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# 1 Introduction



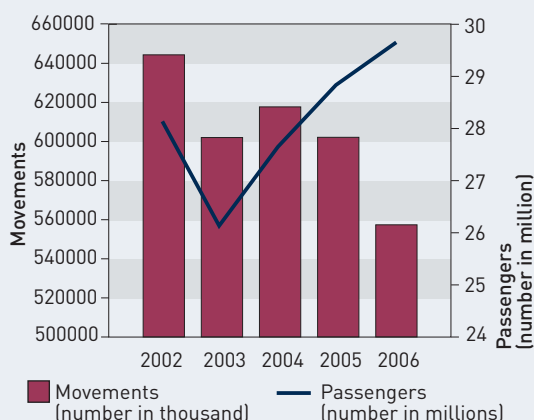
The environmental activities conducted by the LFV Group and its environmental data for 2006 were presented in the Annual Report which was submitted to the Ministry of Industry, Employment and Communications on 1 March 2007.

This report complements the information available in the Annual Report and details the environmental data relating to the LFV Group's airports (see diagram to the left). The report is available on the LFV Group's homepage ([www.lfv.se](http://www.lfv.se)) as well as in a Swedish version.

For environmental information relating to airports see the airports own annual environmental reports.

Äre Östersund Airport lies with the LFV Group since the year-end 2006/2007 since military operations at the airport have ceased. During 2006 Norrköping Airport was transferred to the Municipality in Norrköping and at the year-end 2006/2007 the management and control of Kalmar Airport was transferred to Municipality in Kalmar.

# 2 Production volumes and the most common types of aircraft at LFV airports



Movement numbers \* have decreased and the number of passengers has increased during 2006. Compared with 2005 the reduction in traffic amounted to 6% whilst passenger numbers increased by 3%.

The number of aircraft movements and passengers at LFV airport during 2006 can be seen in table 1.

**Table 1** Number of movements and passengers

Year	Movements [number]	Passengers [number in millions]
2002	643 000	28,1
2003	601 100	26,1
2004	618 100	27,6
2005	596 100	28,8
2006	556 900	29,6

\* a movement is a start or landing



Airbus A320 (SAS Group)

## 2.1 Types of aircraft

For the 7<sup>th</sup> year in a row, the Boeing 737 series is the most common type of aircraft. The most usually being the B737-600 with about 44,400 movements. This is followed by the B737-800 with approximately 22,400 movements.

In the McDonnell Douglas MD 8X series, the MD 82 dominates with about 52,400 movements.

Table 2 lists the ten most common aircraft types at LFV airports, these are ranked according to the number of movements during 2006. Compared with 2005, the following aircraft increased movement activities during the year. The British Aerospace 146/Avro RJ up 3%, Airbus A320 1%. The aircraft with the least number of movements this year compared with 2005 were the Cessna 172 down 25%, the Piper 28 19% and the Saab 2000 down 17%.

**Table 2** Movement numbers and the most common types of aircraft

Aircraft type	2005	2006
Boeing	102 600	102 700
McDonnell Douglas MD 8X (jet aircraft)	75 500	68 000
British Aerospace 146/Avro RJ (jet aircraft)	41 900	43 000
Fokker 50 (propeller aircraft)	44 700	41 200
Airbus A320 (jet aircraft)	30 700	31 000
Saab 340 (propeller aircraft)	31300	30 700
Piper 28 (propeller aircraft)	35 500	28 800
De Havilland Dash 8 (propeller aircraft)	27 600	25 500
Saab 2000 (propeller aircraft)	20 900	17 400
Cessna 172 (propeller aircraft)	15 800	11 900

The aircraft types and movements mentioned above comprise about 72% of the number of movements at LFV airports. The ten most common aircraft in 2006 were the same in 2005; the only notable change was that of their ranking.



## 2.2 Emissions into the air - Aviation activities

Emissions of carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), hydrocarbon (HC) and sulphur dioxide (SO<sub>2</sub>) from civil aviation traffic at LFV airports are summarised in Table 3. These emissions relate to LTO cycle (Landing and Take-Off) and are within the estimated emissions for aviation activities at heights below 3000 ft (915 metres). The Swedish Defence Research Agency (FOI) was commissioned by the LFV Group to calculate these estimates.

