2006 2007 Annual Report

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FOREWORD

The present document is the combined 2006 2007 Annual Report. Because preparation of the 2006 Annual Report was severely delayed, it was decided, following consultations with the Ministry of the Interior and Kingdom Relations, to take an exceptional measure and draw up a combined Annual Report.

Indeed, 2006 was an exceptional year for the Dutch Safety Board. Having just been established, with a new board and bureau still being built, the Dutch Safety Board was confronted at the end of October 2005 with a major event: the fire at the Schiphol-Oost detention centre. A lot of time and energy was dedicated to the case, primarily because the investigation concerned a new sector, i.e. one outside the familiar transport sectors, with respect to which numerous independent investigations had already been carried out over the years. The case was therefore experienced by both the Dutch Safety Board itself and many other parties as a test of competence through which the Board could unequivocally justify its existence. From the outset of the investigation, the Dutch Safety Board's principal question was, "How could a relatively common event like a fire at a detention centre (in 2004, for example, 145 fires occurred in various detention centres) have claimed so many victims?" Clearly, the risk of a fire should always be taken into account. When one does occur, however, it should not have consequences as disastrous as was the case on the night of 26 27 October 2005.

The Dutch Safety Board's report, published on 21 September 2006, generated considerable debate and, far beyond the confines of the actual investigation itself, contributed to raising awareness and prompting further thought about (fire) safety in society at large. The government deliberated on the report almost immediately after its publication and gave its response on 18 October in a letter from the Minister of Justice and Minister of Housing, Spatial Planning and the Environment which was also issued on behalf of the Minister of the Interior and Kingdom Relations and the Minister of Alien Affairs and Integration. The Dutch Safety Board's recommendations were adopted and a comprehensive action plan was presented to the House of Representatives. It would be inappropriate to be pleased about any results achieved following an incident that claimed the lives of 11 people and injured 15 others, but the Dutch Safety Board nevertheless notes that, due among other things to the investigation and the action already taken and planned as a result of it, the probability of any recurrence has been reduced.

Individual responsibility is playing an increasingly important part in safety issues. However, there remains a considerable lack of clarity about how such responsibility should be defined in formal terms, and opinions on the matter are divided. At the beginning of 2005 the Dutch Safety Board therefore selected a number of points, further developing in this regard work that had already been started by the former Transport Safety Board and Technical Committee on Accidents of the Ministry of Defence, that indicate which aspects to greater or lesser extents play a role in safety. Given that the points referred to are also included in (inter) national legislation and regulations, the Dutch Safety Board believes that the selection of focal areas adopted (see section 2.2) is justified. Together with the applicable legislation and regulations and sector specific standards and guidelines, these focal areas relating to the definition of individual responsibility constitute the assessment framework on which the Dutch Safety Board bases its analysis of the actions of parties involved and subsequent conclusions and recommendations.

The assessment framework was sent to the Minister of the Interior and Kingdom Relations and the House of Representatives in November 2005.

This assessment framework (or reference framework) also played a role in the discussion about the report on the fire at the detention centre Schiphol-Oost. In the government's initial response - that is, the commentary given on the draft report during the inspection procedure provided for by law – the then Minister of Justice stated that, in his view, the Dutch Safety Board went too far with the assessment framework; in other words, in allocating the responsibilities of the parties involved (i.e., the relevant government agencies in the case of the fire at the detention centre), the Dutch Safety Board attributed responsibilities that were broader and more far reaching than those actually established in prevailing legislation and regulations. This view implied that, in terms of responsibility, the government could only be held to account to the extent specified by prevailing legislation and regulations. In a response to the definitive report, the minister's successor indicated agreement with the framework as formulated by the Dutch Safety Board: "In line with the Dutch Safety Board's recommendation, the extent to which it is necessary to establish (parts of) the fire safety concept in regulations will be studied. Safety management ideas will also be taken into account in this regard. Establishing transparent standards would generate clarity in terms of the practices adopted and foster the proper implementation of the fire safety policy."

Establishing informal standards and guidelines in formal legislation and regulations will, however, not always be possible or desirable. The informal space will therefore remain. Moreover, the increasing emphasis on individual responsibility can be seen in all sectors, which is a positive development. After all, gone are the days when the government could and would be looked to for everything. This evolution does pose a problem, though, in terms of monitoring safety. The supervision exercised by government inspectorates is largely limited to monitoring compliance with formal legislation and regulations. The drive towards deregulation and greater emphasis on individual responsibility therefore seems to be leading to a growing area from which (government) supervision is absent. This issue will also have to be addressed in the social debate referred to above about finding a balance between individual and government responsibility.



The year 2007 was dominated by the further development of the Dutch Safety Board in terms of its organisation. Due to the time and energy required by the investigation into the fire at the Schiphol detention centre, other affairs were not addressed as fully as they otherwise would have been. In particular, further thinking on the organisational structure and working method of the Dutch Safety Board had more or less come to a halt. There was opportunity to review that structure and working method following publication of the report on the fire. The experiences gained in the course of the large investigation were included in the review process. The Dutch Safety Board gladly accepted the offer of its counterparts in the United Sates (National Transportation Safety Board, NTSB) and Canada (National Transportation Safety Board of Canada) to provide explanations of their respective methods of operation and associated experiences. The Netherlands Court of Audit also presented its experiences in this field. The foregoing contributed to a change process that was clearly defined in the second half of 2007 and completed at the beginning of 2008. The new, internal organisational structure came into effect on 1 March 2008.

