania with throughput between 10,000 and 25,000 tonnes/year. They face a dilemma concerning the requirements they have to follow i.e. whether to install a vapour collection system and return vapour to terminals where a vapour recuperation system is installed, or to install a full vapour recovery system. Terminals with a throughput less than 10,000 tonnes/year are not planning to expand their business in the near future and therefore, there is no need for them to install vapour recuperation equipment. According to the latest data, terminals comply with LAND requirements.

[82] http://www.oilunion.lt/dbkenks.php (in Lithuanian language)

[83] Study "Assessment of the implementation of directive 94/63/EC during transitional period and development of action plan" http://www.am.lt/VI/index.php#a/6000 (in Lithuanian language)



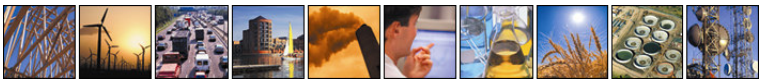
There were 701 service stations in total in Lithuania in 2006. Due to different derogations LAND 35-2000 requirements are applied for only 530 service stations. During the period when the study was developed, 584 service stations complied with the requirements of LAND. It means that over 50 service stations meet the requirements of LAND when they don't need to. However, 35 service stations out of 530 did not comply with LAND requirements mainly due to the lack of a vapour recovery system, vapour suction from fuel tanks, etc. Regional Environmental Protection Departments forced service stations to solve all compliance issues by the beginning of 2008. The main punishment for those service stations that didn't comply with legal requirements was closure.

According to the study data, 105 road tankers were used in Lithuania in 2006. 56 road tankers (about 53%) complied with LAND requirements whilst 49 (47%) did not comply. Based on the latest information provided by the Lithuanian Ministry of Transport and Communication, all road tankers being loaded in Lithuania comply with LAND requirements. Loading of road tankers that do not comply would not be allowed in Lithuania according to the national legal requirements.

In 2006 two companies owned railway tankers: 1,408 belonged to SC "Lithuanian railways" and 728 to SC "Mazeikiu nafta". All rail tankers were relatively old in terms of technical design and used the same without any changes as in 2000, when assessment of the compliance with LAND requirements was carried out by the order of the European Commission. Based on 2008 data, SC "Mazeikiu nafta" currently owns 970 railway tankers for light oil products and 44 for dark oil products. The total number of railway tankers that belong to SC "Lithuanian railways" is currently 1,896. Loading of railway tankers in Lithuania takes place in one terminal and all of the requirements of LAND and Directive 94/63/EC are complied with.

Currently the Lithuanian Association of the Oil Product Trade Companies (Oil Union) is implementing a project titled "Development and implementation of public information programme "Towards less pollution at service stations" with an aim to stimulate public environmental awareness raising", which is financed by the Republic of Lithuania and EU Structural Funds. As an outcome of the project, the concept of "Environmentally friendly service station" label was presented[84]. The main goal of the "Environmentally friendly service stations" approach is to inform the public about VOC emissions, possible impact on the environment and human health, measures implemented in service stations in order to reduce VOC emissions etc. All service stations willing to participate in the programme have to comply with set EU and Lithuanian environmental requirements and will be certified by a committee formed by the representatives of competent authorities, public and scientific institutions interested in the VOC issue. Although such an initiative goes beyond the requirements of the Stage I VOC directive, participation in this programme stimulates service stations to implement concrete VOC emission reduction measures and raise public awareness.

[84] http://www.oilunion.lt/indexp.php (in Lithuanian language)



A16.4 Technical issues

The following issues were raised by institutions involved in the transposition and implementation of the requirements of Directive 94/63/EC:

- The Ministry of Environment had protracted negotiations with the Ministry of Transport and Communication in order to demonstrate that labelling with identification plates in line with Annex IV is obligatory additionally to the road tankers mark required by ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road signed at Geneva on 30th September 1957). The Ministry of Environment received a clarification from the European Commission, based on which the Government of the Republic of Lithuania assigned the Ministry of Transport and Communication to correct legal acts under the competence of the Ministry. Ministry of Environment expressed an interest to learn about experience of other countries dealing with similar problem. The question of which national institution is responsible for the labelling of road tankers for complying with the requirements of Annex IV in other countries was raised.

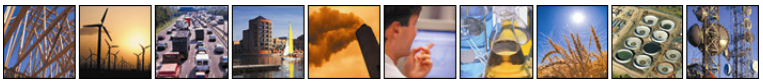
- Another issue is related to the provisions of Annex III. There is a requirement that "loading operations may not take place unless the arrangements are in place and properly functioning". Lithuanian legislation (LAND 35-2000) includes not only requirements for Stage I (in line with Directive 94/63/EC), but also requirements for Stage II i.e. petrol vapour recovery when refuelling. It is not clear from the text of the Directive which equipment has to function properly – whether the hose has to be hermetic, or the suction pump has to operate properly, etc. Lithuanian legislation (LAND 35-2000) requires that loading operations cannot be carried out if the vapour recuperation system is not connected or does not function properly. According to the Lithuanian legislation vapour recuperation system is classified as potentially dangerous device. Potentially dangerous equipment is understood as equipment that can cause danger for the health and life of employees and other people, as well as environment and property due to accumulated energy and other dangerous processes. The Law on Supervision of Potentially Dangerous Equipment (03 October 2000, Nr. 89-2742) states that equipment owner is responsible for the continual maintenance of the potentially dangerous equipment, i.e. continual technical check-up, repair, etc. Control (obligatory inspection of the equipment and parameters that show compliance with safety requirements, etc.) is delegated to the institutions under the Ministry of Social Security and Labour. Learning experiences of other countries concerning delegation of tasks related to this issue would be very useful for the Lithuanian national institutions.

- Environmental protection inspectors emphasised that there is a lack of equipment needed for inspections (e.g. there is no equipment in Lithuania that would allow checking whether a vapour recovery system operates properly).

- Transport specialists expressed the point of view that top-loading of mobile containers is much safer than bottom-loading.

A16.5 Problems of interpretation

Some interviewees raised a problem related to the application of Article 4 (paragraph 3) of the Directive. The Directive requires that "nine years after the date referred to in Article 10 the requirements for bottom-loading equipment set in Annex IV shall apply to all road tanker loading gantries at all terminals unless exempted under the terms of paragraph 4". In Lithuania this requirement came into force on 1 January 2008. However, Lithuanian



operators and lawyers state that this requirement does not forbid loading from the top. Lithuania asked the European Commission for clarification and based on the received answer initiated a review of LAND 35-2000 and Regulation concerning existing equipment. A revised version of the legal acts will clearly forbid loading from the top in terminals with throughput more that 10 000 tonnes/year. Interpretation would be easier if top loading would be clearly forbidden in the Directive.

Difficulties with interpretation caused some delays with implementation of the Directive in Lithuania, mainly due to early adoption of relevant national legislation, active work and consultations with operators and time spent briefing Regional Environmental Protection Departments on why it is essential to regulate operators.

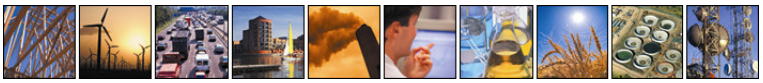
Appliance of the directive to the mobile containers that distribute petrol from terminals to other MSs was the biggest interpretation problem for transport specialists.

A16.6 Potential for simplification

According to the interviewees opinion simplification of the Directive could be achieved by being more specific where it is technically possible. For example, there is a requirement in Annex III that "loading operations may not take place unless the arrangements are in place and properly functioning". It is not clear from the text of the Directive which equipment has to function properly – whether the hose has to be hermetic, or the suction pump has to operate properly, etc. More concrete explanation of "proper functioning" and clear delegation to the competent authority to periodically control "proper functioning" would be very helpful for the institutions involved in the implementation of Directive 94/63/EC requirements.

The Lithuanian Ministry of Environment suggests indicating in the legislation that the requirements of Directive 94/63/EC are obligatory despite the provisions of international agreements (e.g. labelling of road tankers example).

Transport specialists expressed a wish for better correlation between different directives. For example, directives regulating transportation of dangerous goods (2008/68/EC) and Directive 94/63/EC have different regulation concerning top-loading.



A17. Luxembourg

A17.1 Data sources

The Administration de l'Environnement was contacted on 24 September 2008. The organisation felt unable to provide assistance for the study due to other reporting obligations. Data in this chapter has therefore been drawn exclusively from information previously gathered for the Stage II study (Entec, 2005).

A17.2 Process for implementation

A17.2.1 Legal background

The requirements of Directive 94/63/EC were implemented at the same time as for Stage II controls through the legislation 'Règlement grand-ducal du 16 octobre 1996 relatif à la lutte contre les èmissions de composés organiques volatils résultant du stockage de l'essence de la distribution de l'essence des terminaux aux stations-service et du ravitaillement en essence aupris des stations-service'.

A17.2.2 Roles and responsibilities

The Administration de l'Environnement (Administration for the Environment) is responsible for implementation of Directive 94/63/EC.

A17.2.3 Permitting and inspection activities

All petrol stations and all petrol terminals must have a permit in accordance with the IPPC Directive (transposed by the local legislation 'loi relative aux établissements classés').

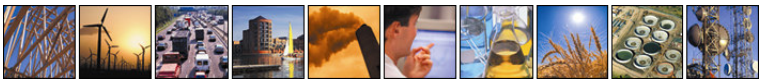
A17.2.4 Guidance for inspectors and industry

Guidance is available online for VRUs.[85]

A17.2.5 Reporting

Reporting requirements are not known.

[85] http://www.environnement.public.lu/guichet_virtuel/etabl_classes/index_formulaires/EXP-325-RECGAZ.pdf



A17.3 Status of implementation

There are approximately 240 petrol stations in Luxembourg with a total throughput of 567,438 tonnes in 2003. Table A17.1 provides a summary of the number according to various levels of throughput. At the start of the 1990s, many of the existing service stations underwent extension and modernisation. The total number of petrol stations decreased from over 400 to 240. There is not expected to be any further significant change in numbers.

Table A17.1 Numbers of petrol stations in Luxembourg by throughput

Annual Throughput	< 500m^3	500 - 999m^3	1000 - 1499m^3	> 1500m^3
Number of Stations	16	13	41	174

Source: Administration de l'Environnement (2004).

In Luxemburg, Stage I PVR was implemented in the late 1990s when most petrol stations had to be rebuilt due to other restrictions (soil pollution, larger tank capacities, modernisation, etc.) and when petrol terminals had to be upgraded to comply with the transposition of the IPPC Directive 96/61/EC.

A17.4 Technical issues

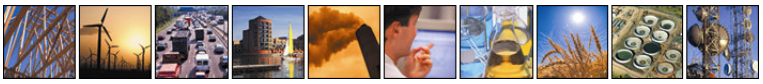
It is not known if technical issues were encountered with the implementation of Directive 94/63/EC.

A17.5 Problems of interpretation

It is not known if problems of interpretation were encountered with the implementation of Directive 94/63/EC.

A17.6 Potential for simplification

No feedback was received about potential simplification of Directive 94/63/EC.



A18. Malta

A18.1 Data sources

To date it has not been possible to gather detailed data and information on the implementation of Stage I VOC Directive in Malta although initial consultation with Malta Environment and Planning Authority (MEPA) has been undertaken. More detailed information on the 94/63/EC Directive was expected from MEPA once approval for the provision of this information to Entec is gained (from the responsible minister), but this information has not been received. Data presented for Malta in this section are mainly based on the previous study by Entec on Stage II Petrol Vapour Recovery (Entec, 2005)[86].

A18.2 Process for implementation

A18.2.1 Legal background

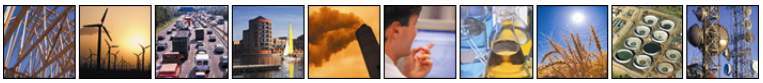
The latest date for which Malta has applied for a transition period in the implementation of the Stage I Directive is 31 December 2004. Therefore, it is assumed that all Stage I controls are currently implemented in Malta.

Directive 94/63/EC was initially transposed into national law via the legal notice 214 of 2001 titles "Control of Volatile Organic Compound Emissions (Storage and Distribution of Petrol from Terminals to Service Stations) Regulations". These Regulations were adopted under the Environment Protection Act 2001 (Act No. XX of 2001). This legislation was then amended by Legal Notice 426 of 2007 and was referred as Subsidiary Legislation 435.16 (S.L.435.16).

These legislation and amendments have now been superseded by the legal notice 54 of 2009 that is titled "Control of Volatile Organic Compound-VOC Emissions (Storage and Distribution of Petrol from Terminals to Service Stations) Regulations, 2009 – Environmental Protection Act CAP.435"[87]. The 2009 legislation appears in line with the Directive 94/63/EC, i.e. threshold derogations for terminals and petrol stations, technical requirements in Annexes I to IV of the Directive etc., but further consultation with the competent authorities has not been possible to verify this. It is noted that the definition of "existing" and "new" installation has been termed differently to Directive 94/63/EC, where "existing" and "new" are installations that have been granted a development planning consent before and after the 30th June 2012 respectively in the Maltese regulations (Directive 94/63/EC defines

[86] Entec (2005) Stage II Petrol Vapour Recovery - Final Report

[87] http://www.doi.gov.mt/EN/legalnotices/2009/03/LN%2054%20English.pdf



"existing" and "new" as installations before and after 31st December 1995 respectively). Moreover as part of the S.L.54 legal notice, the competent authority has also incorporated quantitatively legal fines in Articles 7 and 8.

A18.2.2 Roles and responsibilities

No information on this aspect has been made available.

A18.2.3 Permitting and inspection activities

No information on this aspect has been made available.

A18.2.4 Guidance for inspectors and industry

No information on this aspect has been made available.

A18.2.5 Reporting

No information on this aspect has been made available.

A18.3 Status of implementation

Data from the Entec 2005 study are available on the numbers and sizes of petrol stations which indicated that there were 61 petrol stations with a throughput greater than 1000 m^3/yr; 13 with greater than 500m^3/yr and 8 with less than 500 m^3/yr (Malta, 2003[88]). It is unclear if they comply with the requirements of the Directive.

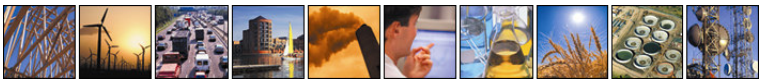
A18.4 Technical issues

No information on this aspect has been made available.

A18.5 Problems of interpretation

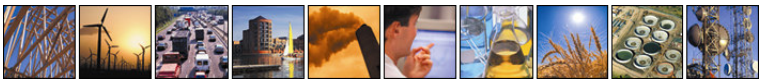
No information on this aspect has been made available.

[88] Malta (2003): List referred to in Article 24 of the Act of Accession – Malta



A18.6 Potential for simplification

No information on this aspect has been made available.



A19. Netherlands

A19.1 Data sources

Discussions have been held with representatives of the Directorate for the Environment, Division Climate and Air Quality. However, only limited information has been provided due to time constraints.

Some (limited) additional information has been included in this section based on a preliminary review of the websites of relevant Competent Authorities.

A19.2 Process for implementation

A19.2.1 Legal background

Directive 94/63/EC was transposed into Dutch legislation in 1995 via the Ministerial Decision on the Environmental Protection of storage, transfer and distribution of petrol (Regeling op-, overslag en distributie benzine milieubeheer, Staatscourant 1995, no. 250 and Staatscourant 1998, no. 105)[89]. This Decision applies to the storage, transfer and transport of petrol between refineries, storage and transfer companies and service stations (Stage I and II petrol vapour recovery).

A19.2.2 Roles and responsibilities

No information has been identified.

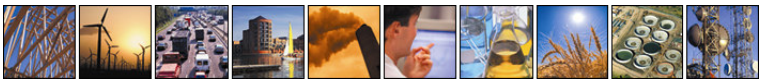
A19.2.3 Permitting and inspection activities

No information has been identified.

A19.2.4 Guidance for inspectors and industry

No information has been identified.

[89] http://www.infomil.nl



A19.2.5 Reporting

No information has been identified.

A19.3 Status of implementation

According to the Directorate of Environment, the Directive has been transposed into Dutch national legislation in 1995 and all of the technical requirements have been fully implemented[90]. However, no statistics have been identified to confirm this.

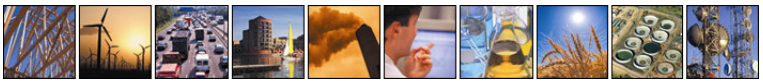
A19.4 Technical issues and problems of interpretation

The Directorate for the Environment has stated that there are no technical issues or problems of interpretation remaining from the implementation of this Directive. However, they have not indicated if there were any previously around the time of implementation.

A19.5 Potential for simplification

The Directorate for the Environment have stated that feedback gained from their regular VOC stakeholder meetings has indicated that the Directive is working well in the Netherlands to reduce emissions and does not need to be changed. This Directive is no longer a priority as it was implemented over 10 years ago; the focus is now on Stage II controls.

[90] The Dutch authorities also confirmed that the Stage I VOC Directive had been fully implemented during discussions for the Stage II study performed by Entec for the Commission (2005).



A20. Poland

A20.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Poland's implementation of Directive 94/63/EC.