**Table 3** LTO emissions from civil aviation traffic at the LFV Group airports

Year	CO <sub>2</sub> [kton]	NO <sub>x</sub> [ton]	HC [ton]	SO <sub>2</sub> [ton]
2002	265	912	143	84
2003	246	845	129	78
2004	266	928	148	84
2005	259	917	144	82
2006	262	911	145	83

Emissions into the air from aviation activities at LFV airports have increased compared with 2005, except for NO<sub>x</sub>. The emissions increased with approximately 1% and the explanation is that the movements with McDonnal Douglas MD82 have increased. These airplanes are heavy and, most important, these are older airplanes which means older engines and at the end, more emissions.

During 2006 two flight routes was restructured. The first route is north of Gotland to Tallinn and the second route contains limited routes in the north of Sweden. The second route is restructured for the tourists flying to Rovaniemi in Finland to meet the Santa. Both flight routes should mean shorter flights and decreased emissions.

## 3 LFV's environmental data and key ratios



### 3.1 Emissions into the air

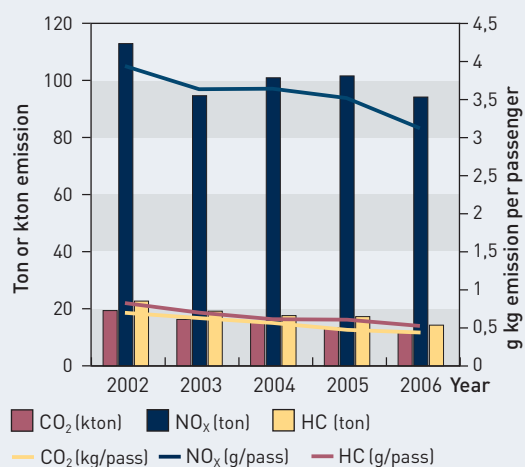
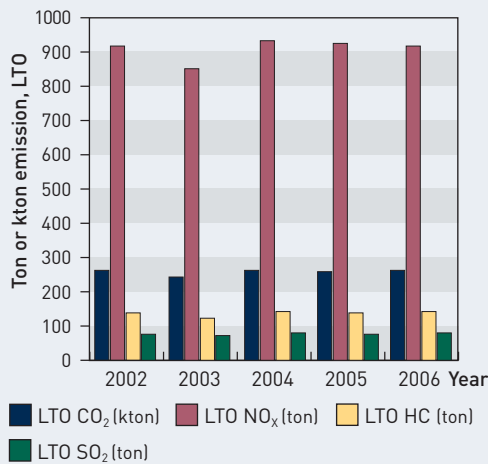
Emissions into the air from LFV's own operations originate from vehicular traffic, heating of buildings and fire-fighting drills. These emissions are detailed in Table 4. Emissions relating to power reserves or the production of purchased electricity and heating energy (district heating) are not included in this account.

**Table 4** Emissions from LFV operations

Year	CO <sub>2</sub> [kton]	NO <sub>x</sub> [ton]	HC [ton]
2002	19	112	22
2003	16	94	19
2004	15	100	17
2005	13	101	17
2006	13 <sup>1</sup>	93	14

Carbon dioxide emissions from LFV's own operations decreased during 2006 with barely 2% compared with 2005. Though it is important to notice that the delimitation definitions has been varied between the years. Emissions of nitrogen oxides and hydrocarbon decreased by 8% and 17%.

<sup>1</sup> Corrected since the 2006 Annual Report.



The hydrocarbon emission levels are only approximate as emissions from fire-fighting drills are difficult to calculate. For the calculating it estimates that 1-30% of the fuel evaporates to the air without burning up. 5-10% of the fuel does not burn up and instead it is stored in oil separators for example, and is taken care of as hazardous waste. Hydrocarbon emissions from fire-fighting drills constituted 30% of the LFV Group's total estimated hydrocarbon emissions in 2006.

In Table 5 the annual emission levels from Table 4 are recalculated to the key ratio amount/passenger. From 2006 the emissions of CO<sub>2</sub> also includes business journeys, still not business journeys with personnel cars.