One of the things to emerge during the review process was increasing concern about the number of obligatory investigations that the Dutch Safety Board must carry out. There already was a long-standing obligation to conduct investigations into accidents and serious incidents in the aviation sector, which entails a considerable workload. When the Dutch Safety Board was established, an obligation to conduct investigations into accidents in which certain amounts of hazardous substances were released was added. The Dutch Safety Board Act likewise provides for a number of obligatory investigations with regard to ocean shipping. Discussion to subsume these investigations to the Dutch Safety Board with the carrying out of these investigations has in fact been taking place since the period preceding the establishment of the Transport Safety Board in 1999, but nothing has as yet been effected in this connection. Whether the applicable provisions of the Dutch Safety Board Act will enter into force in 2008, however, remains unclear at the present time. Finally, an obligation based on a European Directive to carry out investigations into certain serious railway accidents was included in the Dutch Safety Board Decree.

Taken together, these obligations constitute a further increase in the workload. This increase may substantially limit freedom of choice with regard to investigating incidents that, in the opinion of the Dutch Safety Board, have the greatest potential in terms of safety related gains. If this does indeed prove to be the case in the coming years, it will be necessary to ask whether the legislature ever intended such a limitation when establishing the Dutch Safety Board. Consideration of the consequences of the obligations to investigate was requested during the statutory evaluation of the Dutch Safety Board carried out at the end of 2007 and beginning of 2008.A number of problem areas in the Dutch Safety Board Act as experienced in practice by the Board were also made known to the evaluation committee. It is important to note that the Dutch Safety Board was not able to make full use of the budget made available for 2006 and 2007. This was primarily because it was undergoing considerable development at the time, experienced substantial growth and, last but by no means least wished and had to operate according to high quality related standards. The aim for 2008 is to make full use of the budget made available without compromising the quality of investigations in doing so.

In the summer of 2007, the Dutch Safety Board informed the governments of the Netherlands Antilles and Aruba that Section 4 of the Dutch Safety Board Act, which is a Kingdom Act, gives them the option of requesting the Board to carry out investigations into incidents that have occurred on their respective islands, which form part of the Kingdom of the Netherlands. Both governments recently asked the Dutch Safety Board whether it would be prepared to carry out an investigation into a major aviation accident should one occur. The Board responded in the affirmative, though the financing of such an investigation remains a point for attention.

The Dutch Safety Board has now been in existence for around three years. In spite of its relatively short history, the Dutch Safety Board has been contacted by many, including various organisations and bodies with which it is involved in the execution of its work as well as the media and private citizens. The investigation into and report on the fire at the Schiphol-Oost detention centre clearly played an important role in this regard. In 2007 alone, the Dutch Safety Board received over 1500 letters from private citizens who wished to draw attention to safety related problems or request assistance in resolving particular issues they were dealing with. In addition, more than 200 requests for lectures and interviews were received.

In closing, I would like to mention that a coordination protocol was concluded with the State Secretary for Defence in December 2007 in which it was agreed that, by way of experiment, the Dutch Safety Board would be authorized to launch investigations into accidents that occur during peacekeeping missions such as those being carried out in Afghanistan. This authority will only apply with regard to "normal" accidents, not to cases that involved combat action.

Pieter van Vollenhoven, Chairman

INTRODUCTION

THE FIRST CHAPTER of this Annual Report addresses the investigations carried out by the Dutch Safety Board, explicitly highlighting a number of them. This is particularly the case with regard to the fire at the Schiphol Oost detention centre, as this investigation dominated the Board's activity in 2006. In addition, the chapter lists the notifications and observations made known to the Dutch Safety Board in 2006 and 2007, and the number of investigations carried out per sector. The chapter also deals with evolutions in investigative methods, recommendations made and international developments. The 2006 and 2007 notifications are summarized in Appendix 2.

CHAPTER 2 focuses on the organisation. The investigation into the fire at the detention centre notwithstanding, work was also carried out in 2006 on the further development of the Dutch Safety Board in terms of its organisation and with regard to a number of operational matters. Considerable attention was devoted to the need for project-oriented approaches and the advancement of programme management. In addition, financial management was further improved, the procurement function was professionalised and ICT management was successfully transferred to a new service provider. Further work was carried out in this regard in 2007. Among other things, the (2008) budget was modernized in full and the provision of information relating to projects was further organised.

CHAPTER 3 provides a financial overview. In mid 2006, the Minister of the Interior and Kingdom Relations granted two additional lump-sum amounts of $\in 1.2$ million each. The first special government grant of $\in 1.2$ million was for the investigation into the fire at the Schiphol Oost detention centre. This budget was used in full. The second grant of $\in 1.2$ million was for the further organisation and balancing of the Dutch Safety Board. It was not possible to make full and effective use of this budget in 2006. Further organisational development was resumed in 2007 and continued thereafter. The additional funding led to a financial surplus that was used to increase the Dutch Safety Board's own capital.

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FINALLY, CHAPTER 4 details the programme for 2008.

I. INVESTIGATION AND RECOMMENDATIONS

I.I. NOTIFICATIONS AND OBSERVATIONS

The Dutch Safety Board is empowered to launch an investigation into an incident or series of incidents on the basis of notifications, media publications and at the request of mayors, Queen's Commissioners, ministers or the respective governments of the Netherlands Antilles and Aruba.