Table A20.1 Stakeholders consulted for Poland

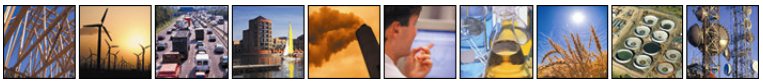
Stakeholder	Organisation name	Date interviewed
Government departments	Ministry of Environment	29 October 2008
	Ministry of Economy	30 October 2008
Local Authorities	Main Inspectorate of Environment Protection (GIOS)	31 October 2008
	Local Inspectorate of Environmental protection (WIOS)	31 October 2008
National Agencies	Institute of Environmental Protection	29 October 2008
	National Emission Centre	29 October 2008
	Energy Regulatory Office	12 February 2009
	Office for Technical Inspection	12 February 2009

A20.2 Process for implementation

A20.2.1 Legal background

Directive 94/63/EC was transposed into Polish legislation on 21 November 2005, laying down the technical conditions to be met by liquid fuel depots and service stations, pipelines for long-distance transport of oil and oil products, as well as their locations (Journal of Laws No 243, item 2063) and entered into force on 1 January 2006.

The Order of the Ministry of Economy on 12 December 2007 granted 5 years extension for technical details of installation of service stations and depots related to water and soil pollution prevention (Journal of Laws No 240, item 1753). The new deadline to comply with all technical standards is 31 December 2012. However, this extension does not refer to VOC emission control. The implementation of Directive 94/36/EC has been implemented strictly since 31 December 2007.



Currently the Ministry of Economy is responsible for all issues related to Directive 94/36/EC implementation. In Poland the Ministry of Environment does not have a role in its implementation and regulation, and there is no co-operation between the Ministry of Environment and the Ministry of Economy.

A20.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

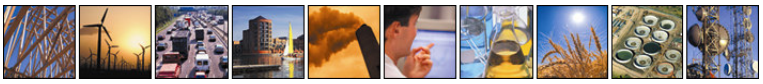
Table A20.2 Roles & Responsibilities

Role and Responsibility	Organisation
Transposing EU legislation	Ministry of Economy
Issuing permits for production, storage, and trading in oil-based fuels	The Energy Regulatory Office
Auditing new and existing installations for compliance with relevant construction law, including Directive 94/63/EC	District Inspectorate of Construction Control
Auditing and issuing permits for use of mobile tankers and fuel transportation	Transportation Technical Supervision
Environmental Inspection and monitoring	Main Environmental Protection Inspectorate (GIOS) Local Environmental protection Inspectorate (WIOS)

A20.2.3 Permitting & inspection activities

In Poland the Governmental institution responsible for issuing licences for terminals to operate (not just environmental aspects) is The Energy Regulatory Office (URE). Any entity interested in opening a commercial activity involving liquid fuels has to deliver a permit for use of a fuel station (issued by The District Inspectorate of Construction Control) as well as a decision from Office of Technical Inspection, allowing for exploitation of storage tanks. If any transportation of fuels is involved, the entity must submit a relevant permit for vehicles (mobile tankers etc.), issued by the Transportation Technical Supervision. Having these documents confirms that the activity does comply with relevant regulations (including VOC regulations).

The Governmental body responsible for the regulation of Directive 94/63/EC implementation is the Main Environmental Protection Inspectorate (GIOS) together with the Local Environmental protection Inspectorate (WIOS). This body is responsible for the control and reporting of monitoring data on petrol stations and terminals. During the inspection all facilities (petrol stations, terminals etc.) are checked for having emission-reducing installations in place. The control is done personally on site as well as by checking the technical documentation presented by the owner.



As far as storage tanks are concerned, they don't require a permit as long as they are not apart of bigger facility, but the owner has to obtain a technical decision from Office of Technical Inspection.

A20.2.4 Guidance for inspectors & industry

No specific guidance has been produced for inspectors or industry although some training was organised for inspectors.

A20.2.5 Reporting

The institution responsible for gathering data on number of fuel stations and other facilities is the Energy Regulatory Office (URE). It is also the most relevant source of information on current numbers of permits issued. As of February 2009, according to the website, URE has issued 8,321 permits for storage, production and trade in liquid fuels.

Regarding environmental performance of facilities, there is no obligation on owners to report any data, but according to the Law on National Environmental Inspection, Local Environmental Inspectorates can put such obligations on any organisation whose facility has been found to violate environmental laws or regulations.

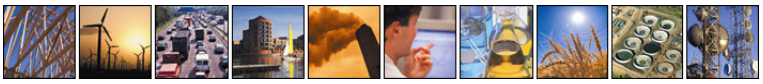
A20.3 Status of implementation

The Directive 94/36/EC is an integral part of Polish law since 21 XI 2005, when it was transposed by a Decree of Minister of Economy on "the technical conditions to be met by liquid fuel depots and service stations, pipelines for long-distance transport of oil and oil products, as well as their locations". Technical implementation of the Directive, has had its deadline extended from 2007 to 2012 by a Decree of the Minister of Economy dated 12 XII 2007. This extension applies to all fuel stations built before the decree entered into force. However, the technical scope of this extension applies only to leakage prevention measures and not to measures for reducing VOC emissions.

The requirements of the Directive have all been correctly implemented and appear to be applied in practice.

A20.4 Technical issues & problems of interpretation

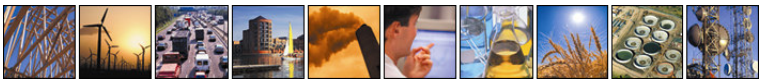
The Ministry of Economy has indicated that there were not any problems related to technical issues. Some comments were made in relation to the costs related to investment in new equipment and modernization of existing storage installations and service stations. However, the costs of investment appear to have been passed directly onto customers.



A comment was made on the number of legislative acts that smaller companies have to comply with and difficulties in interpretation. Larger companies are able to absorb the costs of specialists responsible for obtaining permits and conforming to the requirements.

A20.5 Potential for simplification

Stakeholders did not identify a need for any changes related to Directive 94/36/EC.



A21. Portugal

A21.1 Data sources

It has not been possible to gather detailed data and information on the implementation of Stage I VOC Directive in Portugal as consultation with the Ministry of Environment has not yielded any response. Any data presented for Portugal in this section are based on the previous study by Entec on Stage II Petrol Vapour Recovery (Entec, 2005)[91].

A21.2 Process for implementation

A21.2.1 Legal background

Portugal implemented Directive 94/63/EC through Ministerial Order nº646/97 of the 11th August 1997 (Entec, 2005).

A21.2.2 Roles and responsibilities

No information has been made available.

A21.2.3 Permitting and inspection activities

From limited information from the Entec (2005) study on Stage II petrol vapour recovery it was stated that the responsibility is delegated to the regional level for the Stage I Directive.

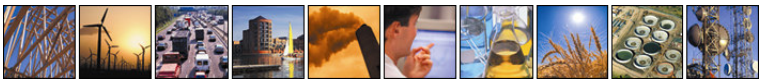
A21.2.4 Guidance for inspectors and industry

No information has been made available.

A21.2.5 Reporting

No information has been made available.

[91] Entec (2005) Stage II Petrol Vapour Recovery - Final Report



A21.3 Status of implementation

No information has been made available.

A21.4 Technical issues

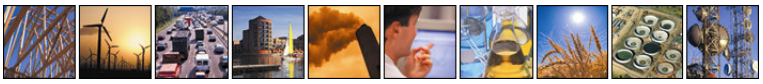
From limited information provided for the Entec (2005) study, it is understood that the Portuguese industry had not experienced any particular problems with the implementation of the 94/63/EC Directive at that time.

A21.5 Problems of interpretation

No information has been made available.

A21.6 Potential for simplification

No information has been made available.



A22. Republic of Slovenia

A22.1 Data sources

The following table lists the stakeholders contacted and interviewed in order to gather information for Slovenia's implementation of Directive 94/63/EC.

Table A22.1 Stakeholders consulted for the Slovenia

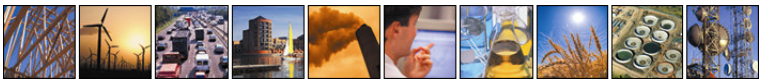
Stakeholder	Organisation name	Date interviewed
National Agencies	Environmental Agency of the Republic of Slovenia (EARS)	23 October 2008 T
		5 November 2008 F2F
	Zavod RS za Blagovne Rezerve	6 November 2008 T
Companies	Petrol	5 November 2008 C
	OMV	6 November 2008 T
	MOL	5 November 2008 C
	Agip	5 November 2008 C
	INTERINA	5 November 2008 C
	Luka Koper	6 November 2008 T
	Tuš Oil	5 November 2008 C
	Instalacija d.o.o.	5 November 2008 C
	TIB Transport d.d.	5 November 2008 C

T – Telephone interview, F2F – Face to face interview, C – Contacted and waiting for response

A22.2 Process for implementation

A22.2.1 Legal background

In the mid-1990's, Slovenia applied for membership to the European Union. In December 1997 the European Council in Luxembourg accepted the recommendation of the European Commission that negotiations should start. Official accession negotiations started in early 1998. The *acquis communautaire*, which had to be fully adopted by new members in order to become members of the European Union, was divided into 31 chapters and VOC issues



were negotiated in chapter 22-Environment[92]. In 1999, Slovenia stated as part of its negotiating position that "legislation on protection of air against pollution caused by emissions of volatile organic compounds (VOC) in storage and distribution of liquid fuels (Directive 94/63/EC) fully conforms with the *acquis* except in the part regulating mandatory testing of road tankers for transport of petrol with regard to vapour tightness."[93] It also stated, that Slovenia will "fully harmonise its legislation on protection of air against pollution caused by emissions of volatile organic compounds (VOC) in storage and distribution of liquid fuels with the *acquis* by issuing and implementing an order on testing of mobile petrol containers."

Directive 94/63/EC[94] was transposed into Slovenian legislation through adoption and implementation of several legal acts:

- in 1999 Decree on emissions of volatile organic compounds into the atmosphere from petrol terminals and service stations,[95]
- in 2004 new framework law was adopted on environmental protection, Environment Protection Act,[96]
- by 1996, 2000, 2001, and 2003 Rules on initial measurements and operational monitoring of the emission of substances into the atmosphere from stationary pollution sources and on the conditions for their implementation,[97]
- by 2002 Safety in Inland Waterways Navigation Act,[98] and
- by 1999 Transport of Dangerous Goods Act.[99]

VOC emissions in Slovenia are also covered under the National Emissions Ceiling Directive 2001/81/EC,[100] and international agreements like CLRTAP[101] and corresponding protocols.[102]

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[92] Archive homepage of Slovenian accession negotiations, http://www.ops.gov.si/ang/index.html

[93] http://www.ops.gov.si/datoteke/pi/ang/22.doc, page 8

[94] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0063:EN:HTML

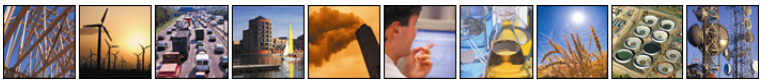
[95] http://www.uradni-list.si/1/objava.jsp?urlid=199911&stevilka=510

[96] http://www.uradni-list.si/1/objava.jsp?urlid=200441&stevilka=1694, (see also OJ RS, No. 17/2006, 20/2006, 28/2006 Skl.US: U-I-51/06-5, 49/2006-ZMetD, 66/2006 Odl.US: U-I-51/06-10, 112/2006 Odl.US: U-I-40/06-10, 33/2007-ZPNačrt)

[97] http://zakonodaja.gov.si/rpsi/r02/predpis_PRAV442.html, (OJ RS, No. 70/1996, 71/2000, 99/2001, 17/2003)

[98] http://www.uradni-list.si/1/objava.jsp?urlid=200230&stevilka=1254 , (see also OJ RS, No. 110/2002-ZGO-1)

[99] http://www.uradni-list.si/1/objava.jsp?urlid=199979&stevilka=3756, (see also OJ RS, No. 96/2002-ZE, 2/2004, 101/2005)



As Slovenia considered its gasoline sector sufficiently developed with respect to environmental concerns, it did not feel the need for any derogations or time extensions for the implementation of the Directive's requirements.

A22.2.2 Roles & responsibilities

The Ministry of Environment and Spatial Planning (MESP) is the responsible authority for regulating the field of environmental protection, covering also regulation of emission monitoring.

The Environmental Agency of the Republic of Slovenia (EARS) is in accordance with the Slovenian legislation charged with both the overall coordinating of activities that are necessary for the development of emission inventories, as well as with implementing inventories for the purposes of reporting to the European Commission.

To this effect, the Environmental Agency has increased the number of its staff. In developing inventories, the Environmental Agency cooperates with numerous other institutions and administrative bodies which relay the necessary activity data and other necessary information.

The chief sources of data are the Statistical Office of the Republic of Slovenia and the Ministry of Environment and Spatial Planning; however, the Environmental Agency obtains much of its data through other activities, which it performs under the Environmental Protection Act.

Two departments of the *Inspectorate of the RS for the Environment and Spatial Planning* (IRSOP), Environment and Nature Inspectorate and Spatial Planning Inspectorate, are dealing with the environmental inspections of the storage, loading, unloading and transport facilities ensuring compliance with the permits and standards by site visits. Inspector can issue a warning letter (with no sanctions; only for minor offences).

In other cases of non-compliance inspectors can issue an order including the following:

- Order specific deadlines for the operator to meet requirements,
- Order to the operator of the installation to reduce the production for a defined period or as long as the malfunction is dismissed,
- Propose to EARS to withdraw a permit, and/or

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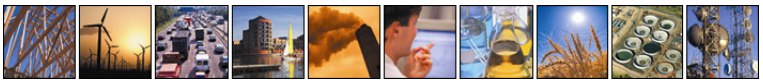
[100] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0081:SL:HTML

[101] http://www.unece.org/env/lrtap/full%20text/1979.CLRTAP.e.pdf. The Republic of Slovenia is as a party to the convention obligated to make annual emission inventories and to report them.

[102] http://www.unece.org/env/lrtap/multi_h1.htm, The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, ratified by Slovenia in 2005.



- Order extra monitoring.

Further information was requested from IRSOP, regarding their inspection activities in 2007, as due to changes in the institutional scheme of national inspectorates, no IRSOP annual report for this year was publicly available. However, no further information was received within the timescales of this study.

Table A22.2 Roles & Responsibilities

Role and Responsibility	Organisation
▪ Transposing EU legislation to the UK	National government, MESP
▪ Supervising the implementation of the Decree ▪ Compiling monitoring reports from the operators ▪ Reporting to the national and international level (EC, UN) ▪ Granting environmental permits for the facilities falling under EIA legislation ▪ Determine what is BAT on a site-specific basis and other IPPC connected environmental permitting procedures ▪ Grant permits which include conditions to secure that equipment is designed and operated correctly ▪ Consult with the Environmental Inspectorate on joint enforcement actions and inspections	Environmental Agency of the Republic of Slovenia
▪ Controlling the implementation of the environmental legislation, based on Environmental Protection Act (2004) ▪ Consult with the regulator on joint enforcement actions and inspections ▪ Reporting to the Inspectors Council	Inspectorate of the RS for the Environment and Spatial Planning

A22.2.3 Permitting & inspection activities

In Slovenia, the MESP is responsible, through local administrative units for smaller and on national level, for issuing construction permits for all construction projects, including fuel storage facilities.

EARS is responsible for granting

- Environmental consent (in predefined cases, where environmental impact assessment is mandatory); and
- Environmental permits in the case of IPPC facilities.

The EIA procedure was introduced by the first Environmental Protection Act[103] in 1993 as a specific procedure in which it must be determined whether the planned activity in the environment presents a potential risk to the environment and can cause environmental damage or degradation, or whether such an activity is actually possible in terms of consequences for the environment. The key point was the principle of prevention, set by the EPA, according to which any activity in the environment must be designed and realised in such a way to cause minimal change in the environment and to present minimal risk to the environment.

In the period of 1996 to 2004 service stations also came under the Decree on categories of activities for which an environmental impact assessment is mandatory.

In 2004, a new Environmental Protection Act was adopted, that radically changed environmental impact assessment and the issue of environmental protection consent. The environmental impact assessment in its entirety fell within the competence of the EARS. The investor of the activity for which the environmental impact assessment is to be carried out may obtain preliminary information on the scope and content of the environmental impact report. The investor must provide, for the purposes of environmental impact assessment, a project for the planned activity, a report on environmental impacts of the project implementation, and revision of the report.

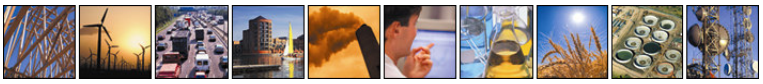
No national statistics or other survey on number of permitted service stations in Slovenia was identified. Due to the limited number of companies in Slovenia that are running such services, it has been possible to compile the data in the table below[104].

Table A22.3 Number of Terminals and Service Stations in Slovenia

Installation type	Number (2007)
Storage at terminal	**4**
Service stations	**442**
Petrol	307
Agip	4
MOL	6
OMV	102
INA	6
Tuš Oil	17

[103] Zakon o varstvu okolja, OJ RS, No. 32/1993

[104] Company web pages and annual reports (where available) were consulted to compile the data.



Energy statistics are regularly compiled by the Energy Directorate at the Ministry of Economy. They indicate indicating that annual throughput of unleaded gasoline used in Slovenia was 638,000 tonnes in 2006 and 615,300 tons in 2007. However, import of unleaded gasoline in 2006 was 700,000 and 690,200 tonnes in 2007[105].