**Table 5** Emissions from the LFV Group's activities – ratio (amount per passenger)

Year	CO <sub>2</sub> [kg/pass]	NO <sub>x</sub> [g/pass]	HC [g/pass]
2002	0,67	3,9	0,8
2003	0,61	3,6	0,7
2004	0,54	3,6	0,6
2005	0,45	3,5	0,6
2006	0,43 <sup>1</sup>	3,1	0,5

*Examples of LFV actions to achieve better environmental performance*

- LFV is one of the first larger companies that became climate neutral 2006.
- In a report to the Government, LFV has outlined strategies for increasing public transport services to and from the airports.
- The share of environmental cars obtained for the year is 96%.
- Stockholm-Arlanda Airport has introduced a separate queue system for environmentally-friendly taxis to access all terminals.
- Stockholm-Arlanda Airport has 3 bio-gas buses for its own internal traffic system.
- Stockholm-Arlanda Airport has joined a "car-pool" service on the Internet.
- The Statoil fuel station at Arlanda now offers customers bio-gas and ethanol.
- Göteborg-Landvetter Airport has paved the way for a trial of synthetically-produced diesel with lower emission levels, to be used in a limited number of diesel operated vehicles.
- Göteborg-Landvetter Airport is planning installation of a bio-fuel furnace.
- A test trial using rape seed-based oil as a heating fuel has been carried out at Göteborg-Landvetter Airport.
- Malmö Airport has a number of bicycles to be used by personnel when travelling within the airport perimeter.
- All machinery at Malmö Airport should be driven by Ecopar<sup>2</sup> or RME.
- A bus line between Svedala train station and Malmö Airport was put in operation.
- At Luleå Airport the personnel has been trained in ECO-driving.

<sup>1</sup> Corrected since the 2006 Annual Report.

<sup>2</sup> Ecopar is an engine fuel for ordinary diesel engines, manufactured in Sweden.

## 3.2 Electricity and heating energy

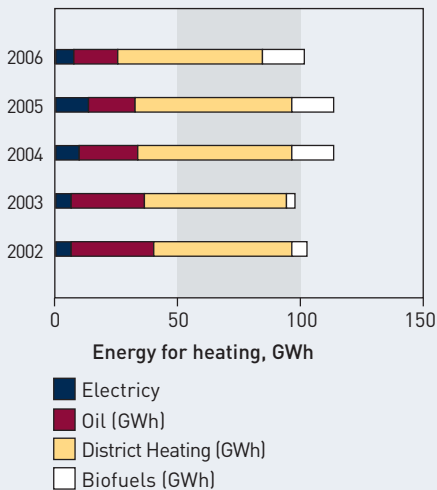
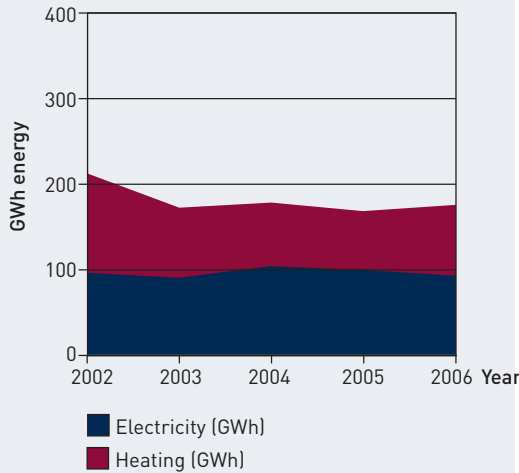
Electricity used to maintain LFV establishments and buildings including produced and bought district heating are collated below.

Table 6 shows the stated electricity consumption including electricity used for heating purposes.

Note: the amount of heat obtained using borehole heat exchangers at Ronneby Airport is not included in the submitted details. Electricity used in obtaining heat from the borehole heat exchangers is included in LFV's energy consumption.

During 2006 all energy activity at Arlanda Airport is organized in a separate division, Arlanda Energi. They have their own profit responsibility and aims for the division. The assignment is to develop energy business, decrease energy consumption and to decrease the environmental impacts from energy use. Arlanda Energi and The Group Airport Division have started cooperation during the year. The actions during the year has signified a decreased energy consumption of electricity and heat corresponding 18 GWh.<sup>1</sup>

**Total use of energy**



**Table 6** Consumption of electricity and heating energy

Year	Energy [GWh]	Electricity [GWh]	Heating [GWh]
2002	308	212	96
2003	264	173	91
2004	282	178	104
2005	270	169	100
2006	269 <sup>2</sup>	176 <sup>2</sup>	93

Table 7 shows the amount of energy required for heating of buildings per energy source. The use of oil was less than any of the previous five years.