Notifications are received through the Dutch Safety Board's general reporting number, 0800 6353 688 (0800 MELD OVV). Sometimes, notifications are also received directly from the organisation where an incident has occurred or from supervisory or enforcement bodies such as the National Police Services Agency (KLPD). The incidents reported relate mainly to transport – the domain of the previous Transport Safety Board and its investigations. Broadly speaking, the number of notifications in the transport sectors remained the same. An obligation to notify applies to the aviation, inland navigation, rail transport and industrial sectors, as well as to parts of the pipeline sector. The Dutch Safety Board Act does not impose an obligation to notify on other areas of activity. For this reason, the Dutch Safety Board has concluded agreements with representatives of the sectors in question as well as with police forces. Information related to areas not covered by the Act or agreements referred to is received via the media.

Table I provides an overview of the number of notifications and observations received in 2005, 2006 and 2007. The figures given are the sum of notifications received through the 0800 number specified above, obligatory notifications received and observations that the Dutch Safety Board gathered itself from the media.

| Table I. Number of notifications and observations | | | | | | | |
|---|-------------------|------|------|--|--|--|--|
| Notifications and observations | | | | | | | |
| | 2005 | 2006 | 2007 | | | | |
| Total | Total 306 435 382 | | | | | | |

1.2. INVESTIGATION

Phases

The Dutch Safety Board's method of dealing with an incident comprises a total of eight phases.

- I. Notification
- 2. Exploratory investigation
- 3. Focused investigation
- 4. Adopting the draft report and sending it to the parties involved for viewing
- 5. Processing comments received and adopting the adjusted version of the report
- 6. Publication
- 7. Receiving responses to the recommendations made and assessment of those responses by the Board
- 8. If applicable, investigation into the implementation of the recommendations

Completion time

The Dutch Safety Board always aims to complete an investigation (up to and including phase 6) within a term of one year but is dependent for the achievement of this aim on a number of internal and external factors. For example, closer investigation into certain aspects of a case may require more time, or the viewing process (phases 4 and 5) leads to adjustments in the report that are exceptionally time consuming to implement.

Assessment framework

The Dutch Safety Board further refined its own assessment framework in 2006. In analyzing the (probable) causes of an incident and determining any structural, safety related shortcomings, the Board uses its own specific assessment framework. In addition to using the frames of reference provided by applicable legislation and regulations as well as sector and organisation specific standards and guidelines, the Board also considers the way in which organisations and companies have given concrete form to their individual responsibility in the area of safety management.

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The Dutch Safety Board has formulated a number of points that indicate which aspects (to greater or lesser extents) play a role in the organisation of individual responsibility. These points for attention are not new as such, as they are also included in a host of national and international laws and regulations as well as standards. The Board uses the points for attention to define its expectations with regard to the way parties involved organise their individual responsibility and, in that connection, assesses the extent to which:

- Insight into risks forms the foundation of a safety policy
- There is a demonstrable and realistic approach to safety and safety policy
- The safety policy referred to is implemented and enforced, and risks that have been identified are managed
- The safety policy referred to is continuously refined, and
- Management provides guidance, is engaged and communicates to employees

A number of investigations carried out by the Dutch Safety Board in the period under review revealed that certain parties had not assumed their individual responsibility for safety or had not done so to a sufficient degree. In many cases, this was because there was a substantial lack of clarity about the definition of individual responsibility and what it entailed. Furthermore, in cases where parties had assumed their individual responsibility, there were considerable differences in the way this responsibility was organised. There are major differences, for example, in the way and degree to which different companies within a given sector acquire and maintain insight into risks.

Although this problem is not new, it has become more acute due to a number of new developments. To begin with, the national government and government authorities more generally are reducing their direct involvement. The demand in this regard is for deregulation and more generally formulated regulations. The emphasis will therefore shift towards individual responsibility – also in terms of interpreting regulations – without there being clarity about the exact definition and practical import of that responsibility. In addition, government supervision looks set to become more limited in the future. The Dutch Safety Board has made a point of emphasising individual responsibility in its notifications.

Number of investigations

In 2006 the Dutch Safety Board published 50 reports relating to different sectors. This total comprised 12 "ordinary" reports and 38 so called B reports in the aviation sector. The ordinary notifications included a report by the former Transport Safety Board that was reviewed and published again by the Dutch Safety Board and concerns an investigation into accidents involving Russian aircraft stationed in the Netherlands. Specific reference is made to a few notifications in the following. For a complete overview, please see Table 2 and Appendix 2. The major investigation into the fire at the Schiphol Oost detention centre is dealt with separately.

The thematic study *Safety Related Problems with Facade Elements* report exposed a number of problem areas in the construction process. This was a good example of the added value that the Dutch Safety Board can provide in a field of activity that is new to it. A thematic study in the road traffic sector led to the publication of the Tank Lorry Fires Involving Hazardous Substances report. This investigation was based on a number of tanker vehicle fires that had occurred. In the military sphere, the Dutch Safety Board published a report entitled Chlorine gas intoxication in the "Beaver" damage simulator following the release of chlorine gas during an exercise. The Dutch Safety Board did not publish any reports in the areas of water and human and animal health in 2006. However, three investigations were launched with regard to human and animal health. One was in response to observations made concerning the cardiac surgery department of St Radboud UMC; another concerned a fire that had occurred in an operating theatre of Twenteborg hospital, while the third investigation related to child abuse.