In 2006 IRSOP also implemented inspections of large fuel storages (calling them "distribution centres") and service stations. Petrol and OMV, as the largest owners of the service stations in the country, have achieved compliance with the Decree on emissions of volatile organic compounds into the atmosphere from petrol terminals and service stations.[106]

A22.2.4 Guidance for inspectors & industry

Two guidance documents were prepared for inspectors and operators of storage facilities:

- In 2003 the National Environmental Inspectorate prepared "Priročnik za nadzor emisije hlapnih organskih spojin v zrak iz naprav za skladiščenje in pretakanje motornega bencina".[107] This handbook presents the content and interpretation of the Decree and provides the inspectors with a checklist for inspections and other relevant information.

- In 2006, as a part of the Twinning project SI04/EN/01 on Integrated Pollution Prevention and Control (IPPC), a document was prepared, titled: "*Navodila za naprave za skladiščenje v zvezi z Direktivo 1994/63/ES, dopolnjeno z Direktivo 1882/2003/ES*"[108] Dr. Richard Schlachta from the Bavarian State Ministry of the Environment, Public Health and Consumer Protection.

A22.2.5 Reporting

In accordance with article 8 of the Decree on emissions of volatile organic compounds into the atmosphere from petrol terminals and service stations, all storage facilities are obliged to monitor emissions. This is set by the Rules on initial measurements and operational monitoring of the emission of substances into the atmosphere from stationary pollution sources and on the conditions for their implementation[109]. These rules set obligations for all installations, falling under the Decree, to annually report to the EARS about their emissions.

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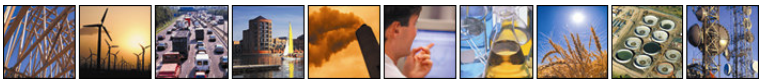
[105] Ministry of Economy, Energetska bilanca Republike Slovenije za leto 2008, July 2008

[106] IRSOP, Poročilo o delu Inšpektorata Republike Slovenije za okolje in prostor za leto 2006, January 2007.

[107] Handbook on controlling emissions of VOC in air from facilities for storage and loading of petrol, IRSOP, 2003

[108] Guidelines for storage facilities in connection with Directive 1994/63/EC, supplemented by 1882/2003/EC. A Twinning project was supported by the EU Phare Programme. More info on http://okolje.arso.gov.si/ippc/

[109] OJ RS, No. 70/1996 Changes: OJ RS, No. 71/2000, 99/2001, 17/2003



According to the rules, the operator is responsible for monitoring of the installation. Operators are required to enable regular monitoring in line with the requirements of the rules on operational monitoring. The results of the monitoring should then be recorded and maintained.

On an annual basis, emissions measurements are performed on a Vapour Recovery Unit, in a period of at least seven hours of working day, at current discharge of petrol. All terminals are obliged to send annual reports, which include results of these measurements, to EARS. Measured emission values at all storage installations were below the limit value as determined in Article 6 – Paragraph 2 of the Decree.

Table A22.4 Mean annual concentration of VOC from the VRU in Slovenian terminals

Terminal	Mean annual concentration (g/m^3)	Limit value (g/m^3) by Article 6
Instalacija Sermin	0,1472	35
Petrol Zalog	0,238	35
Petrol Rače	4,611	35
Ortnek	0,0404	35

However, the Decree itself does not establish an obligation of reporting to the authorities about the specific measured VOC emissions. Thus, the national authority regularly asks operators for data and other input to be able to fulfil the reporting obligations of the State. It was noticed in interviews that a lack of a standard reporting format at a European level is not supporting efforts to establish such obligation on a national level. To know what needs to be reported to the European Commission would enable the national authority to prepare a national reporting form.

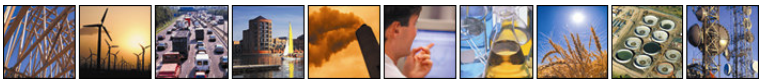
A22.3 Status of implementation

There are four terminals for petrol storage[110] in the territory of the Republic of Slovenia[111]:

- Sermin, Operator: Instalacija d.o.o.
- Zalog, Operator: Petrol d.d.

[110] There are also storage facilities at location of Celje and Lendava, where purpose of use was changed.

[111] Based on reporting under article 9 of European Parliament and Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations, prepared by EARS in September 2009 and sent to the European Commission (also published on the EIONET). Supplemented with information from Bojan Rode (responsible officer at the EARS and author of the above referenced report).



- Rače, Operator: Petrol d.d.
- Ortnek, Operator: National Commodity Reserves (Zavod RS za blagovne rezerve[112])

All storage installations in the terminals are designed and operate in accordance with the technical provisions of Annex I of the Directive 94/63. All of them were adapted to meet the technical requirements for reduction emissions at petrol storage, according to Articles 4 and 16 of the Decree; loading and unloading of mobile containers in storage installations according to Article 6, 7 and 8 of the Decree, at the latest April 6. 2006 (or their purposes of use changed or they were closed down).

Table A22.5 Timescale for implementation of requirements for storage installations in Slovenia

Minimum efficiency required:	**Annual loss – not exceed 0.01% of the throughput**		
Compliance date for existing Storage installations	**Threshold (m^3/year)**	**Legal date**	**Effective application in 2006 (%)**
	>25,000	6. 3. 2002	100%
	<25,000	6. 3. 2005	100%

Loading and unloading equipment in all terminals are designed and operate in accordance with the technical provisions of Annex II of the Directive 94/63. All of them were adapted to meet the technical requirements for emission reduction at loading and unloading of mobile containers, as defined in Article 6 of the Decree. The latest deadline for modification was January 1st 2005.

According to the requirements of Article 6 of the Decree, and "Rules on initial measurements and operational monitoring of the emission of substances into the atmosphere from stationary pollution sources", all service stations in the territory of Slovenia, including one with an annual throughput of less than 500 m^3/year, are completely harmonized with the requirements from Article 13 of the Decree. New service stations, which were built after the year 2000 were technical equipped, as described in Annex III of the Directive. Existing service stations were either renovated or closed down at the latest by 6th March 2005.

[112] http://www.zrsbr.si/

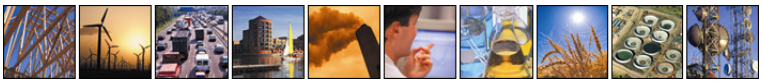


Table A22.6 Timescale of implementation of requirements for service stations in Slovenia

Minimum efficiency required:	**Annual loss – not exceed 0.01% of the throughput**		
Compliance date for new stations: **(if necessary indicate the correct thresholds)**	**Threshold (m^3/year)**	**Legal date**	**Effective application in 2006 (%)**
	<100	-	
	100-499	6. 3. 2005	100%
	500-999	6. 3. 2003	100%
	1000-1999	6. 3. 2002	100%
	>2000	6. 3. 2002	100%
Compliance date for existing stations: **(if necessary indicate the correct thresholds)**	**Threshold (m^3/year)**		
	<100	-	
	100-499	6. 3. 2005	100%
	500-999	6. 3. 2003	100%
	1000-1999	6. 3. 2002	100%
	>2000	6. 3. 2002	100%

Currently EARS or MESP does not collect any information about the non-compliance or information on incidents or other risk events at petrol stations and storage at terminals. However, IRSOP has a duty to check the non-compliance status of service stations and terminals and act accordingly.

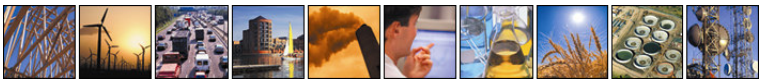
From the interview with EARS representative, it was clear that EARS is not aware of any issue of non-compliance with the Directive requirements.

A22.4 Technical issues

From available interviews and literature no specific technical issues were raised in the time of the Directive implementation. Due to investment cycles, especially in the case of service stations that fell in the period of implementation deadlines, those which might have been in non-compliance were usually closed (due to economic reasons).

However, EARS pointed out two small issues, regarding monitoring:

- Guidance on implementation of measuring emissions on sites, and
- Guidance on measuring evaporation of the volatile organic compounds regarding the throughput at the individual installation.



In the consultation process, queries were raised with respect to diesel fuel storage and whether or not the European Commission is preparing anything regarding it.

A22.5 Problems of interpretation

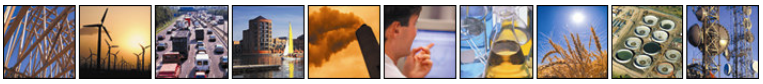
The stakeholders consulted in Slovenia in general stated that no significant problems of interpretation of the requirements of the Directive and the relevant national Decree were encountered.

One small issue was raised about the proper identification of “gantry” in the national language (“polnilni otok”). However this is more and issue of translation than interpretation.

A22.6 Potential for simplification

There was a common impression during the interviews that the Directive is working adequately to the expectations of the regulator reducing VOC emissions to the environment.

However, EARS mentioned a possible need to consider making reference to specific technical standards.



A23. Romania

A23.1 Data sources

The table below summarises the institutions interviewed in order to gather information for the implementation of Directive 94/63/EC in Romania.

Table A23.1

Stakeholder	Organisation name	Date interviewed
Government department	Ministry of Economy and Finance General Directorate for Industrial Policy and Competitiveness	04 November 2008
National Agency	National Environmental Protection Agency (ANPM)	07 November 2008

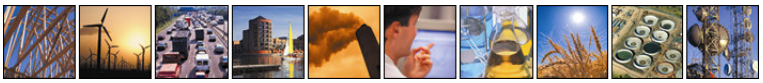
A23.2 Process for implementation

A23.2.1 Legal background

Directive 94/63/EC[113] was fully transposed into Romanian legislation by Governmental Decision no. 568/2001 on the control of Volatile Organic Compound (VOC) emission resulting from the storage of petrol and its distribution from terminals to service stations (abbreviated as GD 568/2001) and entered into force on 1st January 2002, subsequently amended and republished in the Of.J.No.595/29.08.2007. In order to ensure its implementation, Romanian competent authorities have adopted several normative acts, as follows:

- Order of the Minister of Environment and Water Management (MEWM) No. 781/2004 on the approval of the Technical Norms regarding the measurements of emissions of volatile organic compounds resulted from the storage and the loading/unloading of petrol at terminals (Of.J.No.1243/23.12.2004);
- Order of Minister of Industry and Resources (at present Ministry of Economy and Finances/MEF) No. 337/2001 on the approval of the Technical Norms regarding the technical inspection to installations, equipment and devices used on the purpose of the limitation of volatile organic compounds emissions resulted from the storage, loading, unloading and distribution of petrol at terminals and services

[113] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0063:EN:HTML



stations (Of.J.no.10/10.01.2002), subsequently amended by MO no. 122/2005 (Of.J.No.324/18.04.2005);

- Order of the Minister of Economy and Commerce (MEC, at present MEF) No. 468/2005 on the designation of the specialised bodies for technical inspections of the installations, equipments and devices used on the purpose of the limitation of volatile organic compounds emissions (Of.J.No.812/07.09.2005), subsequently amended by MO No. 612/2005 (Of.J.No.992/09.11.2005) and MO No.553/2008 (Of.J.No.180/10.03.2008);

- Order of the MEC and Ministry of Transportation, Construction and Tourism (MTCT) No. 92/716/2006 on the approval of the Technical Norms for technical inspection of mobile containers used for petrol transfer from a terminal to a service station, other deposit or terminal, for the purpose of limitation the volatile organic compounds resulted from the operations of loading, transportation, unloading and distribution of petrol at terminals and service stations (Of.J.No.152/17.02.2006); and

- Order of the MTC No. 174/2005 on the approval of the Technical Regulation "Normative for the designing, construction, exploitation, closure and after-closure operations of the service stations for combustibles to vehicles", indicative NP 004-03 (Of.J.No.34/13.01.2006), subsequently amended by MO No.1395/2006 (Of.J.No,680/08.08.2006).

- Order of MEC No. 488/2006 on acknowledgement of specialised bodies for technical inspection for the exploitation of petrol loading and unloading installations on mobile containers (Of.J.No.643/26.07.2006), subsequently amended by MO No, 2139/2008 (Of.J.No.558/23.07.2008).

However, in accordance with the Accession Treaty provisions, Romania had obtained some derogations for the implementation of the Directive, as follows:

i. By way of derogation from Article 3 and Annex I to Directive 94/63/EC, the requirements for existing storage installations at terminals shall not apply in Romania:

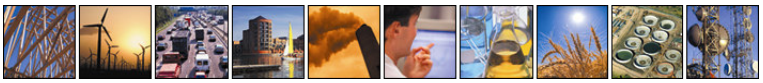
- until 31 December 2007 for 115 storage installations at 12 terminals and until 31 December 2008 for 4 storage installations at 1 terminal with a throughput loaded greater than 25 000 tonnes/year but less than or equal to 50 000 tonnes/year; and

- until 31 December 2007 for 138 storage installations at 13 terminals, until 31 December 2008 for 57 storage installations at 10 terminals and until 31 December 2009 for 526 storage installations at 63 terminals with a throughput loaded less than or equal to 25 000 tonnes/year.

ii. By way of derogation from Article 4 and Annex II to Directive 94/63/EC, the requirements for loading and unloading of existing mobile containers at terminals shall not apply in Romania:

- until 31 December 2007 to 36 loading and unloading installations at 12 terminals with a throughput greater than 25 000 tonnes/year but less than or equal to 150 000 tonnes/year; and

- until 31 December 2007 to 82 loading and unloading installations at 18 terminals, until 31 December 2008 to 14 loading and unloading installations at 11 terminals and until 31 December 2009 to 114



loading and unloading installations at 58 terminals with a throughput less than or equal to 25 000 tonnes/year.

iii. By way of derogation from Article 5 of Directive 94/63/EC, the requirements for existing mobile containers at terminals shall not apply in Romania:

- until 31 December 2007 to 31 road tankers;
- until 31 December 2008 to a further 101 road tankers; and
- until 31 December 2009 to a further 432 road tankers.

iv. By way of derogation from Article 6 and Annex III to Directive 94/63/EC, the requirements for loading into existing storage installations at service stations shall not apply in Romania:

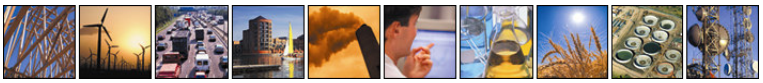
- until 31 December 2007 to 116 service stations, until 31 December 2008 to a further 19 service stations and until 31 December 2009 to a further 106 service stations with a throughput greater than 1 000 m3/year;
- until 31 December 2007 to 49 service stations, until 31 December 2008 to a further 11 service stations and until 31 December 2009 to a further 85 service stations with a throughput greater than 500 m3/year but less than or equal to 1 000 m3/year; and
- until 31 December 2007 to 23 service stations, until 31 December 2008 to a further 14 service stations and until 31 December 2009 to a further 188 service stations with a throughput less than or equal to 500 m3/year.

VOC emissions are also covered under the National Emissions Ceiling Directive 2001/81/EC, as transposed into Romanian legislation by Governmental Decision no. 1856/2005 (Of.J.No.23/11.01.2006), where upper annual limits for four pollutants for each Member State are set; the Romanian VOC national emission ceiling for 2010 is 523 kilotonnes (reduction by 15% comparing to the baseline 1990).

Derogations adopted

No derogations have been requested from the Romanian regulators of the Directive beyond those agreed in the Accession Treaty.

Stakeholders appear to be unclear about derogation procedures for excluding service stations >100 - 500 m3/year from the Directives' provisions. It is not clearly established how the Ministry of Environment can ask/propose derogations to EC. At present, no specific procedure for adopting derogations that may be required has been adopted.