**Table 7** Use of heating energy based on the various types of energy sources

Year	Electricity [GWh]	Oil [GWh]	District Heating [GWh]	Biofuels [GWh]
2002	7	34	56	6
2003	7	30	58	3
2004	10	24	63	17
2005	11	19	63	17
2006	8	18 <sup>2</sup>	59	17

A portion of the districting heating is produced using biofuels.

<sup>1</sup> In table 6 the decrease is not visible. The explanation is that the reported data for this report from some of the airports also contains sold electricity and heat. Arlanda Energis data only includes LFV's own consumption, not the energy that is sold to tenants etc.

<sup>2</sup> Corrected since the 2006 Annual Report.



Table 8 gives the calculated electricity and heating energy consumption expressed as a key ratio. The table shows the total consumption of electricity and heating energy per passenger and also the percentage of the total heating energy produced by the LFV Group using fossil fuels (oil).

**Table 8** Ratio of electricity and heating energy (energy total) per passenger and the percentage of oil used for heating within the total heating energy consumption.

Year	Energy Total [kWh/pass]	Oil share [%]
2002	11	33
2003	10	31
2004	10	21
2005	9	17
2006	9	18

The ratio of the total energy consumption is the same as 2005. The share of oil has increased, though is the explanation that the total energy consumption is less with approximately 10%. The actual use of oil in heating has reduced.

*Examples of LFV actions to achieve better environmental performance*

- Since 2005 LFV use only “green electricity”
- At Visby Airport an energy inventory has been implemented.
- Malmö Airport purchased a new district heating plant based on bio-fuel. The heating plant will take in operation in autumn 2007.

### 3.3 Noise

During 2006 there have been improvements of follow-up the number of inhabitants who are exposed to aircraft noise. New software has been implemented; TNIP (Transparant Noise Information Package). TNIP is a calculation program developed of the Department of Transport and Regional Services in Australia. This program enables a stricter calculation of third highest maximum level and the program also means further possibilities of development.

During 2006 LFV Aviation Acoustics measured the aircraft noise at Bromma Airport and Arlanda Airport. At Arlanda Airport the noise levels has been measured 2005 and 2006, and these measurements correspond well with the calculations. The measurements at Rotebro in Sollentuna showed that approximately 1% of arriving airplanes from runway 01L and 01R that passed over the housing area during the measuring generated noise levels over 70 dB(A).



At Bromma Airport the noise area of FBN<sup>1</sup> is likely the same form and extension as 2005. The traffic has increased with 7% but this only implies a 0,3 dB (A) higher FBN level. Total aircraft noise level (TFBN) has been calculated to 130 dB (A) for 2006, which give a comfortable margin to the commitments.

*Examples of LFV actions to achieve better environmental performance:*

- The building technical noise limitation measures in accordance with infrastructure propositions (proposition 1996/98:53) stage 2 including actual environmental conditions, continue at Arlanda, Bromma and Umeå Airport. Action has been taken on a total of 467 properties. Investment costs have so far reached 60.7 MSEK with a 10 year depreciation period.
- One guidance method used by LFV for reduced noise levels is to employ differentiated noise charges for starting aircraft. The difference in starting charges between the quietest aircraft and the noisiest is 570 SEK (this is an example from Arlanda Airport).
- Reconstructed flight route from the north at runway 3 at Arlanda Airport was accomplished in June 2006. Reconstructing the flights out of runway 3 marginally, the aircraft noise moves to areas with less housing.
- Continuous Descent Approach is in progress, which means that the airplanes get a continuous descent approach that has an influence at the aircraft noise level during the landing process.
- During the year two reconstructed air routes were taken in operation.
- The Air Navigation Services Division have been tasked, on behalf of a number of airports, of optimizing flight routes with the aim of reducing noise levels and emissions into the air.
- Noise levels at Malmö Airport have been measured to verify the calculation results. These measurements correspond well with the calculations.
- LFV register and handle all environmentally related complaints. The number of complaints received in 2006 at LFV airports was about 880<sup>2</sup> and the number of complainants was approximately 430<sup>2</sup>. Noise related complaints were responsible for 98% of the total number received.