The largest investigation carried out by the Dutch Safety Board in 2006 concerned the fire that took place at Schiphol-Oost detention centre during the night of 26 27 October 2005; a fire that claimed the lives of 11 people and injured 15 others. The Board published its report on 21 September 2006. The investigation was based on two main questions:

- (i) Why did 11 detainees die in the fire?
- (ii) How were the other people involved subsequently accommodated and cared for?

The investigation had a considerable impact. The (new) Ministers of Justice and Housing, Spatial Planning and the Environment have since stated that the fire safety of penitentiary institutions must be structurally improved. In addition, a process was set in motion in which various penitentiary institutions thoroughly reviewed fire safety and took a range of concrete measures to improve it. Awareness of fire safety has also increased in other, non penitentiary institutions. The serious consequences of the fire and the fact that all of the parties involved other than the detainees were government ones gave the case an additional dimension.



| Table 2a. Number of investigations carried out in 2006 * | | | | | | | |
|---|---------------------------|---------------------|---------------------------------|---------------------------|--|--|--|
| Sector | In progress on 01.01.2006 | Launched in 2006 | Completed (with report) in 2006 | In progress on 31.12.2006 | | | |
| Inland navigation | 2 | I | I | 2 | | | |
| Construction and business services | 2 | I | I | I | | | |
| Crisis management and relief services | I | - | I | - | | | |
| Military | I | 2 | I | 2 | | | |
| Human and animal health | - | 3 | - | 3 | | | |
| Industry, pipelines and networks | 6 | 0 | 2 | 3 | | | |
| Aviation, A investigations | 8 | 3 | 3 | 6 | | | |
| Rail transport | I | I | I | I | | | |
| Water | - | - | - | - | | | |
| Road traffic | 3 | I | I | I | | | |
| Total number of investigations | 24 | 12 | 12 | 19 | | | |
| Aviation, B investigations | 51 | 30 | 38 | 43 | | | |
| Total number of investigations including B investigations # | 75 | 42 | 50 | 62 | | | |

* Due to a different registration method, the starting values in the table above may differ from the end values given in the 2005 Annual Report.

Five investigations were stopped without the preparation of a report.

Fifteen investigations were completed in 2007, of which seven led to the publication of a report. Eight were completed without the preparation of a report. This was due either to the conclusion that not much could be learned from the incident in question or to the fact that the individual incident formed part of a broader, thematic study. Of the investigations in progress, advance warning of a possible report was issued in one case.

| Table 2b. Number of investigations carried out in 2007 | | | | | | |
|--|-----------------------------|---------------------|---|---------|-----------------------------|--|
| Sector | In progress on 1.01.2007 | Launched in 2007 | Completed in 2007 with and without a report | | In progress on 1.12.2007 | |
| | | | With | Without | | |
| Inland navigation | 2 | - | I | - | I | |
| Construction and business services | I | - | I | - | - | |
| Crisis management and relief services | - | - | - | - | - | |
| Military | 2 | I | I | I | I | |
| Human and animal health | 3 | - | - | - | 3 | |
| Industry, pipelines and networks | 3 | - | I | 2 | - | |
| Aviation, A investigations | 6 | 4 | 2 | 5 | 3 | |
| Rail transport | I | I | I | - | I | |
| Water | - | - | - | - | - | |
| Road traffic | I | - | - | - | I | |
| Total number of investigations | 19 | 6 | 7 | 8 | 10 | |
| Aviation, B investigations | 43 | 39 | 8 | 5 | 69 | |
| Total number of investigations including B investigations | 62 | 45 | 15 | 13 | 79 | |

1.3 RECOMMENDATIONS

A total of 65 recommendations were made in the period under review. Of these, 40 were directed to administrative bodies and 25 to non administrative bodies. The table below specifies how many recommendations were issued in the various sectors.

| Table 3. Recommendations | | | | |
|---------------------------------------|-------------------------------|-----------------------------------|-------------------------------|-----------------------------------|
| | 20 | 06 | 2007 | |
| Sector | To administra- tive bodies | To non adminis- trative bodies | To administra- tive bodies | To non adminis- trative bodies |
| Inland navigation | 2 | 0 | I | 3 |
| Construction and business services | 2 | 2 | 2 | I |
| Crisis management and relief services | 4 | 0 | - | - |
| Military | 2 | 0 | 2 | - |
| Human and animal health | - | - | - | - |
| Industry, pipelines and networks | I | 7 | Ι | I |
| Aviation | 10 | 6 | 2 | 2 |
| Rail transport | 3 | I | I | 2 |
| Water | - | - | - | - |
| Road traffic | 7 | 0 | - | - |
| Total | 31 | 16 | 9 | 9 |

Appendix 2 contains summaries of the reports published in 2006 and 2007, including their respective recommendations.

As from the publication in June 2006 of the Chlorine gas intoxication in the "Bever" damage simulator report, the parties to whom the recommendations are addressed are also informed that the responses to the recommendations will be published on the Dutch Safety Board's website once these have all been received.

By virtue of Section 76 of the Dutch Safety Board Act, the Dutch Safety Board is authorized to launch an investigation into the state of affairs regarding the implementation of the recommendations made by it at an earlier stage. This option has not yet been used.