A23.2.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A23.2 Roles & Responsibilities

Role and Responsibility	Organisation
• Transposing EU legislation to Romania • Co-ordinates the process of issuing the environmental integrated permit/authorization • Co-ordinates the specific activities regarding public information and the activities regarding the participation in making the decisions according to the provisions of the Directive • Supervises the activity of the authorities and institutions under its subordination • Submits reports to the European union, according to the requirements • Co-operates with other central authorities	Ministry of Environment and Sustainable Development
• Co-ordinates the National System of Integrated Monitoring of the environmental factors • Ensures the National registry regarding the installations which fall under the provisions of the Directive • Sets-up and up-dates the National Registry regarding VOCs (data base, installations, authorizations, inspections and reports) • Up-dates the installations inventory at national level and co-ordinates this process at regional and local level • Develops the pollutants emissions register at national level • Elaborates for the European commission reports regarding the measures adopted for implementing the Directive and submits them to the Ministry of Environment • Collaborates with other responsible institutions in order to implement the requirements of the Directive	National Environmental Protection Agency
• Issue integrated environmental permits and environmental permits for storage installations at terminal with a throughput greater than 50 000 tonnes/year and loading/unloading of mobile containers with a throughput greater than 150 00 tonnes/year. A permit is valid for 5 years.	Regional Environmental Protection Agency
• Issue environmental permits for all types of installations which fall under the provisions of the Directive, as follows: storage installations at terminal with a throughput of less than 50 000 tonnes/yea, loading/unloading of mobile containers at terminals with a throughput less than 150 00 tonnes/year, all mobile containers and all service stations	Local Environmental Agency
• Enforces the compliance with the legislation through its territorial units (regional and local environmental guard) • Collaborates with the central authority for environmental protection for setting the norms on air protection etc.	National Environmental Guard

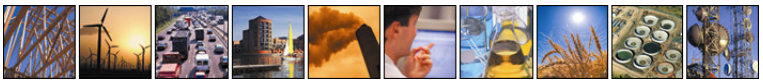
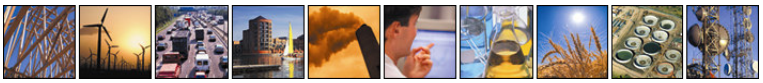


Table A23.3 Roles & Responsibilities

Role and Responsibility	Organisation
• Drafts legal acts on environmental issues related to industrial activities, including the field of VOCs resulting from the use of petrol • Recognizes and designates the specialized bodies in order to implement technical inspection • Supervise the activity of the specialized bodies	Ministry of Economy and Finance
• In conformity with the legal act amending HG 568/2001, Ministry of Transport will organize and co-ordinate the activity of technical inspections for mobile containers, through three subordinate bodies: - Romanian Road Auto register (inspection of road tankers) - Romanian rail authority (technical inspection of rail tankers) - Romanian shipping Authority (technical inspection of vessels)	Ministry of Transport
• Elaborates strategies, policies and legislation for human health protection	Ministry of Public Health
• Controls the implementation of the technical inspection of the road tankers and the compliance with norms for road tanker transport making	Ministry of Interior and Administrative Reform
• Carry out the technical inspections and produce the technical documentation relevant to the installations and equipment used to reduce VOC emissions from storage, loading and unloading of mobile containers at terminals and loading into storage at service stations	Specialized bodies for technical inspection - 9 specialized bodies for inspection of installations and equipment used to reduce VOC emissions from storage, loading, unloading and distribution of petrol at terminals and service stations, through Order 553/2008 of the Ministry of Economy and Finance - 6 specialized bodies for inspection of loading and unloading installations at mobile containers, through Order 2139/2008 of the Ministry of Economy and Finance

A23.2.3 Permitting & inspection activities

In Romania the role of the regulator is split between the Regional Environmental Protection Agencies (8) and Local Environmental Protection Agencies (42), depending on the case when installations fall under IPPC Directive provisions. The regulator is responsible for granting approvals and permits and setting permit conditions with the aim of achieving a high level of protection for the environment as a whole; this should be based on the use of best available techniques (BAT). However, as a requirement for issuing the approval and/or permit, the environmental protection agencies should verify whether the operator/titleholder has obtained from the specialised bodies for technical inspection the technical approval and the certificate for technical inspection. A specific time period for reviewing permits is not stipulated in the legislation, but it does state that the competent authority reviews them periodically, and it is mandatory to review the permit every time: pollution caused by the installation is significant,



requiring the reviewing of the ELVs or including new ones; significant changes to BATs enable a significant emission reduction without excessive costs; safety in exploitation of processes or activities require different techniques, and new legal provisions. The permit shall also be reviewed when the operator notifies the competent authority with regard to any significant changes planned for the exploitation of installation. A permit is issued for no longer than 5 years whilst the environmental integrated permit (under IPPC provisions) is valid for 10 years.

The responsibility for inspecting installations is jointly undertaken by National Environmental Guard (NEG), through its territorial units (42), specialised bodies for technical inspection (9+6), and Romanian Road Auto register (inspection of road tankers), Romanian rail authority (technical inspection of rail tankers) and Romanian shipping Authority (technical inspection of vessels) as well. However, NEG functionaries can apply fines from 20,000 to 50,000 RON and even close or suspend the operation for non-compliance with the permit requirements. During 1.01.2007- 30.06.2008 GNM through its local branches applied fines totaling 601,250 RON to service stations and 150,000 RON to terminals either for functioning without the environmental permit or for non-compliance with the permit requirements.

The Ministry of Environment is responsible for the authorization procedure, through the National, Regional and Local Environmental Protection Agencies, depending on the throughput of petrol and the type of the installations. The licensing and permitting process is integrated. Regional environmental Agencies are responsible for checking the documentation (that includes the technical certificate issued by the specialised bodies) and issuing the licences for new established installations and permits for the existing ones. They adjust and revise the requirements for the affected installations in accordance with the deadlines for compliance.

The technical inspection of the installation is carried out through specialised bodies recognised and designated for this purpose by the Ministry of Economy. They inspect the installations every 2 years and report to the Ministry of Economy on a semestrial basis.

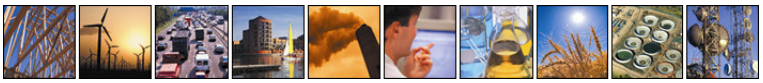
A23.2.4 Guidance for inspectors & industry

The guidance related to VOCs so far was addressed to the Regional EPAs and resulted into two twinning projects:

i. Twinning project RO2004/IB/EN-08 “Implementation and Enforcement of the Environmental Acquis focussed on VOC/NOISE – REPA Bucharest (ended in 2006); and

ii. Twinning project RO2004/IB/EN-04 “Implementation and Enforcement of the Environmental Acquis focussed on IPPC – REPA Craiova (ended in 2007).

No other guidance specifically related to Directive 94/63/EC for inspectors has been developed in Romania, although there is a need identified for learning in this field. It was mentioned by the authorities that the templates used by the inspection bodies were not consistent or integrated between the different organisations. The Ministry of Economy has been working on integrating the templates involving the inspection bodies and by 2008 all are using the same template. Inspection bodies have also been involved by the Ministry of Economy in legal drafting



of new regulations that may improve and foster the same view on similar documents to be requested from operators.

A23.2.5 Reporting

The operator is responsible for monitoring the emissions of the installations (with VRUs) and shall subsequently report to the environmental authorities (local/regional environmental agencies). However, there is no clear provision related to the obligation of the operator to report within a certain period of time, the exceeding of ELVs, the results of its own monitoring operations, etc.

A23.3 Status of implementation

Table A23.4 depicts the aggregated numbers of storage installations and mobile containers regarding their implementation status. There are 134 service stations with a throughput <100 m^3/year, but they are not covered by the Directive and therefore not listed in the table.

Table A23.4 Aggregated numbers of storage installations and mobile containers and their implementation timetable

Installations	Numbers	Implementation
Storage installations at terminals > 50,000 t/y Article 3, Annex I	63 installations at 6 terminals	By accession
Storage installations at terminals > 25,000 t/y Article 3, Annex I	12 installations at 3 terminals	By accession
	33 installations at 5 terminals	31.12.2007
	10 installations at 1 terminal	31.12.2008
	8 installations at 2 terminals	31.12.2009
Storage installations at terminals < 25,000 t/y Article 3, Annex I	40 installations at 9 terminals	By accession
	41 installations at 5 terminals	31.12.2007
	26 installations at 6 terminal	31.12.2008
	163 installations at 23 terminals	31.12.2009
Loading/unloading of mobile containers at terminals > 150,000 t/y Article 4, Annex II	18 installations at 5 terminals	By accession
	6 installations at 1 terminal	31.12.2007
Loading/unloading of mobile containers at terminals > 25,000 t/y Article 4, Annex II	3 installations at 3 terminals	By accession
	9 installations at 6 terminals	31.12.2009
Loading/unloading of mobile containers at terminals < 25,000 t/y Article 4, Annex II	46 installations at 8 terminals	By accession
	13 installations at 4 terminals	31.12.2007
	10 installations at 5 terminals	31.12.2008
	38 installations at 19 terminals	31.12.2009

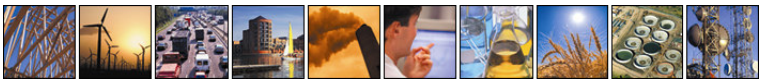


Table A23.5 (continued) Aggregated numbers of storage installations and mobile containers and their implementation timetable

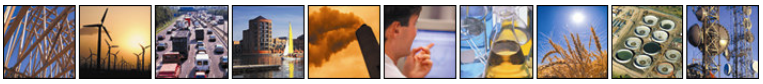
Installations	Numbers	Implementation
Mobile containers	420 road, 438 rail, 1 vessel	By accession
	31 road	31.12.2007
	58 road	31.12.2008
	371 road	31.12.2009
Loading into storage installations at service stations > 1,000 m3/y, Compliance with Annex III	393	By accession
	71	31.12.2007
	18	31.12.2008
	76	31.12.2009
Loading into storage installations at service stations >500-1,000 m3/y, Compliance with Annex III	211	By accession
	38	31.12.2007
	9	31.12.2008
	83	31.12.2009
Loading into storage installations at service stations >100-500 m3/y, Compliance with Annex III	567	By accession
	27	31.12.2007
	11	31.12.2008
	160	31.12.2009

A23.4 Technical issues

The Ministry of Economy interviewees expressed their need and interest in learning from older Member States how they implemented the Directive. They mentioned their willingness in sharing experience on permitting and inspection issues through projects, as well as taking part in seminars and workshops. The interviewees mentioned that there is not sufficient technical guidance available for the regulator as well as for the operators, concerning the inspection and required documentation.

In addition to that, certain issues were raised, among which:

- The inspection is carried out by many different bodies, e.g. EPAs, local branches of NEG, specialised bodies for technical inspection (SBTIs), Romanian Road Auto register, Romanian rail authority, Romanian shipping Authority; in many cases this caused an overlap of the issues inspected, duplication of effort and not necessarily prescribed measures concordant to each other; therefore stricter requirements have been imposed by NEG, for example, even though the SBTIs have acknowledged the conformity with the legislation; this should be addressed by correlating and clarifying the regulatory framework;



- Also the inventories of emissions are carried out by three different bodies, inter alia: MESD by subcontracting, NEPA and the National Institute for Environmental Protection (ICIM); and

- There are specific procedures for emission monitoring only for such operators whose installations/terminals are provided with VRU; this gap should be corrected by adopting specific methodologies for the installations which are not provided with VRU.

A23.5 Problems of interpretation

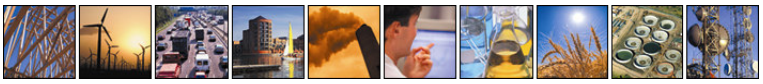
The interviewees stated that no problems or technical issues have been encountered during the implementation of the Directive. National legislation did not interpret terminologies in a different manner.

Due to the fact there are a wide range of stakeholders involved in the implementation of the Directive, sometimes lack of consistency in relation to the operators and requirements of diverse institutions may occur.

A23.6 Potential for simplification

All stakeholders who were consulted indicated that they would not necessarily be in favour of changing the Directive itself, but to add, for example, either to this Directive or by promoting a Regulation for the implementation of the Directive, where to provide, inter alia, for more specifications/minimum requirements for granting the derogations, for example with regard to the service stations with a throughput of less than 500m3/year, more instructions on how the “permanent living quarters or working areas” could be delimited from the other areas; etc.

Another important proposal formulated by the interviewed stakeholders is to establish a Clearing-House Mechanism (CHM) which would significantly contribute to the implementation of the Directive through the promotion and facilitation of technical and scientific cooperation, among Member States, mainly due to its highly technical and complex specificity. In the support of it, the stakeholders mentioned that the new Member States are usually facing similar issues as the older MSs have years ago, and thus the transfer of knowledge and technology is a must. Moreover, during the meetings stakeholders were asked about new abatement techniques that have been developed since the introduction of the Directive; the stakeholders generally mentioned that no additional abatement techniques have been developed that could achieve substantially greater emission reductions than the techniques that are currently applied.



A24. Slovakia

A24.1 Data sources

The following stakeholders were interviewed to gather information on the implementation of the Directive in Slovakia:

- Slovak Ministry of Environment www.enviro.gov.sk;
- Slovak Hydrometeorological Institute www.shmu.sk; and
- Slovak Environmental Agency.

A24.1.1 Legal background

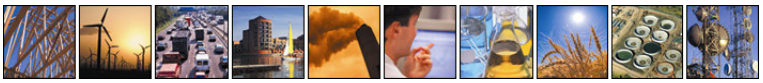
The directive 94/63/EC on the control of VOC emissions was transposed into Slovak legislation through the implementation of existing and new regulatory regimes (component law) as follows:

- Act No. 478/2002 Coll. on air protection which supplements the Act No. 401/1998 Coll. on charges for air pollution in wording of later regulations (Act on the air); and
- Decree 704/2002 which sets out general and technical conditions for operation of devices for loading, unloading of mobile containers; storage installation terminals; storage installation at service stations[114].

Decree 704/2002 consists of 9 paragraphs defining general terms and rules and then it contains 6 Annexes.

- Annex I: technical requirements for storage installations at terminals (distribution) – distribution storage for fuels.
- Annex II: technical requirements and general conditions for operation of loading and unloading of mobile containers at distribution terminals.
- Annex III: technical requirements and general conditions for operation of loading devices for loading system from the bottom (based on requirement from Directive) and recirculation of vapors and preventive measures against overloading of mobile containers.

[114] Decree 704 of the Ministry of Environment of the Slovak Republic of 29 November 2002 establishing technical requirements for and general operating conditions of installations used for storage, loading and unloading of petrol (http://www.lifeenv.gov.sk/minis/legislativa/704_2002.pdf).



- Annex IV: technical requirements and general conditions for operation of loading devices and storage terminals at service stations (gas stations) and distribution terminals which are temporarily storing vapors.
- Annex V: technical requirements and general conditions for loading devices to tanks of road vehicles at service stations.
- Annex VI: technical requirements and general conditions for operation of devices curbing emissions of volatile compounds at storage terminals and loading of fuels.

The Decree also includes a requirement for 'Stage II' vapour recovery controls to be applied when dispensing petrol at service stations (going beyond the scope of the Directive)[115].

A24.1.2 Roles & responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A24.1 Roles & Responsibilities

Role and Responsibility	Organisation
Transposition of the Directive; administration, including checking on and co-ordinating District Offices; and for reporting on progress.	Ministry of Environment
Issuing and enforcing requirements of permits for terminals and service stations (with responsibility passed to District Environmental Offices for some installations).	National Environmental Inspectorate
Regulation of many of the processes covered (generally service stations). The Ministry of Environment is responsible for co-ordination of the DEOs, via eight Regional Environmental Offices.	District Environmental Offices (46)
Approval of mobile containers.	Ministry of Transport
Currently responsible for collation of information on the current status of all petrol stations and terminals (amongst other installations).	Slovak Hydrometeorological Institute
Owner of all of the petrol terminals and most of the petrol stations (state-owned until 2002). Responsible for compliance with legislation.	Slovnaft

[115] This applies to service stations with an annual throughput greater than 1,000m^3 from 1 January 2005 and to smaller petrol stations (and those located outside permanent living quarters or industrial areas) from 1 January 2008. It does not apply where throughput is less than 100m^3 or for stations located outside permanent living quarters or industrial areas where throughput is less than 1,000m^3.

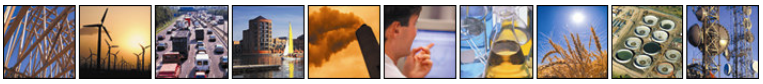


Table A24.1 (continued) Roles & Responsibilities

Role and Responsibility	Organisation
Owners of petrol stations. Responsible for compliance with legislation.	Other petrol companies
Research and guidance in relation to Stage I requirements (amongst other responsibilities).	VURUP

A24.1.3 Permitting & inspection activities

The main inspection body is the Slovak Inspectorate of the Environment with regards to air quality. The National Environmental Inspectorate or, more usually, District Environmental Offices (DEOs) issue permits to new installations, including one permit for approval of the building and one permit for operation. The DEOs have the power to fine installations for non-compliance; if they are still not compliant after two fines, they can be closed down. These punitive measures can be introduced where installations do not comply with technical requirements for improvements specified by the DEOs.

In 2007 the national inspectorate undertook 53 inspections in total: 42 inspections were focused on service stations and 11 were executed in storage terminals. The inspections paid attention to all technical devices (loading and unloading) and its proper function at the storage installations, terminals and service stations (*Source: Report on Inspections of the quality of fuels in the year 2007, The Slovak Inspectorate of the Environment*).

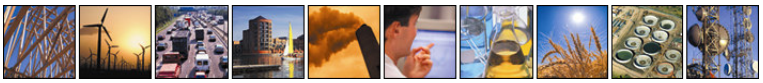
A24.1.4 Guidance for inspectors & industry

The research organisation, VURUP, has produced some software (available on line) for service stations to calculate their emissions. VURUP has also produced a guidance manual including technical requirements of the Directive, based on guidance initially set out by the UK Institute of Petroleum (now the Energy Institute) in 1992. Guidance has been produced on CD and is provided to owners and inspectorates (VURUP, 2003). This is available on their website (www.vurup.sk). For the purpose of measuring and calculation of the balance of vapors, Slovak Technical Standard STN EN 656511 was developed.

A24.1.5 Reporting

The Ministry of Environment and Slovak Hydro Meteorological Institute are responsible authorities for data collection and reporting related to the Directive 94/63/EC.

Operators are required to report emissions and volume of petrol distributed to the DEOs and Regional Inspectorate for Environment and the data is then processed by the by the Hydrometeorological Institute. Issued permit includes



the conditions given to the operator (for the storage of petrol and distribution from terminals to service stations) about required data (petrol balance, production etc.) they are obliged to collect, process and provide to the regulatory authorities.

The Ministry of Environment and Slovak Hydrometeorological Institute, with assistance from the Slovak Environment Agency, are preparing a report on *"…control of emissions of volatile organic compounds (VOCs) resulting from the storage of petrol and its distribution from terminals to service stations"*. This work is currently ongoing.

A24.2 Status of implementation

The requirements of Directive 94/63/EC have been implemented correctly and appear to have been applied correctly. There is no evidence of any infringements concerning late implementation of the Directive.