### 3.4 De-icing products

The usage of different products for runway de-icing is shown in Table 9. These quantities relate to those airports where LFV is the official authorised operator and therefore does not include those products used by the Swedish Armed Forces at Ronneby and Luleå Airport.

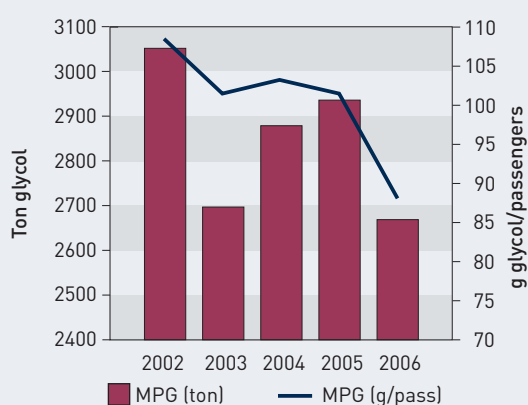
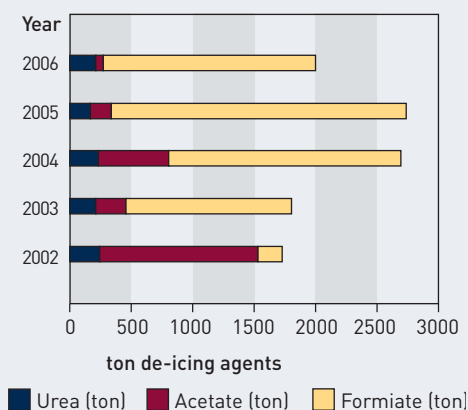
These quantities of acetate-based products comprise in the main of potassium acetate (CH<sub>3</sub>COOK).

The formiate-based agents, in use during 2006 were present at 8 airports and comprise of potassium formiate

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<sup>1</sup>FBN is equivalent with CNEL (Community Noise Exposure Level).

<sup>2</sup> Corrected since the 2006 Annual Report



**Table 9** Runway de-icing agents

Year	Urea [ton]	Acetate [ton]	Formiate [ton]	Sand [ton]
2002	252	1 278	195	6 493
2003	204	252	1 350	6 133
2004	237	565	1 895	6 243
2005	176	165	2 418	6 053
2006	222 <sup>1</sup>	52 <sup>1</sup>	1 724	7 659

The use of formiate has decreased during 2006 with 68 % and the use of sand with 26 % compared with the previous year. The breaking down process of formiate in the recipient requires a lower consumption of oxygen than that of acetate or urea. Formiate, from an environmental view point, is seen as a better alternative than other chemical de-icing agents. Urea has increased during 2006 compared with the previous year.

The need to employ de-icing agents is wholly dependent upon weather conditions and the outcome should take this into consideration.

*Examples of LFV actions to achieve better environmental performance*

- New technology allows for reduced levels of chemical de-icing agents. For example, the sand vehicle at Skellefteå Airport sprays heated sand mixed with water onto the ice which then freezes. An adequate high friction level is achieved without the use of chemical anti-skid agents.
- There is a plant at Umeå Airport equipped to allow for the use of formiate.
- Åre Östersund Airport have bought a new sand vehicle, that heats the sand before exposition on the run way.

<sup>1</sup> Corrected since the 2006 Annual Report.



### 3.5 De-icing

The quantities of de-icing products used on aircraft at LFV airports are shown in Table 10 as pure mono propylene glycol (MPG). That is to say the water quantities used for diluting the agent is not included.

The Table also shows the ratio of the amount of MPG used per passenger. This gives an indication of the use of resources in relation to production.

*Table 10 MPG usage in aircraft de-icing*

Year	MPG [ton]	MPG [g/pass]
2002	3 039	108
2003	2 633	101
2004	2 843	103
2005	2 907	101
2006	2 603	88

De-icing requirements are totally dependent upon weather conditions and the outcome must be seen in that light.

*Examples of LFV actions to achieve better environmental performance*

- A recovery plant used for the collection of used glycol has been introduced at Luleå Airport. Much of the glycol used at the airport is reclaimed. During 2006 has approximately 80 m<sup>3</sup> 100 percentage glycol has been reclaimed.
- Malmö Airport has started the work with aeration ponds and equalization ponds for the surface water.
- Sundsvall Härnösand Airport continues the work of constructing bunds for fuel tanks and chemical storages.
- A measurement station has been installed at Bromma Airport for the surface water.
- A snow- and de-icing hall for large vehicles has been taken in use at Arlanda Airport.
- De-icing glycol is reclaimed at Arlanda Airport and those heavy metals that have caused trouble in the sewage treatment works now are taken care of in the reclaiming.