Pursuant to the Dutch Safety Board Act, both the minister concerned with the recommendation and the Dutch Safety Board have responsibilities and competences with regard to monitoring the implementation of the recommendations. These are specified in Sections 73 up to and including 76 of the said Act and are summarized in the following, with respect to which a distinction is maintained between recommendations directed to administrative bodies, a minister and non administrative bodies.

An administrative body that receives a recommendation from the Dutch Safety Board must (with the option of applying twice for a three-month postponement and providing substantiating reasons for any such application) formulate a standpoint and send this standpoint to the minister concerned within six months. The administrative body must send a copy of its standpoint to the Dutch Safety Board. If the administrative body that receives a recommendation is the office of a minister, the formulated standpoint must be sent to the Dutch Safety Board (also within six months with the option of two postponements up to a maximum period of one year).

A non administrative body that receives a recommendation from the Dutch Safety Board must, within a year, specify the way in which action will be taken on the recommendation. This specification must be sent to the minister concerned and a copy of it to the Dutch Safety Board.

The Dutch Safety Board furthermore stipulates that the minister concerned has a duty and the Dutch Safety Board a power within the context of monitoring the action taken on recommendations. Section 75 of the said Act states that the Minister of the Interior and Kingdom Relations must, following consultation with the other ministers concerned, annually send an overview to parliament of: (i) the recommendations of the Dutch Safety Board, (ii) the standpoints formulated in response, and (iii) the action taken on those recommendations.



A combined overview of recommendations made in 2005 and 2006, as well as the responses to them, was sent to the Ministry of the Interior and Kingdom Relations on 2 July 2007. The ministry collected the responses of the ministers and sent the overview to the Lower House of Parliament on I April 2008.

I.4. INTERNATIONAL

International and European developments are influencing the work of the Dutch Safety Board to an increasing degree. The Dutch Safety Board and its predecessors have always encouraged international involvement and in some cases even initiated it (European Transport Safety Council: ETSC¹ and the International Transportation Safety Association: ITSA²). Promoting an international dimension is important because, among other things, more than one country may be involved in an accident and investigation related experiences of counterpart organisations in other countries working on comparable cases can often be learned from.

At the annual ITSA meetings, experiences are exchanged and chairmen and corporate staff members discuss common problems and subjects. The agenda for the meeting in March 2006, which took place in Australia, included various investigative methods, the setting up and management of databases, and the monitoring of recommendations issued. Due to the many activities relating to the investigation into the fire at the Schiphol-Oost detention centre, the chairman of the Dutch Safety Board could not attend in 2006. In May 2007 the meeting took place in Ottawa, Canada, where the chairman of the Dutch Safety Board gave an explanation about, among other things, the investigation into the fire at the detention centre. There were discussions on information management, the training of investigators and developments in the European Union, particularly as regards the final reports of the Group of Experts. The event was concluded by a number of presentations of investigations being carried out at the time by the represented organisations. As in previous years, the Dutch Safety Board provides the ITSA secretariat.

During the visit by representatives of the Transportation Safety Board of Canada in the summer of 2007 for discussions on the further development of the Dutch Safety Board in organisational terms, a cooperative agreement (Memorandum of Understanding, MOU) was concluded between the two organisations.

Up to now, the ETSC, which was established in 1993 by the predecessors of the Dutch Safety Board, has focused mainly on safety in road traffic, primarily because this mode of transport claims far and away the highest number of victims. Due to the increasing role of the European Union in the area of transport safety, it is also important for the ETSC to broaden its focus to include other transport sectors. Thoughts on the matter were exchanged on a number of occasions during meetings of the ETSC's Board of Directors with the aim of effectively broadening the scope of the ETSC in the near future.

The aviation sector is one in which international cooperation and the exchange of experiences has been established practice for a considerable time. It also has more experience than any other sector with the Chicago Convention of the International Civil Aviation Organisation (ICAO). Annex 13 to this ICAO Convention provides for the method of cooperation and specifies cases in which an obligation to carry out an investigation applies. The Dutch Safety Board is furthermore affiliated with a number of international aviation organisations, such as the International Society of Air Safety Investigators (ISASI) and the European Civil Aviation Conference (ECAC). Representatives of the Dutch Safety Board took part in the annual meetings of these organisations.

As is the case with the aviation sector, the ocean shipping sector also has regulations pertaining to the investigation of accidents. The International Maritime Organisation (IMO) maintains oversight in this regard. In this case, however, the regulations and obligations to carry out an investigation are not yet in effect for the Dutch Safety Board, and are expected to become so in the course of 2008. In this sector, too, there are international organisations whose annual meetings were attended by representatives of the Dutch Safety Board. The organisations in question are the Maritime Accident Investigators International Forum (MAIF) and its European branch (EMAIIF).

In regards to rail transport, the European Parliament adopted a Directive that became effective in 2006. The Dutch Safety Board Decree had to be amended before the obligation of the Dutch Safety Board arising from this Directive to investigate certain serious rail accidents could become operational. The amended Decree became effective in the summer of 2007.

In order to streamline the growing influence of the European Union, also with regard to accident investigations, the European Commission established a Group of Experts in 2004. This group, which consists of 13 experts from various Member States

IThe ETSC is an international organisation in the area of transport safety and serves as a major advisory body to the European Commission.It currently has 36 members (research institutes, universities and the like) from European Union Member States.