A24.3 Technical issues

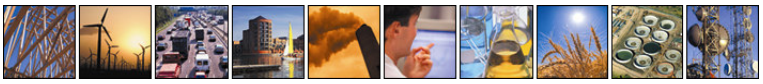
No technical issues identified.

A24.4 Problems of interpretation

No problems of interpretation identified.

A24.5 Potential for simplification

No issues raised.



A25. Spain

A25.1 Data sources

It has not been possible to gather detailed data and information on the implementation of the Stage I VOC Directive in Spain as consultation with the Ministry of Environment has not been possible.

A25.2 Process for implementation

A25.2.1 Legal background

In Spain Directive 94/63/EC has been transposed into legislation via the Royal Decree 2102/1996 published on 20th September 1996. In addition for petrol tanks the Royal Decree 1437/2002 was published on 27th December 2002 which sets out the requirements for petrol tanks and has adapted it to the Royal Decree 2102/1996.

These Royal Decrees appear to be in line with the requirements of Directive 94/63/EC (threshold derogations for terminals and petrol stations, technical requirements in Annex I to IV of the Directive, etc.), but further consultation with the competent authorities is required to verify this.

A25.2.2 Roles and responsibilities

No information has been made available.

A25.2.3 Permitting and inspection activities

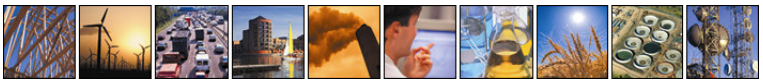
No information has been made available.

A25.2.4 Guidance for inspectors and industry

No information has been made available.

A25.2.5 Reporting

No information has been made available.



A25.3 Status of implementation

No information has been made available.

A25.4 Technical issues

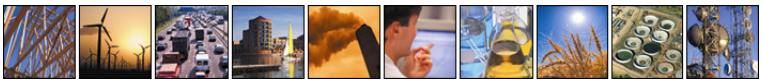
No information has been made available.

A25.5 Problems of interpretation

No information has been made available.

A25.6 Potential for simplification

No information has been made available.



A26. Sweden

A26.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for Sweden's implementation of Directive 94/63/EC.

Table A26.1 Stakeholders consulted for Sweden

Stakeholder	Organisation name	Date interviewed
National Agency	Naturvårdsverket (Swedish Environmental Protection Agency, 'Swedish EPA')	07 October 2008
Trade association	Svenska Petroleum Institutet (Swedish Petroleum Institute, SPI)	07 October 2008

Note: Additional information has been provided by the Swedish Rescue Services Agency.

A26.2 Process for implementation

A26.2.1 Legal background

Stage I Petrol Vapour Recovery (PVR) was introduced in the 1980s in Sweden.

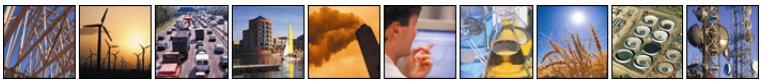
The text and technical Stage I requirements for terminals are implemented by the Swedish EPA in the regulation SNFS 1996:14 [116]. This regulation includes a guidance section on its final pages.

Stage I requirements regarding installations and operation at service stations have been transposed in the Swedish regulation on Stage II petrol vapour recovery, SNFS 1996:5 [117].

The Stage I requirements for mobile containers are implemented by the Swedish Rescue Services Agency in the transposition of Directive 94/55/EC on the transport of dangerous goods by road ('Swedish ADR'). An annex to the Swedish ADR legislation refers to the technical document 'Transport tanks for Dangerous Goods', published by

[116] SNFS 1996:14 'Statens naturvårdsverks föreskrifter om begränsning av utsläpp av flyktiga organiska ämnen vid hantering av bensin vid depåer', of 7 June 1996.

[117] SNFS 1996:5 'Naturvårdsverkets föreskrifter om ändring i kungörelsen (SNFS 1991:1) med föreskrifter om återföringssystem för bensingaser vid tankställen för motorfordon', of 22 February 1996.



the SIS pressure vessel Commission. This handbook specifies how to build tanks and in chapter TBA 520 it is mentioned how a PVR system on a tank should be designed. The Swedish version of this handbook predates its 1991 English translation. Alongside this, the Swedish Petroleum Institute (SPI) has produced its own guidelines which are binding for all industry members.

A26.2.2 Roles and responsibilities

The Ministry of Environment has overall responsibility for ensuring implementation of the Directive. However, the responsibility for Stage I implementation was devolved to the Prescribing Authorities of the Swedish EPA and the Swedish Rescue Services Agency (the latter for mobile containers only). The inspection authority is either the relevant County Administrative Board or, for environmental matters, the Municipal Environmental Authority. For mobile containers the Police, the Swedish Rail Agency, the Swedish Coast Guard, notified bodies and the County Administrations are inspection authorities.

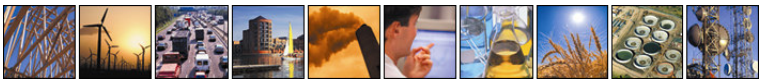
A26.2.3 Permitting and inspection activities

The general regulation SNFS 1996:14 is binding to all terminals distributing petrol. All terminals also need a permit according to the Swedish Environmental Code. Permits are issued by the regional authority under the integrated pollution prevention and control (IPPC) scheme. The permits issued to installations generally include more detail and requirements than Directive 94/63/EC and its transposition via the regulation for terminals (e.g. requiring VRUs to achieve VOC emission limits of 10g/Nm^3 rather than 35g/Nm^3).

Permits for terminals are issued by the Regional Environmental Court (there are 25 regions) for 'A Installations' (this includes refineries) and 'B installations' (this includes terminals). 'C Installations' (including service stations) do not require permits, although there is a requirement for the operators of service stations to register their operations and to comply with the legislation on Stage I (and Stage II).

Permits for category A installations are consulted upon broadly: local people, local authorities (including the Environmental Court) and the Swedish EPA are all involved in the process, particularly in a public hearing. The Swedish EPA's contributions include written statements detailing what needs improving following submission of an application by the operator to the Court. Following receipt of comments, there is a second reading by the Court; the outputs are made public (notified in a newspaper); the Swedish EPA provides views again; and the process is completed by issue of the permit following a public hearing. Typically timescales for the whole process is 2-3 years according to the Swedish EPA, although it can be as short as 9 months (the Swedish Petroleum Institute (SPI) suggests that the average is closer to 3-4 years).

Permits for category B installations do not normally involve the Swedish EPA; these normally happen at a more local level (regional environmental court); and can last 3-4 years. There have been no new sites built since the 1960s for petrol storage, except for one recent new terminal at Arlanda airport (airport expansion dictated the re-siting of an old aviation kerosene storage facility).



Inspections for terminals are undertaken at a regional level by the County Administrative Boards at least once per year, whilst inspections of service stations are undertaken by the local Environmental Authority (with a lower frequency than those for terminals).

Inspections of mobile containers are undertaken by the police under the obligations of the Swedish ADR legislation. In 2007, around 7000 inspections of road tankers were undertaken. Road tankers are legally required to be inspected every three years, although the SPI recommends annual inspections. Tankers are tested annually for leaks (vacuum/pressure valves are tested according to 6.8.2.4 in the ADR legislation), and loading is automatically disallowed if this test is not completed (if not done within one week of notification).

A26.2.4 Guidance for inspectors and industry

A General Guidance document was issued at the same time as the regulation SNFS 1996:14 was issued (included in the back two pages of the legislation for terminals).

Workshop training sessions were provided for both operators and local authorities in 1997/98, and then again in 2002 (when the guidance for terminals was produced; Terminal Guidelines were completed in 2002, which covers VOC emissions amongst other things).

The SPI has issued a number of guidance documents. The SPI Board produced a set of recommendations in 1998 (16th April) to operators and authorities on good practice in petrol vapour recovery. This guidance is reported to be generally known to both operators and authorities. Other documents include Tankbilstransporter[118] from February 2003, and the industry standard for loading arms and gantries SPI Lastningsstandard (version 2) from January 2008.

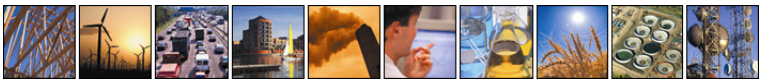
A26.2.5 Reporting

The Stage I legislation does not set any reporting requirements for terminals. However, all Environmentally Hazardous Activities requiring a permit must submit an annual environmental report to the inspection authorities, which must at least include throughput details and total VOC emissions. The content is based on a Monitoring Programme which is decided upon by the inspection authority.

The SPI indicated that emissions of VOCs are estimated based on practices set out by CONCAWE in reports 3/07 [119] and 6/08 [120], and reports from the US EPA. The Swedish EPA stated that it has started introducing permit

[118] 'Regelverk för Transport av brandfarlig Vätska med Tankfordon fastställtav SPIs styrelse den 17 Februari 2003 och överenskommet med Svenska Åkeriförbundet'

[119] CONCAWE report 3/07, 'Air pollutant emission estimation methods for E-PRTR reporting by refineries'



requirements to use the DIAL (differential LIDAR) monitoring system and a solar occultation flux (SOF) monitoring system.

There are no reporting requirements for service stations. However, there is a requirement to report any failures in Stage I equipment. Also, the Stage II equipment is checked every 2 years, and Stage I equipment is checked at the same time.

A26.3 Status of implementation

The Swedish EPA confirmed that all terminals, mobile containers and service stations meet the requirements of Directive 94/63/EC, except for Annex IV (Specifications for bottom-loading, vapour collection and overfill protection of European Road Tankers) due to issues specific to the Arctic countries (see section A26.4).

The first generation Vapour Recovery Units (VRU) that were originally introduced at terminals were able to achieve the 35g/Nm^3 limit (if well maintained), typically achieving 25g/Nm^3. Only one first generation VRU is still operating (out of a country total of around 34, including ship loading). The remainder are second generation, achieving typically less than 5 g/Nm^3 but occasionally have values of 5-10 g/Nm^3; around half of these have continuous emission monitoring systems (CEMS) installed.

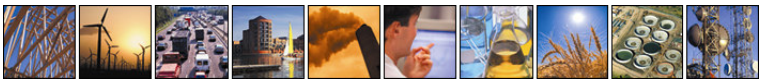
There are 21 oil harbours with petrol storage installations. There are large terminals in Gothenburg, Malmö and Stockholm. Lysekil has a large harbour to serve the refinery but no truck loading is undertaken there. Terminals are generally of size 100,000 - 300,000 m^3 annual throughput capacity, except the larger ones at Gothenburg and Lyschil.

The deadline for permitting of terminals is actually the end of 2008 according to the national legislation but these installations had to comply with the requirements of the Directive before even the Stage I Directive came into force (all needed VRUs and most had internal floating roofs).

The vast majority of the tanks in Sweden have fixed roofs. The few tanks in terminals that have floating decks are equipped with primary and secondary seals. A few small tanks are connected to the VRU at the terminal.

Loading on to ships for transport to local terminals (for further local transport by road) is significant due to the geographical situation of Sweden, and due to the large market for export (export is from refineries, not from terminals). Refinery capacity is around twice domestic consumption; there are significant exports of petrol from Sweden. There are virtually no cross-border petrol deliveries by road tanker. There are two inland terminals serviced by inland waterways and a small number of terminals served by rail tankers. Road tankers in Sweden are above average in size: due to the small population spread over a large area, road tankers are typically 60 tonnes and

[120] CONCAWE report 6/08, 'Optical methods for remote measurement of diffuse VOC:s their role in the quantification of annual refinery emissions'



up to 25.25m long, typically comprising a standard tanker, with an additional trailer of variable length attached behind.

A26.4 Technical issues

As with other Arctic countries, Sweden had Stage I interfaces and connectors that pre-date Directive 94/63/EC, and as such were already using standards of connectors and other technical specifications that were specific to Sweden (and other Arctic countries).

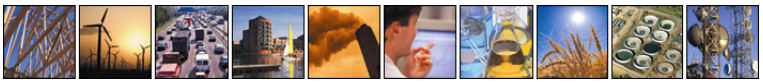
Bottom-loading of road tankers was introduced in 1974 for occupational health reasons and for efficiency gains. The whole depot system was rebuilt approximately 10 years later.

Due to the larger road tankers used in Sweden (see section A26.3), there was a need to fill both the tanker and the trailer at the same time. This resulted in gantries with two systems and two pumps, and the necessity for lengthy hoses in order to accommodate the variable trailer length (rather than fixed loading arms). According to the organisations consulted, Annex IV of the Directive was written with normal-sized trailers (for the EU) in mind and did not take into account use of such trailers.

Since 1985, 3-inch couplings have been in-use as a standard industry practice in Sweden on loading arms and loading gantries, with the standard formalised through the SPI in 2004, and revised in 2008 (see section A26.2.4). The 4 inch couplings, as prescribed by Annex IV of the Directive, were trialled, but were found to make the hoses too heavy to be easily lifted by the drivers, and so were not adopted for this reason amongst others. Nevertheless, in order not to inhibit cross-border trade, adapters for 4-inch couplings are available on one gantry at all terminals. However, the Swedish EPA states that apart perhaps from some instances close to Copenhagen and southern Sweden (where road tankers from other Member States may visit), these adapters have not been utilised.

Overfill protection devices have been installed in Sweden since the mid 1970s. These devices utilise a thermistor with a positive temperature coefficient – as opposed to a negative temperature coefficient prescribed by the Annex IV of the Directive – which provides greater sensitivity than one with a negative temperature coefficient when used in colder climates such as in Sweden. This issue has therefore not precisely followed the requirements of the Directive, instead retaining the existing systems. In any case, modern overfill protection devices utilise not only thermistors but optical sensors – this being more recent technology – and so abiding by the requirements of Directive 94/63/EC exactly would, according to the consultees, stifle the advancement of such technology. There is increasing pressure to use optical sensors in Sweden due to the increasing use of 'renewable' fuels (ethanol blends). According to the consultees, the costs to change the current system in Sweden to bring it in-line with the Directive would be very high, for zero additional reduction in VOC emissions. Costs were originally stated in the Environmental Fuels Expert Group (EFEG) technical sub-group minutes of the meeting on 20 October 1997, and were estimated to be:

- 400m SKr for retrofitting terminals;

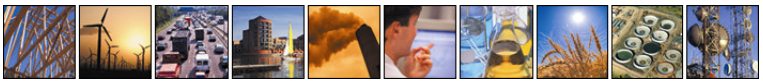


- 150m SKr for retrofitting tankers; and
- 1800m SKr for retrofitting tanks at customers' premises (although this is considered to be out of date now, and probably closer to 400-500m SKr based on the 2008 network).

A summary of the differences between the Swedish standards in use and the Directive's requirements are listed in Table A26.2.

Table A26.2 Summary of the differences between technical requirements of Directive 94/63/EC Annex IV and the Swedish standards in use

Directive 94/63/EC requirements	Swedish praxis	Swedish EPA view of implications of changing the Swedish system to the Directive's requirements
Couplers for petrol: 4" API Coupler with a loading arm	Couplers for petrol: 3" TODO drip-proof	The Swedish system is adjusted for long vehicles with two in-loadings. To change the type of coupler and the size of it would require the rebuilding of the whole system for out-loadings. Sweden has regulated that adapters shall be available for foreign vehicles.
Couplers for vapour recovery: 4" API-couplers	Couplers for vapour recovery: 3" "quick" coupler	All hoses and couplers on every tank vehicle would have to be changed. Sweden has regulated that adapters shall be available for loading of foreign vehicles.
Speed of loading; 2300 litre/min	Normal 1700-2000 litre/min	Increasing the speed of loading would require extensive changes in the distribution system. At worst, this could result in rebuilding entire depots.
10-pin connector from the vehicle	Separate connections for earth and overfill protection	Extensive rebuilding of vehicles and stationary establishments or double systems for connections to Villa tanks would be necessary. Sweden has regulated that adapters shall be available for foreign vehicles.
Thermistor with negative temperature coefficient	Thermistor with positive temperature coefficient since this is more reliable in our climate with temperatures down to -40º C in the winter.	The system would need to be changed on both vehicles and stationary establishments. Converters could be made for foreign vehicles.
Loading is not permitted unless a permissive signal is provided by the combined earth/overfill control unit. In the event of an overfill condition or a loss of vehicle earth, the control unit on the gantry must close the gantry-loading control valve.	Loading cannot happen if the earth or the overfill protection is not connected. In the case of an overfill, the bottom valve on the tank vehicle is blocked.	The Swedish system produces the same security function as required by the Directive. However, the technical design is altogether different, which means that an adjustment would involve rebuilding the whole system without regaining any functional improvements.



A26.5 Problems of interpretation

The requirement of the Directive that took longest to implement was of the painting of storage tanks at terminals. (Annex I, Point 1 "colour" was interpreted as white at terminals, though not at refineries.) For the painting of tanks with a colour of heat reflectance >70%, the Swedish EPA reserved the right in its transposition of the legislation to take alternative measures to obtain equivalent environmental outcomes. Many existing tanks in Sweden that previously stored heavy fuel oil (use of this has dropped significantly since the 1970s) have been converted to store petrol instead of being scrapped. Due to the heavy insulation already provided by such tanks, the painting of these tanks in white is not considered necessary if the operator can show in a report to the Swedish EPA that the insulation has at least the same thermal effect as white paint. Such tanks number approximately 10 out of a country total of around 200 petrol tanks (around 40 terminals with 4-5 tanks each on average). The implementation of this requirement was completed in 2005.