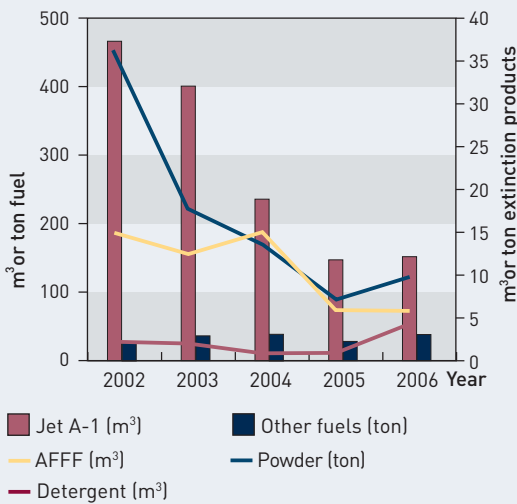
### 3.6 Fire-drill operations

Both fire-lighting fluids as well as fire-extinction products are used in fire-drills. The most common products are aviation kerosene (Jet A-1) and bottled gas. Table 11 shows the quantity of fuels used in the fire-drills held at LFV airports. Bottled gas is included in “other fuels” together with diesel oil and petrol.

**Table 11** Fuel quantities used in fire-drills at the LFV Group airports

Year	Jet A-1 [m <sup>3</sup> ]	Other fuels [ton]
2002	371	16
2003	318	24
2004	187	28
2005	113	19
2006	118	27

**Fuel and extinction products used during fire-drills**



The quantities of Jet A-1 and bottled gas have increased during 2006, while diesel oil has decreased. The use of petrol as fire-lighting is so small that it has no influence on the result.

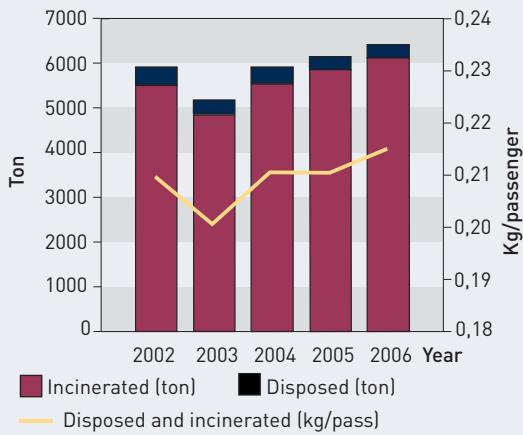
Table 12 shows a compilation of the quantities of chemical extinction products: detergent, AFFF (film-producing foam) and powder used during fire-drills.

**Table 12** Extinction products consumption

Year	Detergent [m <sup>3</sup> ]	AFFF [m <sup>3</sup> ]	Powder [ton]
2002	17	11	27
2003	16	9	13
2004	5	11	10
2005	5	4	5
2006	4	4	7

In fire-drills, water has to a greater extent replaced chemical extinction products.

## Waste



## 3.7 Waste

Over a period of time, the LFV Group has successfully worked at reducing the amount of waste products transported to official tips. However, to reduce the quantities of waste products transported to tips is, to a greater extent, dependent upon the municipalities own technical systems in place for the disposal of waste products and also the amount of building and demolition work carried out in a given year.

The amount of waste products at the LFV airports which are either transported to controlled tipping sites or are incinerated (with or without energy extraction) are presented in Table 13. The Table also shows the ratio of the total amount of waste products in relation to the number of passengers. These details are, in the main, related to household, construction and demolition waste.

**Table 13** Incinerated, disposed and assorted waste

Year	Incinerated [ton]	Disposed [ton]	Assorted, reclaimed [ton]	Disposed and incinerated [kg/pass]
2002	5 500	350	N/a	0,21
2003	4 800	320	2 700	0,20
2004	5 500	367	2 300	0,21
2005	5 800	297	3 800	0,21
2006	6 100	261	3 700	0,21

The amount of re-usable sorted waste produced at the LFV airports in 2006 was 3,700 tons.