² The ITSA is a cooperative venture comprising all independent multimodal and a number of sectoral investigative boards currently active in the world.

(including the chairman of the Dutch Safety Board), was charged with advising the European Commission about methods of investigation into transport accidents in the European Union. The Group of Experts completed its final report in July 2006, which includes an article that was prepared under Dutch chairmanship entitled "European methodology for safety investigation of accidents and incidents in the transport sector". The article includes principles for investigation with regard to independence, the relationship with judicial investigations, cooperation between various safety boards, reporting methods and so on.

In September 2007 Jacques Barrot, vice president of the European Commission, responded positively to the report of the Group of Experts and the methodology it defined for independent investigation. The report will serve as a basis for action at European Union level; by means of a special web page, the European Commission will monitor developments in the area of independent safety related investigation and will reconvene the Group of Experts in 2008 to discuss the progress made.



2. ORGANISATION AND PERSONNEL³

2.1. ORGANISATION

Dutch Safety Board and bureau

The Dutch Safety Board comprises a board and a professional bureau. The board consists of five permanent members and is the Dutch Safety Board's face to the outside world. In 2006 and 2007 the members were:

Prof. Pieter van Vollenhoven Ans van den Berg Joost Hulsenbek Prof. Ferdinand Mertens Dr Koos Visser

Ms Ans van den Berg left the board on I December 2007 and was succeeded on I February 2008 by Ms Annie Brouwer-Korf.

Special board members and experts can be consulted for specialized knowledge (see Appendix 1). The Dutch Safety Board is supported by a professional bureau that, as at the end of 2007, comprised 53 FTEs divided into three departments: Investigation and Analysis, Follow up and Recommendations, and Operations.

Six employees left the bureau and six joined in 2006 and 2007.

Organisational changes in 2007

The Dutch Safety Board was established in 2005 according to a certain organisational model. Already in 2006, however, it became clear that certain aspects of the model adopted did not function very well in practice. Following the completion of the project relating to the fire at the Schiphol-Oost detention centre, there was time and opportunity to take action on urgent signals being received from within the organisation, and in 2007 efforts began to implement a new organisational model. Naturally, the Dutch Safety Board's own experiences were incorporated into the formulation of the new model. In addition, however, comparable organisations both in the Netherlands and abroad were closely considered. The National Transportation Safety Board (US) and Transportation Safety Board of Canada made their respective expertise and experience available and, furthermore, organisations like the Netherlands Court of Audit and the Scientific Council for Government Policy (WRR) were consulted. The development process was carried out with close consultation between the board and the bureau. The first concrete plans were submitted in September 2007. After many discussions on the matter with the board, the bureau and Works Council, the decision to establish the new organisational structure was finally adopted in December 2007. The hiring of new employees and implementation of the new structure was completed in the first months of 2008.

Within the framework of the new organisational structure, the Dutch Safety Board opted to carry out a substantial number of exploratory investigations. These are short investigations aimed at determining whether a fully fledged one by the Dutch Safety Board would have added value. Exploratory investigations do not always lead to publications. They do, however, enable the Dutch Safety Board to acquire better impressions of different sectors and make well considered selections with regard to the limited number of major investigations to be carried out. In order to achieve the foregoing, an organisational model was selected that places greater emphasis on the individual sectors without undermining an integral approach to cases.

The organisational development process of recent years was not all plain sailing: rarely does reorganisation proceed entirely smoothly, and the same was true with regard to the thought process that the Dutch Safety Board had to go through following its establishment in 2005. The model adopted is appropriate to a professional investigative organisation and makes it possible for the Dutch Safety Board to develop further in the coming years.

2.2. PERSONNEL

Inflow and outflow of personnel, workforce and costs

The Dutch Safety Board had 47 employees on I January 2006 and 49 on 31 December 2006 (Table 4). A relatively large proportion of the younger employees are women, while, conversely, many of the employees aged 40 and above are men. In total, there are more men (30) than women (19). The number of Dutch Safety Board employees was 49 on 31 December 2007 as well (Table 5).

- 3
- This chapter incorporates the Social Annual Report.

The Dutch Safety Board's personnel capacity was increased in the autumn of 2007 from 56 FTE to 65 FTE (including 4 FTEs seconded from the Ministry of Defence). The recruitment drive for new personnel that was subsequently launched did not, however, fill the vacancies in 2007. The Dutch Safety Board's aim is to use the increased personnel capacity to ensure a basic level of investigators for each sector.

| Table 4. Overview of costs of personnel in paid employment | | | | | | | |
|--|------------|-------------|------------|-------------|------------|--|--|
| | 31.12.2007 | 2007 budget | 31.12.2006 | 2006 budget | 31.12.2005 | | |
| Workforce | FTEs | FTEs | FTEs | FTEs | FTEs | | |
| Personnel in paid employment | 49 | 52 | 49 | 52 | 47 | | |
| Average number of FTEs put on non active status | 0,30 | 0,30 | 0,30 | 0,00 | 0,30 | | |
| Costs | x €1.000 | x €1.000 | x €1.000 | x €1.000 | x €1.000 | | |
| Costs of personnel in paid employment | 4,196 | 4,900 | 4,347 | 4,705 | 3,146 | | |
| Average cost per employee | 86 | 94 | 89 | 90 | 90 | | |

| Table 5. Inflow and outflow of employees in FTE | | | | | | |
|---|-----|-------|-------|--|--|--|
| | Men | Women | Total | | | |
| Workforce as at 31.12.2005 | 31 | 18 | 49 | | | |
| Inflow in 2006 | I | 2 | 3 | | | |
| Outflow in 2006 | 0 | 2 | 2 | | | |
| Workforce as at 31.12.2006 | 32 | 18 | 50 | | | |
| Inflow in 2007 | 0 | 3 | 3 | | | |
| Outflow in 2007 | 3 | I | 4 | | | |
| Workforce as at 31/12/2007 | 29 | 20 | 49 | | | |