No terminals are now below the 5,000 m^3 throughput threshold so this derogation is not of relevance in Sweden.

A26.6 Potential for simplification

The opinion of the Swedish EPA is that the Directive's technical requirements for terminals and mobile containers are too detailed. A simplification of Directive 94/63/EC would be to exclude Annex IV from the Directive and instead refer to not only CEN standards and Technical reports, specifically CEN/TR 15120[121], but also to other legislation such as Directive 94/55/EC[122].

According to the Swedish EPA, with the increased use of 'renewable' fuels the technology of bottom loading and overfill protection has to be developed to be able to handle the new fuels safely. Some of the technical requirements of Directive 94/63/EC were considered to be now out-of-date – as are some of the recommendations of the EFEG group – due to changes since then in (i) use of ethanol 5% blends, (ii) use of E85 on quite a wide scale in Sweden (approximately 200,000 m^3 throughput of an annual total of 5.2m m^3; or around 4%)[123]. These changes have implications for the technologies used in PVR. Technical solutions and details such as dimensions of couplings, electronic connections, etc., are considered to be easier to handle outside the Directive. Due to the number of technical requirements stipulated by Directive 94/63/EC, and the length of time it has taken for changes to be made in the legislation, it was suggested that technical requirements should be expected to potentially change and therefore the facility to update the Directive's technical requirements should be provided for.

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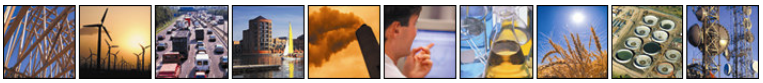
[121] CEN Technical Report CEN/TR 15120, 'Tanks for transport o dangerous goods – Guidance and recommendations for loading, transport and unloading'.

[122] Council Directive 94/55/EC of 21 November 1994 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road [Official Journal L 319 of 12 December 1994].

[123] Sweden also operates VRUs on E85 blends.



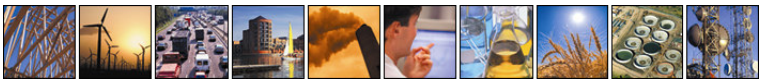
It is the view of the Swedish EPA that the Directive should only include those factors that have an effect on the emissions of VOCs. In that respect it is only necessary to state that all loading of road tankers should be done through bottom loading. It was not a deemed a threat to leave the means to industry, as long as the environmental outcome is achieved.

It was noted that Sweden did not have the opportunity to negotiate derogations from the Directive on matters such as Annex IV due to the timing of their accession to the EU.

The Environmental Fuels Expert Group (EFEG) technical sub-group minutes of the meeting on 20th October 1997 included a number of proposed changes to Directive 94/63/EC. Following consultation of the Swedish EPA and the SPI, the opinion of the current validity of these recommendations for Sweden is included in Table A26.3.

Table A26.3 Current validity for Sweden of EFEG proposed changes to Directive 94/63/EC

EFEG Proposed Amendment	Opinion on current validity for Sweden (opinion of SPI and Swedish EPA)
Annex II, section 4	Not relevant for Sweden.
Annex IV, title	No concern.
Annex IV, section 1	Proposed changes are OK, but the CEN report is now complete, such that it therefore makes sense to refer to it (CEN/TR 15120). However, the aspects relevant to Sweden are only included in this CEN report (rather than in CEN standards which was reportedly the original intention; the standards refer to the situation in other EU Member States).
Annex IV, Section 2.1	The loading rates should to be changed to those in the CEN report, i.e. that 2500litre/min should be changed to 2400 l/m, and that 1800 l/m should be changed to 1900 l/m. However, these technical details are technically insufficient by themselves; if they are going to be prescribed they should also include the operating conditions under which these loading rates are valid (as described in the CEN report).
Annex IV, section 2.2	Correction is still valid (but is not specific to arctic states).
Annex IV, section 3	The text is not wholly up-to-date due to other types of sensors that are now in-use (e.g. optical sensors). The increasing use of renewable fuels may require new sensors. It is therefore best not to stipulate requirements so precisely in legislation, and instead refer to a technical report that can be updated more easily in-line with innovation.
Annex IV, sections 4.1.3	An 'envelope' length of 2.8m is required for the larger road tankers in use in Sweden. There was legal ambiguity concerning the definition of 'envelope' when applied to a road tanker with a trailer attached (most common in Sweden). If the envelope is defined as the width of one set of adapters (i.e. on the truck, or the trailer) then there is not an issue for Swedish road tankers. If however 'envelope' should encompass the furthest adapter on the truck to the opposite further adapter on the trailer, then obviously this will be a distance much more than 2.5m.
Annex IV, section 4.2	No concern.
Annex IV, section 5.1	No concern.
Annex V	It may not be valid anymore to produce the list of corresponding terms between Directive 94/63/EC and the Regulations for the Transport of Dangerous Goods, because of the frequency with which the Regulations are updated.



A27. United Kingdom

A27.1 Data sources

The following table lists the stakeholders interviewed in order to gather information for the UK's implementation of Directive 94/63/EC.

Table A27.1 Stakeholders consulted for the UK

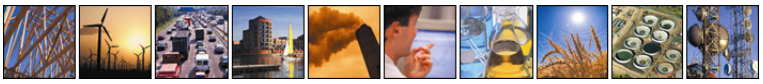
Stakeholder	Organisation name	Date interviewed
Government department	Department for Environment, Food and Rural Affairs (Defra)	03 September 2008
National Agencies	Environment Agency (EA)	03 September 2008
	Scottish Environment Protection Agency (SEPA)	03 September 2008
	Department of Environment Northern Ireland (DOENI) (Note 1)	26 September 2008
Local Authorities	Mole Valley District Council	03 September 2008
	Mid-Beds District Council	03 September 2008
Trade associations	UK Petroleum Industry Association (UKPIA)	03 September 2008
	Petrol Retailers Association (PRA)	03 September 2008
	Federation of Petroleum Suppliers (FPS)	03 September 2008
	Tank Storage Association (TSA)	03 September 2008
	Forecourt Equipment Federation (FEF)	03 September 2008

A27.2 Process for implementation

A27.2.1 Legal background

Directive 94/63/EC[124] was transposed into UK legislation through the implementation of existing regulatory regimes under Part I of the Environmental Protection Act 1990, and section 2 of the Pollution Prevention and Control Act 1999.

[124] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0063:EN:HTML



The Directive was previously implemented in England and Wales through the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000/1973)[125], and its subsequent amendments, including the Pollution Prevention and Control (England and Wales)(Amendment) and Connected Provisions Regulations 2004 (S.I. No. 3276)[126]. This was subsequently revoked and superseded; Directive 94/63/EC is now implemented through Schedule 18 of Regulation 35(l) of The Environmental Permitting (England and Wales) Regulations 2007 (S.I. 2007 No. 3538), which came into force on 6th April 2008.

In Scotland, Directive 94/63/EC is currently implemented through the Pollution Prevention and Control (Scotland) Regulations 2000 (S.S.I. 2000/323)[127] – which was made under section 2 of and Schedule 1 to the Pollution Prevention and Control Act 1999 – and its subsequent amendments, of which the Pollution Prevention and Control (Scotland) Amendment Regulations 2003 (S.S.I. 2003/146) provided some clarifications. The latest amendment of the Control of VOCs (Petrol Vapour Recovery) regulations was in 2004 (S.S.I 2004/512), where some clarifications and changes were included, particularly with regards to "exempt service station" and the petrol station threshold for exemption for complying with the requirements of the Directive i.e. it was increased from 100m^3 to 500m^3.

In Northern Ireland, the Directive was originally implemented through the Industrial Pollution Control (Prescribed Processes and Substances) Regulations (Northern Ireland) 1998 (SR 1998 No 28), as amended by the Industrial Pollution Control (Prescribed Processes and Substances) (Amendment) Regulations (Northern Ireland) 1998 (SR 1998 No 268). The Directive is currently implemented by the Pollution Prevention and Control Regulations (Northern Ireland) 2003 (SR 2003 No 46) as amended by the Pollution Prevention and Control (Amendment) Regulations (Northern Ireland) 2004 (SR 2004 No 507)[128].

In Gibraltar the Directive has been implemented through the Petroleum Ordinance Rules 2001 (No 3215 of 22nd March 2001, Legal Notice 14)[129].

VOC emissions are also covered under the National Emissions Ceiling Directive 2001/81/EC, where upper annual limits for four pollutants for each Member State are set; the UK VOC national emission ceiling for 2010 is 1,200 kilotonnes.

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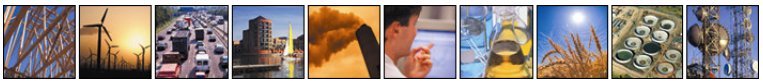
[125] http://www.opsi.gov.uk/si/si2000/uksi_20001973_en.pdf

[126] http://www.opsi.gov.uk/si/si2004/uksi_20043276_en.pdf

[127] http://www.opsi.gov.uk/legislation/scotland/ssi2000/ssi_20000323_en.pdf

[128] http://www.opsi.gov.uk/legislation/northernireland/ni-srni.htm

[129] http://www.gibraltarlaws.gov.gi/articles/2001=014.pdf



Derogations adopted

The UK has adopted one derogation from Directive 94/63/EC in addition to the derogation specifically for the UK in Annex II. These are both outlined below:

- Article 6: Loading into storage installations at service stations
  - The derogation from Paragraphs 1 and 2 in Article 6 of the Directive for service stations with annual throughput less than 500m^3 has been adopted. This was adopted for the benefit of those service stations in remote locations, but applies to all stations. The number of sites with throughputs <500m^3 has fallen over recent years, so the overall effect in terms of VOC emissions will be relatively small. There has been an increase in diesel use so it is possible that some service stations that are operating Stage I may now fall below this threshold.
  - In England and Wales, the threshold was previously set at 100m^3/yr in the Pollution Prevention and Control (England and Wales) Regulations 2000, but was increased to 500m^3/yr by Statutory Instrument 2004 No. 3276: the Pollution Prevention and Control (England and Wales) (Amendment) and Connected Provisions Regulations 2004, which came into force on 1st January 2005.
  - In Scotland, this threshold has been implemented by Scottish Statutory Instrument 2004 No. 512: the Control of Volatile Organic Compounds (Petrol Vapour Recovery) (Scotland) Regulations 2004, which came into force on 24th December 2004.
- Annex II: Requirements for loading and unloading installations at terminals
  - The UK derogation in Annex II of the Directive[130] is understood to have been introduced to account for one petroleum company that had unilaterally implemented VRUs before the Directive was introduced. The existing VRUs were permitted to meet limit values of 50 g/Nm^3 instead of 35 g/Nm^3. These older VRUs could potentially still be in place but new VRUs had to meet the lower figure. This derogation expired on 31st December 2004.

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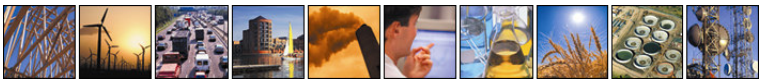
[130] "For vapour recovery units, installed before 1 January 1993, the United Kingdom may grant a derogation from the limit value of 35 g/Nm³ for any one hour, set down in this Annex, subject to the following conditions:

- the installation shall meet a limit value of 50 g/Nm³ for any one hour measured according to the specifications set down in this Annex,
- the derogation shall expire at the latest nine years from the date referred to in Article 10 of the Directive,
- the Commission shall be notified of the individual installations affected by this derogation including information on their throughput of petrol and vapour emissions from the installation."



A27.2.2 Roles and responsibilities

The following table summarises the roles and responsibilities that different organisations have in terms of implementation of the Directive.

Table A27.2 Roles and Responsibilities

Role and Responsibility	Organisation
▪ Transposing EU legislation to the UK ▪ Review/approve alternative technical measures	Defra/SEPA/DOENI
▪ Role: regulator ▪ Determine what is BAT on a site-specific basis ▪ Grant permits which include conditions to secure that equipment is designed[131] and operated correctly ▪ Periodically review permits (~6yrs) ▪ Consult with the PLA on joint enforcement actions and inspections	Environment Agency/Local authority
▪ Grant Licenses for petrol stations ▪ Regulate the design, construction and operation of equipment ▪ Consult with the regulator on joint enforcement actions and inspections	Petrol Licensing Authority (PLA)

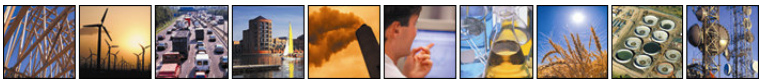
A27.2.3 Permitting and inspection activities

In England and Wales, the role of the regulator is split between the Environment Agency and local authorities, depending on the type of installation: Part A(1) installations and Part A(1) mobile plant are regulated by the Environment Agency, while Part A(2) and Part B installations[132] are regulated by the local authority in whose area they operate[133]. The regulator is responsible for granting permits and setting permit conditions with the aim of achieving a high level of protection for the environment as a whole; this should be based on the use of best available techniques (BAT). A specific time period for reviewing permits is not stipulated in the legislation, but it

[131] Terminals only

[132] Part A installations will generally cover storage/loading/unloading at terminals where the these activities are a directly associated activity to an IPPC installation (e.g. a refinery). Part B will cover terminals that are not such directly associated activities and also service stations.

[133] http://www.defra.gov.uk/environment/ppc/localauth/pubs/guidance/pdf/ggmanual-2008-parta.pdf



does state that once every 6 years should generally be appropriate, or more frequently if there is due cause. The responsibility for inspecting installations is jointly determined between the regulator and the PLA.

The UK's LAPPC annual statistical survey[134] is a record complied from the statistical returns of approximately 400 local authorities in England and Wales. The 2006/07 survey states that the number of permitted service stations in England and Wales was 6,335, whilst the number of permitted installations for storage at terminals was 43, during the period April 2006 to March 2007. The UK Retail Marketing Survey, published by the Energy Institute as a supplement to the 2008 Petroleum Review states that, for 2007, the number of 'petrol outlets' in England and Wales totalled 7,753, whilst the total number in the UK was 9,271, and that the total annual petrol throughput was 17,274,020 tonnes. The reasons for differences between the figures in each survey for numbers of service stations in England and Wales are unclear although it is likely to be related to the threshold for the Stage I Directive i.e. the LAPPC survey only covers those service stations regulated by local authorities whereas the later review is for the whole retail market.

A27.2.4 Guidance for inspectors and industry

A number of "process guidance notes" have been developed by the UK government in relation to the activities covered under the Stage I VOC Directive:

- **Process Guidance Note 1/13 (04): Guidance for Storage, Unloading and Loading Petrol at Terminals**[135], (2004). This note provides guidance on the conditions appropriate for the control of VOC emissions to air from the storage, unloading and loading of petrol at terminals. It provides guidance on Best Available Techniques (BAT) and Best Available Techniques Not Entailing Excessive Cost (BATNEEC), and is written both for regulators and operators.

- **Process Guidance Note 1/14 (06): Unloading of Petrol into Storage at Petrol Stations**[136], (2006). This note provides guidance on the conditions appropriate for the control of VOC emissions to air from the unloading of petrol into stationary storage tanks at service stations (Stage I), as well as guidance on the filling of vehicle petrol tanks at service stations (Stage II). It provides guidance on Best Available Techniques (BAT) and Best Available Techniques Not Entailing Excessive Cost (BATNEEC), and is written both for regulators and operators.

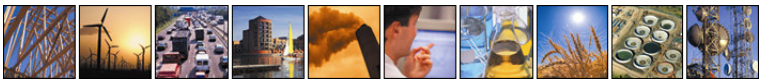
- **AQ05(08) Additional Guidance from Defra and the Welsh Assembly Government on petrol vapour recovery at service stations**[137], (2008). This short explanatory note is on the use of orifice

[134] http://www.defra.gov.uk/environment/ppc/localauth/pubs/reports/index.htm#stats0607

[135] http://www.defra.gov.uk/environment/ppc/localauth/pubs/guidance/notes/pgnotes/pdf/pg1-13.pdf

[136] http://www.defra.gov.uk/environment/ppc/localauth/pubs/guidance/notes/pgnotes/pdf/pg1-14.pdf

[137] http://www.defra.gov.uk/Environment/ppc/localauth/pubs/guidance/notes/aqnotes/pdf/aq05-08-pvr-orifice-vent-devices.pdf



vent devices, pressure vacuum relief valves and applications for Stage II petrol vapour recovery. It addresses concerns that the installation of Stage II controls may affect compliance with Stage I. The note states that the authorities do not believe that the fitting of PVR Stage II will affect compliance with Stage I if an orifice vent device is fitted.

- **AQ 32 (04) Additional Guidance from Defra and the Welsh Assembly Government on small service stations**[138], (2004). This short note advised local authorities to notify operators of petrol stations with throughput 100m^3-500m^3/yr of their exemption from LAPC/LAPPC, after amendments by S.I. 2004 No. 3276.[126]

- SEPA in Scotland also provide general PPC practical guidance documents for both Part A and Part B activities[139].

During the consultation it was mentioned by Local Authorities and industry operators that these process guidance notes have been useful and the template example permits that have been developed (i.e. for simple installations) have been widely applied. Defra further mentioned that if any new issues and technical problems arise regarding the implementation of this Directive, it would most likely develop and issue further guidance through air quality notes and/or periodically update the current PG notes (e.g. as was done to include Stage II PVR).