*Examples of LFV actions to achieve better environmental performance:*

- LFV has formed a working group to act as advisor to assist in matters relating to waste. This group will draw up common Group guidelines.
- Both Malmö and Ängelholm Airport have opened a new environmental station to help with sorting waste at source.
- Waste assorting in public halls has been performed as a test at Jönköping Airport. The result was successful.

## 3.8 Inventory and investigation of pollutants in the soil, sediment and water

LFV operations have, over the years, caused contamination of soil. In most cases this refers to the leakage of petroleum-based products. All LFV airports have carried out audits in accordance with The Methods for Inventory of Contaminated Areas (MIFO) Phase 1 laid down by The Swedish Environmental Protection Agency. The Phase 1 audit involves so-called armchair studies and interviews. Some airports have already progressed to Phase 2, oversight and market research.

LFV is one of the members in STORM. It is a network for state-owned organisations for cleaner soil. LFV hosted a meeting 2006, which took place at Arlanda Airport in November.

*Examples of LFV actions to achieve better environmental performance:*

- At Norrköping, Landvetter, Visby and Jönköping Airport MIFO phase 2 started.

## 3.9 Near-accidents, incidents and accidents

All near-accidents, incidents and accidents which have or could have caused damage to the environment shall be registered with the airport's deviation management system. Often these incidents involve minor fuel leakages which have been dealt with immediately.

## 3.10 Remaining actions to achieve better environmental performance

In 2005 the Chemical group was enabled at LFV. The group contains people with knowledge in working environment and environment. The commissions of the Chemical group is

- Environmental judgments of available and new chemical products at LFV
- Consideration of environment and working environment when purchasing chemical products
- Overall criteria for chemical products in LFV's operations
- Common routines when purchasing chemical products
- Recommendations for safe custody of chemical products at LFV
- Production and follow-up of the environmental goals concerning chemical products

The new chemical information system at LFV has been implemented during 2006 and educations have been fulfilled in all units.


LFV creates a system for environmental data reporting. The system is created to secure data, data handling and to follow-up data. The system is planning to be implemented at the turn of the half-year 2007. The tool is common for LFV and ensures that the reported data is calculated with the same emissions factors for example.

The Group Airport Division has been offering their services to the Swedish regional airports association's airports. The services contain work with environmental management in the data system QDHB (Quality and operation manual).

## 4 Environmental goals and target fulfillment

Below is an account of LFV's five Group-wide overall environmental targets for 2006 as well as comments relating to target fulfillment.

**LFV shall reduce its emissions into the air of carbon dioxide from its own operations.**



LFV has achieved this goal. Carbon dioxide emissions from LFV's own operations have reduced by almost 13% compared with 2005. The emissions from official business trips and personnel journeys to and from the workplace are not included in the calculation.



**LFV shall improve the follow-up of the people disturbed of aircraft noise and try to decrease the number of people exposed through noise mapping, improved air routes and procedures, the use of environmental take-off charges and noise isolation.**

LFV has achieved this goal. The mapping of the routes and procedures continuous in 2007. During the year there has been an improvement follow-up the number of people that are exposed to noise. This has been enabled with a new data system TNIP (Transparent Noise Information Package). TNIP is a calculation program developed by the Department of Transport and Regional Services in Australia. This program makes it possible for LFV to calculate the third highest maximum level and enables further chances to development.

**LFV shall reduce the effects airport operations have on surface water.**

LFV has more than partly achieved this goal. A new measure station for the surface water at Bromma Airport has been installed and the use of glycol has decreased comparing with same period last year. At Arlanda Airport a snow and de-icing hall is in operation. At Luleå Airport 80 m<sup>3</sup> 100 percentage glycol has been reclaimed.

**LFV will phase out those chemicals used by the Group which appear on the Swedish Chemical Agency's PRIO list and which can be replaced with products better for the environment.**

LFV has more than partly achieved this goal. A new chemical information system is operating and educations have been fulfilled in all units. The first step to phase out those chemicals is to carry through an inventory of the products existing. The inventory has been fulfilled at 12 of 17 airports. Other units have none or a few chemicals which appear on the Swedish Chemical Agency's PRIO list. The few products that appear from the list do not have a substitute today.

## 5 Environmental authorisation and conditions

Here is a summary of those authorisations and conditions applicable for the operations at the LFV Group airports.

The summary in Table 14 does not cover all those particular conditions stipulated in the authorisation rather those conditions which are deemed typical to all airports.