Training and development

The Dutch Safety Board is a knowledge intensive organisation, in which training programmes play an important part in ensuring that the professional skills of its employees are kept up to date. In 2006, \in 220,000 of the budgeted \in 300,000 was spent on training programmes and associated obligations that would continue into 2007. A number of planned training programmes were cancelled or postponed as a result of the workload. \notin 180,000 was spent on training programmes in 2007.

A development interview was held with every personnel member based on the set of duties and competencies associated with his or her respective position. These interviews between employees and their immediate superiors addressed the personal and professional development of the former. Shared outcomes in the area of further development were translated into training programmes and summarized in the 2006/2007 training plan.

Health & safety system, RI&E and Health & Safety Officer

Work was started in 2006 on the introduction of a health & safety system, which was subsequently implemented according to OHSAS 18.001, an occupational health & safety standard, in 2007. The Risk Inventory and Evaluation (RI&E) and associated RI&E plan were adjusted on the basis of this health & safety system. All problem areas designated in the RI&E as having high priority were therefore adequately dealt with. The RI&E was furthermore checked and approved by an expert of the Occupational Health & Safety Service.

No incidents or industrial accidents were reported in 2006 and 2007.



Furthermore, the Dutch Safety Board appointed a Health & Safety Officer. In the 2006 financial year, this officer issued recommendations to management on two occasions. These recommendations dealt with working hours (the obligation to be available on an on call basis) and order and tidiness on the shop floor (office). The Health & Safety Officer subsequently moved on to a new position elsewhere. The Dutch Safety Board appointed a successor in the middle of 2007.

Because work involving monitors caused the greatest number of health complaints, the Health & Safety Officer started preparing an information campaign about monitor related work in 2006. A budget was made available and a contract was concluded for the provision of information and for workplace investigation together with the Occupational Health & Safety Service. The information referred to was provided in the spring of 2007, while four workplaces were investigated by an expert of the Working Conditions and Industrial Health Service following complaints. Follow up action was taken on the recommendations made on the basis of these investigations and the complaints subsequently subsided.

A range of training programmes relating to health & safety at the workplace and information meetings took place in 2006. These training programmes are based on a skills matrix which incorporates the training required to be able to carry out work at a certain accident location. The training programmes concerned biological contamination, compressed air, accessing railways in a safe manner and shipping related safety instructions. Furthermore, an information meeting was held on fumigation (the use of gaseous pesticides in relation to a perishable load).

Organisation's emergency response arrangements

In 2006, no emergencies occurred in the building that houses the offices of the Dutch Safety Board, and the organisation's emergency response officers therefore did not have to act in that capacity. By the end of 2006, preparations were made to adapt the Emergency Response Plan to NTA Guideline 8112-1. In addition to an unannounced evacuation exercise, the emergency response officers participated in a communication exercise and attended the annual training session at an external organisation. In addition, all emergency response officers completed a training programme on the use of the defibrillator present in the building. In 2007, no emergencies occurred in the offices of the Dutch Safety Board. The emergency response officers therefore did not have tot act in that capacity. The existing Emergency response plan was adapted to NTA Guideline 8112-1. An external organisation was in charge of the evacuation exercises. The emergency response officers and individuals responsible for coordinating evacuations participated in a tabletop exercise. Among other things, the fire extinguishers were tested (and several replaced) in 2007, the first aid cases were replaced and a fire blanket was placed in the vicinity of the kitchen.

Following an evaluation, the emergency response team was expanded by an additional officer. The emergency response coordinator was replaced by a deputy while a new deputy was appointed so that, as at 1 January 2008, the emergency response team consisted of eight officers, including the officers of the two organisations housed in the same building as the Dutch Safety Board, namely the Review Committee on the Intelligence and Security Services and ABD Interim, the agency that provides senior interim managers for government bodies.

New personal protective equipment was provided to all employees in the spring of 2006. The equipment packages provided were appropriate to the employees' respective duties. Reserve sets were also placed at the office and in official vehicles. Furthermore, five sets of varying size were made available for extreme weather conditions (heat and cold). Personal protective equipment was also issued to employees that joined the organisation in 2007. In addition, the central monitoring of inspections of articles and instruments subject to such procedures was started in 2007.

Trauma counselling

The Dutch Safety Board has a counselling team that can be approached by employees who, due the nature of their work in certain situations, may require assistance in coping with situations they have witnessed and experienced. Regular use was made of this team in 2006 and 2007.

Absence due to illness

The level of absence due to illness in 2006 and 2007 was around 2.4%.

| Tabel 6, ziekteverzuim in 2006 en 2007 als % van de normuren | | | | | |
|--|-------|-------|--|--|--|
| | 2006 | 2007 | | | |
| % of illness in the first year | 2,43% | 2,37% | | | |
| % of illness in the second year | 0,00% | 0,00% | | | |
| % of illness including the second year 2,43% 2,37% | | | | | |

Confidentiality counsellor

A total of five reports were forwarded to the confidential counsellor and discussed in 2006. None of the reports led to the lodging of an official complaint.