A27.2.5 Reporting

Local enforcing authorities must advise the Secretary of State of any: existing terminal with a throughput of less than 10,000 t/yr and any new terminal with a throughput of less than 5,000 t/yr located in a small remote island, any Vapour Recovery Unit (VRU) allowed the higher emission limit value[140] (including the throughput of petrol and the mass emissions of vapour from the parts of the installation which are served by the VRU). This information must be provided within one month of it coming into the local enforcing authorities' possession, or within 3 months of the receipt by the authority of notice.[135]

The operator is responsible for monitoring of the installation. Operators are required to install an automatic monitoring system or undertake frequent testing in line with the requirements of the relevant process guidance notes[136]. The results of the monitoring should then be forwarded to the regulator within two weeks. If the results for the monitoring indicate that the limits have been breached, the operator should: identify the cause, record the detail and remedial action taken, retest and then notify the regulator.

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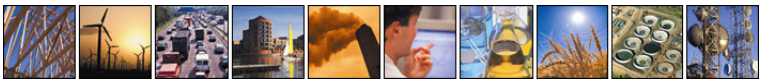
[138] http://www.defra.gov.uk/ENVIRONMENT/ppc/localauth/pubs/guidance/notes/aqnotes/aq32(04).htm

[139] http://www.sepa.org.uk/pdf/ppc/guidance/practical_guide_part_a_activities.pdf and http://www.sepa.org.uk/pdf/ppc/guidance/practical_guide_part_b_activities.pdf

[140] VRUs installed before 1 / 1 / 1993 – 50g/Nm^3 Total Organic Carbon (TOC) as 1 hourly average, or 35g/Nm^3 as 1 hourly average for all other VRUs.



A27.3 Status of implementation

The LAPPC statistical survey[134] provides information on the number of permitted installations in England and Wales. This information is presented in Table A27.3. In terms of petroleum refineries, there are in total 9 refineries in the UK, 8 in England and Wales and 1 on Scotland, all considered as Part A installations.

Table A27.3 Time series of permitted installations by installation type, including additional detail for 2006/2007.

Installation type	02/03	03/04	04/05	05/06	06/07		
					Permitted	Revoked	Partially surrendered or revoked
Storage at terminal	90	63	45	104	43	0	0
Service stations	7,252	6,963	6,711	6,427	6,335	117	1

The LAPPC statistical survey does not include any information on incidents at petrol stations and terminals, or any other reference to non-compliance issues. Any identification of non compliance issues or other technical problems takes place mainly through informal contacts of the competent authorities (Defra and Environment Agency in England and Wales) with the Local Authorities, industry operators and other relevant stakeholders. Currently Defra does not collect information on how many specific installations do or do not comply with the requirements of the Directive, and there is no central reporting mechanism set up to identify any non compliance issues from operators to competent authorities. However, the Local Authorities have a statutory duty to deliver the requirements of the Directive and regulate the operators based on the issued permits. From the consultation process, it was mentioned that Defra is not aware of any issues of non-compliance with the Directive requirements.

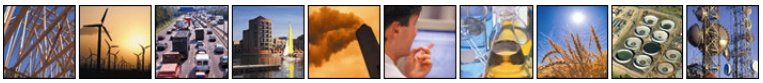
A27.4 Technical issues

In 1998 when implementing the requirements of the Directive, there were issues related to the use of closed systems in some service stations (e.g. with overfill/overpressure). Agreement was gained from the then Department of the Environment that 90º valves *[further details to be provided by PRA]* could be used and closed systems were initially adopted widely. However due to spillage and other health and safety issues, some closed systems were stopped; at the moment the % split of service stations using closed/open systems is 60/40 %[141].

Other main problems identified were in:

- people connecting to the wrong tanks (diesel vs. petrol);

[141] Based on comments received from the stakeholder meeting that took place on 3rd September 2008



- documenting compliance (e.g. due to staff turnover and/or training and management issues); and
- misconnection of fuel and vapour return lines. For example, petrol stations have the responsibility to ensure that this is done but the Approved Code of Practice (ACOP) states that tanker drivers are responsible for unloading; in practice petrol stations can delegate responsibility to tanker drivers through supply contracts but they still retain ultimate responsibility.

The above issues do not directly arise as a result of the Stage I Directive.

Other issues that were raised include:

- As a domestic issue in the UK, there are many different inspections from different organisations e.g. Environment Agency, petroleum inspectors, which in many cases have an overlap of issues inspected and duplication of effort. This is in the process of being addressed from a Better Regulation perspective;
- It has been difficult in some cases to determine what constitutes "living quarters" and "working areas" (Article 6(2)(b)) for petrol stations and the level of stringency to apply in the operators' permits. In practice this has been done on a case-by-case basis, for example based on the location of the vent valve; and
- With orifice venting devices (OVD) in place, there have reportedly been more incidents of overfill because people become less reliant on having good management in place.

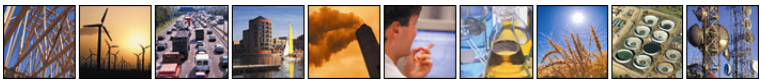
These technical issues were discussed during the consultation meeting. The stakeholders in general concluded that any health and safety issues have not been compromised during the implementation of this Directive, and any initial technical problems faced (e.g. closed systems) have now been resolved.

A27.5 Problems of interpretation

The stakeholders consulted in the UK in general mentioned that no significant problems of interpretation of the requirements of the Directive were encountered in the UK, including the technical aspects of the Directive. The UK has applied two derogations for the implementation of Stage I VOC Directive, one in relation to the throughput of petrol stations (Article 6 of Directive) and one for VRUs installed before 1st January 1993 (Annex II of Directive). The former one is still valid while the latter one on VRUs has expired on 31st December 2004.

Defra raised an issue with regards to ethanol blends and how they should be accounted for in calculating the throughput of petrol stations. This concern has already been communicated to the Commission. An example is the blend E85 petrol (85% ethanol, 15% petrol), where there are currently only around 20 stations selling this product (mainly supermarkets in the south west, with throughputs well above the thresholds).

In such circumstances Defra has requested for clarification from the Commission on whether E85 petrol should be counted as 100% petrol or as only 15% petrol for throughput calculations. It is noted that E85 petrol is not widely used at the moment, and the more commonly used biofuels (i.e. ~5% ethanol) would be expected to be treated as



100% petrol in practice as it is unlikely to make a difference with throughput thresholds. However if higher blended ethanol petrol products become more common in petrol stations, this may become a more important issue to consider.

For example, for the purposes of throughput calculations, whether E85 petrol is counted as 100% petrol or as only 15% petrol. There are currently only around 20 stations selling this (mainly supermarkets in the south west, with throughputs well above the thresholds) and Defra isn't currently sure how it is being applied.

A27.6 Potential for simplification

The UK derogation in the Directive for VRU exhaust limit values (see section A27.2.1) allowed older VRUs (pre-dating the Directive) to meet a higher limit value than new VRUs. These older VRUs could potentially still be in place, but there is no need for a change in the Directive because any new units would have to meet the lower limit. In any case, the derogation expired after 9 years (31st December 2004).

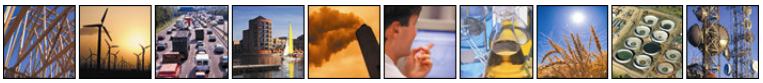
In certain aspects, the guidance has provided clarification/interpretation on the Directive (for example, the UK guidance note PG 1/13 refers to "colour or colours" for paint reflectance whereas the Directive just states "colour" in Annex I.). The stakeholders commented that they would not like to see the Directive made more prescriptive as this could limit innovation and flexibility in complying with its requirements. It was indicated in the stakeholder meeting that the 94/63/EC Directive contains a significant number of technical requirements and details in comparison with other European Directives, which are usually more generic.

One stakeholder held the opinion that the Directive should not refer to CEN standards as they have not identified any conflicts arising with existing standards. The UK may tend to be reluctant to have CEN standards reflected in its legislation, as this can shift the regulatory control from Government to the industry.

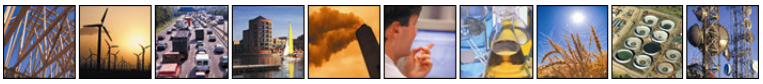
One stakeholder has undertaken some measurements on the techniques already in use in the UK when Stage I was being introduced and found them to be more effective than the Directive's requirements. Whilst the Directive specifies the abatement that the techniques are expected to achieve, the reductions achieved in practice may be higher.

All stakeholders who were consulted at the meeting on the 3rd September indicated that they would not be in favour of changes to the Directive for the following reasons:

- The Directive seems to be working satisfactorily;
- It controls the majority of the potential emissions (stakeholders stated that UK VOC emissions from petrol storage and distribution activities had been reduced by ~100-130 kt and it was felt that there isn't significant scope for further reductions); and
- There have not been any issues that, according to the stakeholders present, have not been solved through a pragmatic approach (i.e. through national guidance).



In addition during the meeting stakeholders were asked about new abatement techniques that have been developed since the introduction of the Directive; the stakeholders generally mentioned that no additional abatement techniques have been developed that could achieve substantially greater emission reductions than the techniques currently applied.



Appendix B
Additional Information on Carbon Adsorption, Vacuum Regeneration VRUs

Advances in Carbon Adsorption Technology

More advanced systems utilise computer programs to determine the optimum time to regenerate based on the level of carbon stored within the beds and the throughput at a given time and stop the regeneration when a certain level of vacuum is reached rather than continuing for a pre-set time; both of these innovations can lead to energy savings over a simple pre-set cycle[1].

Perhaps the greatest advance in the design of this type of technology has been the introduction of a 'dry' vacuum pump. Previously, liquid ring compression systems had been used to generate the vacuum; these systems were subject to severe corrosion which led to increased maintenance costs and to capacity loss which led to less complete regeneration. The solution, which two of the leading manufacturers[2] employ, is to use dry-screw vacuum compressors which do not suffer the same drawbacks. Dry-screw vacuum compressors typically have a longer product life and require less maintenance than 'wet' compressors; typical product life is 15 – 20 years.

Carbon Bed Fires

Carbon bed fires can occur because when hydrocarbons which are attached to the carbon bed come into contact with oxygen, oxidation can occur at relatively low temperatures. Once the reaction has started it will develop heat and this accelerates the reaction; at over 100^0C the reaction becomes automatic and will continue as long as there is oxygen present and this could develop into a carbon bed fire. Carbon bed fires can be prevented through the use of short cycle times, where the vacuum periods prevent the fire from developing or through the use of temperature sensors in more advanced systems[3].

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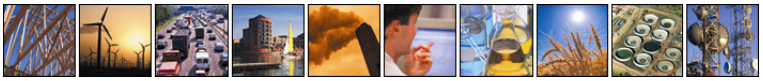
[1] Symex, 'Dyvac: A 21st Century approach to Vapour Recovery'. A paper prepared for the 2005 ILTA in Houston, Texas by the President of TESCO Inc.

[2] Symex and CarboVac

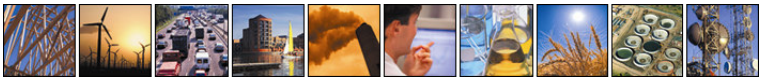
[3] CarboVac, 'General Description – English' presentation



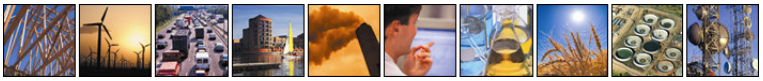
Appendix C
Summary of CEN Standards related to Directive 94/63/EC

Table C.1 Summary of CEN Standards related to Directive 94/63/EC

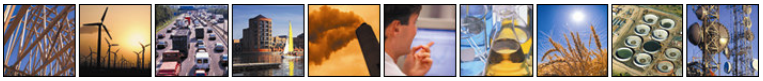
CEN Standard	Title of Document:	Notes:	Reference in ADR:
EN 14025:2008 (BDS EN 14025:2008)	Tanks for the transport of dangerous goods – Metallic pressure containers – Design and construction	Specifies the materials for construction, tank dimensions, sizing of inspection holes and construction methods. Mandatory application for tanks constructed from 1/7/2009	6.8.2.1
EN 14432: 2006 (BS EN 14432:2006)	Tanks for the transport of dangerous goods - Tank equipment for the transport of liquid chemicals – Product discharge and air inlet valves	Specifies the air inlet valve (attaches to the vapour recovery line) to be a primary stop valve (EN 736-1). Specifies testing methods of the stop valves. Mandatory application for tanks constructed from 1/1/2011	6.8.2.2.1
EN 14433: 2006 (BS EN 14433:2006)	Tanks for the transport of dangerous goods – Tank equipment for the transport of liquid chemicals – Foot valves	Mandatory application for tanks constructed from 1/1/2011	6.8.2.2.1
EN 12972: 2007 (BS EN 12972:2007)	Tanks for transport of dangerous goods – testing, inspection and marking of metallic tanks	States that frequency of inspection is given by relevant legislation. Specifies the tests to occur during type approval, initial, periodic and intermediate inspections, including: hydraulic pressure test (5.6), vacuum test (5.7) (type approval only) and a leakproofness test (5.8). NB: for vacuum insulated tests the pressure test may be omitted if the vacuum pressure is confirmed. Mandatory application for tanks constructed from 1/1/2011	6.8.2.4 6.8.3.4
EN 13094: 2004 (BS EN 13094:2004)	Tanks for the dangerous goods – Metallic tanks with a working pressure not exceeding 0.5 bar – Design and construction	For the tanks shell, specifies: the material characteristics, compatibility with materials carried, design of the shell structure, maximum pressure to be able to withstand and manufacturing techniques and tolerances. Clause 5.2 sets out requirements for the material to be used in the shell including; impact strength, yield strength, tensile strength and elongation after fracture. Mandatory application for tanks constructed from 1/1/2005	6.8.2.1
EN 13082: 2001 (BS EN 13082:2001)	Tanks for transport of dangerous goods – Service equipment for tanks – Vapour transfer valve	Specifies that the valve shall confine the transported vapour and or liquid in any direction when closed and allow the flow of vapour when open. Specifies the dimensions types of material to be used, labelling and tests to be performed Mandatory application for tanks constructed from 1/1/2009	6.8.2.2 6.8.2.4.1
EN 13308: 2002 (BS EN 13308:2002)	Tanks for transport of dangerous goods – Service equipment for tanks – Non pressure balanced footvalve	Emergency valve / internal security valve – controls the flow of liquid when bottom loading. Specifies the dimensions (DN 100 nominal bore pipe), types of material to be used and tests to be performed (including shell and seal tightness). Mandatory application for tanks constructed from 1/1/2009	6.8.2.2 6.8.2.4.1



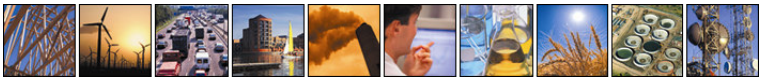
CEN Standard	Title of Document:	Notes:	Reference in ADR:
EN 13314: 2002 (BS EN 13314:2002)	Tanks for transport of dangerous goods – Service equipment for tanks – Fill hole cover	Specifies the dimensions types of material to be used, labelling and tests to be performed (seal tightness test and drop test) Mandatory application for tanks constructed from 1/1/2009	6.8.2.2 6.8.2.4.1
EN 13316: 2002 (BS EN 13316:2002)	Tanks for transport of dangerous goods – Service equipment for tanks – Pressure balanced footvalve	Emergency valve / internal security valve – specifically for bottom (un)loading. Specifies the dimensions (DN 100 nominal bore pipe), types of material to be used and tests to be performed (including shell and seal tightness). Mandatory application for tanks constructed from 1/1/2009	6.8.2.2 6.8.2.4.1
EN 13317: 2002 (BS EN 13317:2002) + A1: 2006	Tanks for transport of dangerous goods – Service equipment for tanks – Manhole cover assembly	Specifies the materials to be used and that a seat tightness test should be performed. Application authorised for tanks constructed between 1/1/2005 and 30/6/2007	6.8.2.2 6.8.2.4.1
EN 14595: 2005	Tanks for transport of dangerous goods – Service equipment for tanks – Pressure and vacuum breather vent	Specifies that the vent should be of the re-sealing type, the level of pressure and vacuum at which it should vent and that it should prevent leakage in the event of an overturn.	N/A
EN 13081:2001	Tanks for transport of dangerous goods - Service equipment for tanks - Vapour collection adaptor and coupler	Specifies the dimensions of the male coupler (outside D = 119.6mm) to be fitted to the tank and the female vapour collection coupler to be fitted to the fixed installation. Also specifies materials for construction and the shell and seal tightness tests to be undertaken.	N/A
EN 13083:2001	Tanks for transport of dangerous goods - Service equipment for tanks - Adaptator for bottom loading and unloading	Specifies the dimensions of the male bottom loading adaptor to be fitted to the tank; outside D = 161.5mm, inside D = 101.6mm. Also specifies materials for construction and the shell and seal tightness tests to be undertaken.	N/A
EN 13315:2002	Tanks for transport of dangerous goods - Service equipment for tanks - Gravity discharge coupler	Specifies the performance requirements, critical dimensions and tests for a gravity discharge coupler; this provides a connection between the bottom loading and unloading adaptor and the discharge hose.	N/A
EN 14116:2007	Tanks for transport of dangerous goods - Digital interface for the product recognition device	Located at the product loading and/or discharge coupling; designed to identify the product in each compartment and prevent cross over.	N/A
EN 14512:2006	Tanks for the transport of dangerous goods - Tank equipment for the transport of liquid chemicals - Hinged manhole covers and neckrings with pivoting bolts	Specifies the design, materials to be used in construction and the required tests including hydraulic pressure test.	N/A
EN 14564:2004	Tanks for transport of dangerous goods - Terminology		N/A
EN 14596:2005	Tanks for transport of dangerous goods - Service equipment for tanks - Emergency pressure relief valve	Specifies the design, the materials to be used in construction and tests; sealing and pressure tests.	N/A