The Table can contain information no longer current due to new tests. For information relating to actual authorisations contact the respective airports.

Airports	Number of Movements Year 2006/ authorisation	Noise ceiling FBN Reference level	Noise insulation requirement		Conditions Air Emissions ceiling	Conditions de-icing/water	
			Daytime noise	Night time noise		De-icing agents	Management of de-icing glycol
Göteborg-Landvetter <sup>1</sup>	66 754/80 000	55-level year 1987 The conditions no longer apply. Probationary investigation proceeds	-	80 dBA 3 times/nightly 150 nights/year	60 dBA	Acetate, or formiate, urea expected	80% of spill
Jönköping	18 590/36 800	-	-	80 dBA 3 times/nightly	-	Max 20 ton urea/yr as an average over 3-year period	80% of spill
Kalmar	14 332/36 000	-	80 dBA from B737	-	-	Marshlands – effect 50%	80% of used quantity
Karlstad	15 828/33 000	FBN-level in application	70 dBA 3 times/24 hr period	70 dBA 3 times/nightly	-	Max 100 t/yr de-icing agent of which no more than 15 ton urea	80% of used quantity
Kiruna	6 558/15 790	-	-	-	-	-	80% of spill
Luleå F21 <sup>5</sup>	18 168/39 000 <sup>6</sup>	-	100 dBA (military flights)	80 dBA 22.00-06.00 <sup>7</sup>	-	Investigation submitted	De-icing with specified area
Malmö	41 846/77 000	-	80 dBA several times/24 hr period	-	-	Acetate, urea excepted	80% of spill
Norrköping	19 338/no limit	FBN-level in application	100 dBA	-	-	Not urea	Spill must be collected
Ronneby F17	11 572/22 000	-	90 dBA (military flights)	80 dBA 19.00-06.00	-	Investigation submitted	-
Skellefteå	8 908/19 600	-	90 dBA 3 times/24 hr period	80 dBA 3 times/nightly	-	Sand and acetate, urea excepted	80% of spill
Stockholm-Arlanda	245 360/372 100	FBN-contour 55 dBA (limited also under Authorisation from Management of Natural Resources)	-	70 dBA 3 times/nightly 2007, 150 nights/year	>60dBA	Acetate or formiate, urea excepted. Sealed lining under runway 3 and eastern part of runway 08/26. Management and cleaning of storm water from runway and taxi runways.	No more than 10% of used amount to reach recipient. Max 10 t. COD/daily in spill water net.
Stockholm-Bromma	52 176/voluntary undertaking <sup>8</sup>	FBN-level in application	New application max 90 dBA	-	-	Minimise urea usage	Minimise glycol usage
Sundsvall-Härnösand	14 600/48 000	-	-	-	-	Sand and acetate, urea excepted	80% of spill
Umeå	22 204/34 000	-	Review of conditions submitted January 2007	70 dBA 3 times/24 hr period	60 dBA	Sand and acetate, urea excepted	Probationary investigation
Visby	24 126/43 000	-	90 dBA	80 dBA 3 times/nightly	60 dBA	Treated, effect 50%	80% of spill
Ängelholm-Helsingborg	11 792/27 500 <sup>4</sup>	-	100 dBA (military flights)	90 dBA 19.00-06.00	-	Investigation submitted	-
Örnsköldsвик	3 920/12 200	-	90 dBA	80 dBA 3 times/nightly	-	Sand, max 15 ton urea/yr as an average over 3-year period	80% of spill
Östersund <sup>9</sup>	8 654/15 000 <sup>5</sup>	-	100 dBA (military flights)	80 dBA 22.00-06.00	-	Investigation submitted	85% of spill

<sup>1</sup> New environmental authorisation application due for submission 2007.

<sup>2</sup> New environmental authorisation application submitted to the Environmental Court December 2005.

<sup>3</sup> The Swedish Armed Forces are responsible for environmental testing

<sup>4</sup> New environmental authorisation application due for submission 2007.

<sup>5</sup> The Swedish Armed Forces are responsible for environmental testing

<sup>6</sup> Number of civilian aircraft movements. Verdict was announced January 12 2007.

<sup>7</sup> LFV has appealed

<sup>8</sup> Conditions under appeal

<sup>9</sup> Contract with Stockholm City