CEN Standard	Title of Document:	Notes:	Reference in ADR:
EN 12874: 2001	Flame arresters – Performance requirements, test methods and limits for use	Specifies the design, the materials to be used in construction and testing procedures.	N/A
EN 13616: 2004	Overfill prevention devices for static tanks for liquid petroleum fuels	Specifies the minimum performance and construction requirements for various types of overfill prevention devices.	N/A
EN 13922: 2003	Tanks for transport of dangerous goods – Service equipment for tanks – Overfill prevention systems for liquid fuels	Prevents the maximum filling level of a compartment from being exceeded by interrupting the filling operation. Also provides visual indication of the system. Requires a 10 pin socket and that the interface wiring shall be suitable for 2-wire or 5-wire overfill prevention system; the gantry based controller shall automatically detect the difference.	Submitted for inclusion in the RID/ADR
EN 15207: 2006	Tanks for transport of dangerous goods – Plug/socket connection and supply characteristics for service equipment in hazardous areas with 24 V nominal supply voltage.	Specifies the interoperability requirements for the tractor/trailer and/or tank/trailer plug socket for use in hazardous areas.	N/A
EN 15208: 2007	Tanks for the transport of dangerous goods – Sealed parcel delivery systems – Working principles and interface specifications	SPD Systems provide information concerning the content and the status of each compartment, used to transfer liquid fuels from loading gantries to delivery points, and optionally the delivered quantities.	N/A
CEN/TR 15120:2005	Tanks for transport of dangerous goods - Guidance and recommendations for loading, transport and unloading	Gives guidance and recommendations to enable transfer of product and vapour between the loading gantry, tank truck and the service station. It is intended to provide assistance to users in meeting the requirements of Directive 94/63/EC. Requires a secondary shut off (overfill prevention) system – a connection from the overfill sensor to the gantry. Specifies maximum loading rates to prevent build up of electrostatic charge. Procedures should exist to ensure that there is authorisation to load. The tank truck should be bonded to earth if it the surface on which it is not standing is not conductive before any operation. Also specifies the use of components according to CEN standards. Vents fitted to the compartment, vapour manifold and pipework should be designed and controlled to retain the vapours from storage instillations; except for the release of internal overpressure and vacuum through the pressure and breather vents. Interlocks should be provided on the tank truck to ensure that: the vapour collection coupler is connected to the vapour collection adaptor before loading can commence and the vapour transfer valve is open before loading of the relevant tank compartment can commence. Every tank truck should have a safe loading pass which contains information about the tank, including certificate of conformity of the overfill protection system. The vapour hose connection should be made prior to the opening of the vapour transfer valves on the tank truck. Annex A: Tank connection envelope – specifies that the height of the bottom loading adaptor, vapour collection adaptor and 10-pin connection should be between 700 mm and 1,000mm.	N/A



CEN Standard	Title of Document:	Notes:	Reference in ADR:
		There should be a minimum radius of 250mm around the centre of the vapour collection and bottom loading adaptors. In the two possible arrangements given the apparatus from L-R is: bottom loading adaptor, vapour collection adaptor, 10 pin connector. Annex C: Information Plate The following information should be indicated on the information plates: number of tanks that may be loaded simultaneously, tank compartment capacity, tank compartment identification number, overfill protection sensors, whether it is a high speed loading tank truck, whether shut off valves can close against the flow, if drain down is necessary if overfilled, settings of the pressure/vaccum breather vent, distance from the sensor reference plane to the sensor trigger level of the probe and a schematic of the meters and valves. Appendix F: Safe loading pass scheme – list of items to be inspected. NB: Includes special requirements for arctic countries; positive temperature coefficient for 2-wire thermistors, reduced diameter coupler for bottom loading, reduced diameter adaptor for vapour collection,	



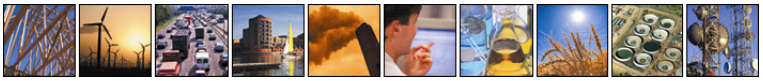
Appendix D
Further analysis of optimum abatement limit for Vapour Recovery Units

The discussion in this section relates to the cost calculations for a carbon adsorption VRU at a sample terminal; a summary of which is presented in the main report. The main assumptions and variables that have been applied to estimate emission reductions, costs and benefits are outlined in the table below.

Table D.1 Assumptions and Variables for calculating the Emissions Reductions, Costs and Benefits under Alternative ELVs for VRUs

Variable	Value	Justification
Reid Vapour Pressure (RVP) (kPa)	60	Chosen to be at the mid-lower end of possible values, as lower RVP leads to greater emissions.
Volume loaded per year at gantry (V) ('000m^3)	25	Chosen as representative for a medium sized terminal
Temperature (T) (^{0}C)	10	Assumed average day time temperature for the EU as a whole.
True Vapour Pressure (TVP) (bar)	0.26	Calculated from the RVP and temperature.
Type of VRU	Carbon adsorption, vacuum regeneration	These are the most common type of VRU in operation and there is operational cost data available for them
Electricity Use of VRU	As given in Table 5.2	The electricity use at different ELVs is for a modern VRU and may not be representative of older less efficient carbon adsorption type VRUs.
EU27 Annual Petrol Consumption - 2007 ('000m^3)	196,558	Total energy consumption for the transport sector (TJ) from Eurostat and converted, taking account of the proportion of diesel
Average Price of Petrol at the terminal gate for EU27 (€/L)	0.45	Eurostat figures for price of pre-tax price of petrol at the pump for the EU27 for the first half of 2008 were averaged and then reduced by the petrol station mark-up to calculate price at terminal gate[4] NB: no volume weighting
Average Price of Electricity for EU27 (€/kWh):	0.093	Eurostat figures for the EU27 for the first half of 2008 and averaged.

[4] The petrol price was reduced by 15%, which reflects the petrol station mark up in the UK given by http://www.whatprice.co.uk/petrol-prices/cost-litre-breakdown.html



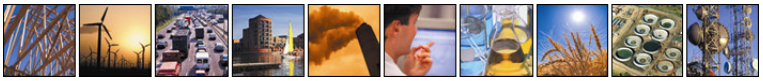
Variable	Value	Justification
NMVOC Emissions for the EU27 (kt):	9,391	2006 data taken from Eurostat
Density of Petrol (t/m^3)	0.73722	Digest of UK Energy Statistics
Damage per tonne of VOC for EU25 in 2010 – high / low (€/t):	950 / 2,800	AEA 2005[5]. Lower estimate with health sensitivity excluded and highest estimate with health sensitivity included.

Table D.2 shows the steps in the calculations and the calculated values.

Table D.2 Calculated Emissions Reductions under alternative ELV for VRUs (for one year)

Legislative Emission Limit (L) (g/Nm^3):	35	10	1	0.15
Illustrative calculations for a hypothetical terminal with 25,000m3 annual throughput currently achieving 35 g/Nm^3				
Uncontrolled emissions with no VRU in place (Note 1) (t/yr):	14.71	14.71	14.71	14.71
Emissions with VRU meeting legislative ELV (Note 2) (t/yr):	0.65	0.19	0.019	0.003
Emissions as a % of throughput	0.0036%	0.0010%	0.00010%	0.000015%
Percentage reduction in emissions compared to uncontrolled emissions:	95.6%	98.7%	99.9%	99.98%
Change in emissions compared to current limit (35 g/m^3) (t/yr):	0.00	0.46	0.63	0.65
Energy use for VRU (kWh):	2,000	2,250	2,500	5,000
Additional energy use compared to achieving current limit (kWh):	N/A	250	500	3,000
Cost of additional energy use compared to current limit (€):	N/A	23	47	279
Cost effectiveness (€/t abated) compared to current limit based on (electricity costs only):	N/A	50	74	432
Additional cost compared to next highest level considered (electricity costs only): (€):	N/A	23.25	23	232.5
Cost effectiveness compared to next highest level considered (electricity costs only): (€/t abated):	N/A	50	139	14,748
Value of additional reclaimed product (€):	0	284	386	396
Net cost of additional abatement compared to current limit (€) (Note 3):	0	-260	-339	-117
Additional value of reclaimed product compared to next highest level (€):	N/A	284	102	10
Net cost-effectiveness compared to the next highest level considered (€/t abated) (Note 3):	N/A	-562	-473	14,136

[5] AEA Technology Environment, 'Damages per tonne of PM2.5, NH3, SO2, NOx and VOCs from each EU25 Member State (excluding Cyprus) and surrounding areas'. March 2005



Legislative Emission Limit (L) (g/Nm^3):	**35**	**10**	**1**	**0.15**
Damage costs (high) avoided (2010) from additional abatement (€):	N/A	1,298	1,766	1,810
Damage costs (low) avoided (2010) from additional abatement (€):	N/A	440	599	614
Net benefit (high damage costs) (Note 5) (€):	0	1,559	2,105	1,926
Net benefit (low damage costs) (Note 5) (€):	0	701	938	731
Illustrative implications when scaled up to the EU27 as a whole				
Change in Emissions when scaled up to **EU27** level (t/yr):	0	3,645	4,958	5,082
Emission reduction as % of total **EU27** emissions:	0.000%	0.039%	0.053%	0.054%
Net cost of additional abatement for **EU27** (Note 4) (€m):	0.0	-2.0	-2.7	-0.9

Note 1: $E_2 = 2.28 * V * TVP$ (Source: Institute of Petroleum 2000)

Note 2: Calculated using the formula: $E_1 = (L * V * (1 - TVP)) / 1{,}000$ (Source: Institute of Petroleum 2000)

Note 3: Net cost of Additional Abatement = Cost of additional energy use – value of additional reclaimed product. NB: A negative cost indicates that the activity will be profitable.

Note 4: A negative cost indicates that there will be a benefit to the EU27; see comments below regarding the cost differential between petrol and electricity.

Note 5: Net benefit includes only damage costs avoided plus value of reclaimed product less additional electricity costs.

The net additional abatement cost (value of product recovered – electricity costs) at an installation level for the different ELVs are shown graphically in Figure D.1 (below). It can be seen that there is a minima at an ELV of between 1g/Nm^3 and ~2g/Nm^3 which indicates the minimum emission limit at which it will be beneficial for the terminal to engage in additional abatement (based purely on additional electricity costs and value of the additional petrol recovered). Because only a limited set of energy use data was available, the exact point of inflection (optimal limit) cannot be identified. Information provided by one equipment supplier (Table 5.2) indicates that the energy efficient limit (energy recovered in fuel / energy expended in recovery) is between 1 and 2 g/Nm^3. The optimal limit for terminals should also be in the same region as this, but will not be exactly the same because there is a cost differential between energy in petrol and energy in electricity.

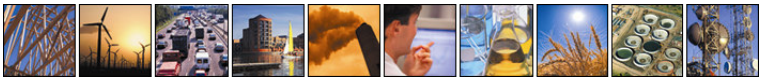
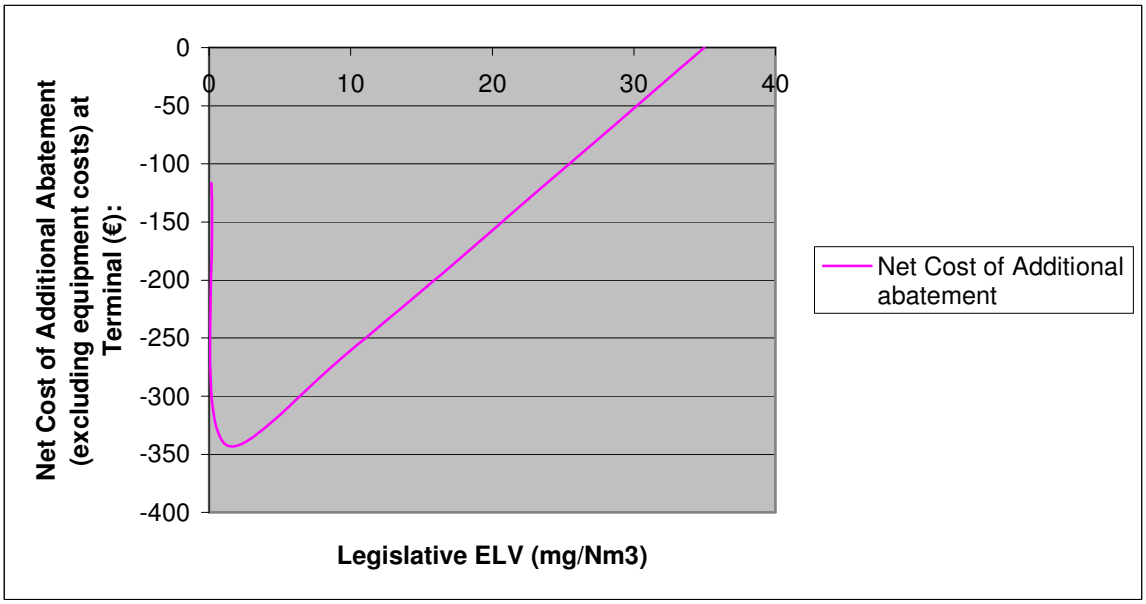


Figure D.1 Net Additional Abatement costs at an Installation level for different ELVs (based on additional electricity cost and value of recovered petrol)



The optimal limit for terminals for emissions from the VRU will be sensitive to the price of petrol. The figures shown in Table D.2 are calculated using the petrol prices for the first half of 2008, when the oil price was high. In order to show how the price of petrol will affect the optimal limit for terminals, Figure D.2 shows how the net cost of additional abatement (value of additional petrol recovered less cost of additional electricity) will vary with alternative petrol prices. It can be seen from Figure D.2 that the point of inflexion moves to the right (the optimal limit increases) as the price of petrol decreases; therefore at today's oil and petrol prices, the optimal limit will be higher than the optimal limit in the first half of 2008.

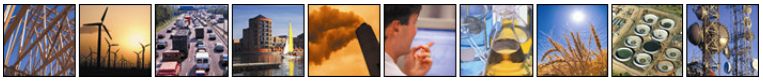


Figure D.2 Net additional cost of abatement at an installation level: sensitivity to petrol price

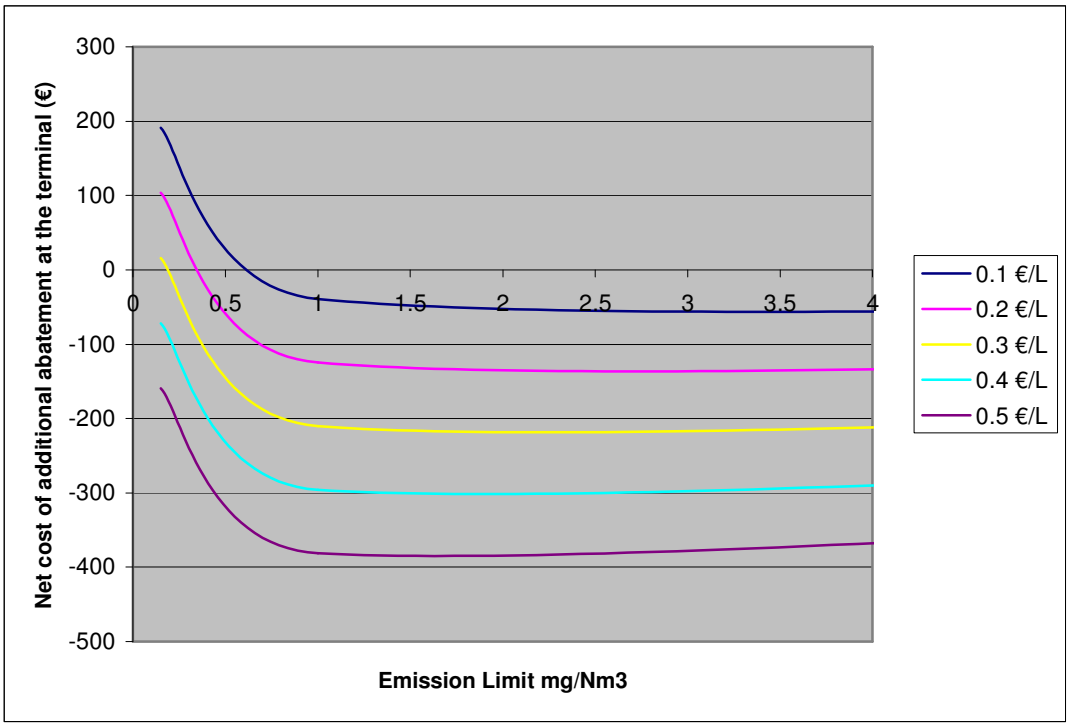


Table D.2 shows that the total benefit (damage costs avoided + terminal operators benefit) is positive for all of the proposed emission limits; but that by moving from an emission limit of 1g – 150mg/Nm^3 the net benefit is reduced. This drop occurs because the marginal abatement costs are higher than the marginal damage costs avoided; the optimum emission limit cannot be found precisely, but it will be very close to the installation's cost effective optimum.