Twenty six reports were forwarded to the confidential counsellor and discussed in 2007. This considerable increase relative to the 5 of 2006 can be attributed to the disquiet and uncertainty preceding the reorganisation of the Dutch Safety Board. None of the reports led to the lodging of an official complaint.

Co determination

The head of the Dutch Safety Board held seven formal meetings with the Works Council in 2006. The subjects addressed included terms of employment, FTE capacity, targeted remuneration, the training plan, personnel policy, various vacancies, the work schedule and the budget.

The head of the Dutch Safety Board also held seven formal meetings with the Works Council in 2007. The subjects addressed included terms of employment, FTE capacity, targeted remuneration, the training plan, the intended reorganisation, various vacancies, the work schedule and the budget.

Targeted remuneration

The organisation had to deal with a considerable workload and was under a lot of pressure in 2006 due to the formation phase of the Dutch Safety Board and the project relating to the fire at the Schiphol Oost detention centre. The individuals involved in this project undoubtedly achieved something special. The same was true, however, with regard to those not involved in the project, as they saw to other duties. The decision was therefore made to grant all bureau employees and board members the same, one off reward – an expression of gratitude for everyone's efforts and achievements in 2006. Circumstances were different in 2007, during which conscious rewarding was based on individual performance.

2.3. OPERATIONS

Benchmark for operations

The Dutch Safety Board views its own overhead with a critical eye and therefore took part in a benchmark study in 2006 which compared the organisation's overhead with those of a group of other independent administrative bodies and, in addition, with a considerable number (950) of public sector organisations.

The results showed that the Dutch Safety Board's overhead, at 27% as measured in FTE, was relatively low in comparison with other independent administrative bodies (the average was 29.1%). Notable in this regard was the fact that the overhead was less than average in the areas of "IT" and "Facilities" and greater than average with regard to "Management, line management and secretarial support". In addition, the costs of outsourcing (as expressed in costs per FTE) are higher than usual in comparison with other independent administrative bodies. This dimension concerns material and office accommodation costs. However, data on outsourcing costs supplied for the benchmark study were not as yet fully separated in terms of pure overhead and investigation related costs. Data on investigation related costs that included the hiring of researchers/specialists was also supplied. In this sense, the benchmark presents a somewhat distorted image.

Activities relating to operations

The provision of services by the Ministry of the Interior and Kingdom Relations to support the ICT component of operations was discontinued at the send of 2006. These services were taken over by a market party.

The planning and control cycle proceeded according to the Dutch Safety Board Information Regulations of the Ministry of the Interior and Kingdom Relations. The quarterly and half yearly notifications required in this regard were adopted by the Dutch Safety Board on time. Valuation of the goods received from the Ministry of the Interior and Kingdom Relations free of charge required considerable attention in the first half of 2006 during preparation of the 2005 financial statements. Furthermore, the financial accounting system was adjusted in the last quarter of 2006 in such a way as to enable investigation and sector related costs to be recorded in a more accurate manner as from I January 2007.

The method used to set the budget was also adjusted in 2007, as an explicit link was made between objectives, activities and resources in order to improve the management and transparency of the budget in terms of its efficiency and effectiveness. The new method makes it possible for the budget to be used as a management instrument and improves compliance with statutory obligations.



The time recording system was likewise further refined to better facilitate the primary process in 2008. A planning module was introduced which, together with the new financial administration structure, will make it possible as from 2008 to monitor information about the costs of projects and deployment of personnel in the organisation more accurately than was previously the case. In consultation with the Dutch Safety Board, the Ministry of the Interior and Kingdom Relations established an audit protocol in 2006. No agreements have as yet been concluded with the ministry with regard to efficiency and effectiveness.

A procurement diagnosis was performed so as to put the procurement function on a more professional footing. The procurement procedure has since been put in place. In addition, filing in relation to procurement was fully and properly organised in 2007: all procurement is now completely documented. Furthermore, with a few exceptions that can be accounted for, tendering regulations were complied with. The archiving function was also professionally augmented and the basic selection list (used to separate records that must be preserved from those that may be destroyed) established. Lastly, the system of annual appraisal interviews was modernized; the new system will be implemented in 2008.

3. FINANCIAL OVERVIEW OF 2006 AND 2007

The board adopted the 2006 financial statements on 22 May 2007 and the 2007 financial statements on 3 June 2008. These statements were subsequently forwarded to the Ministry of the Interior and Kingdom Relations and indicate the following.

3.1. 2006 RESULT AND OWN CAPITAL

2006 was dominated by the investigation into the fire at the Schiphol-Oost detention centre and, to the extent that this investigation and others allowed, the further formation and development of the organisation. In mid 2006 the Minister of the Interior and Kingdom Relations granted incidental, additional funding for these two main areas of activity amounting to two individual grants of $\in I.2$ million. The first $\in I.2$ million was provided for the investigation into the fire at the Schiphol Oost detention centre. This additional funding, verbally granted already at an early stage, was used in full (around \in 300,000 in 2005 and \in 900,000 in 2006).

The second exceptional government contribution of \in 1.2 million from the Ministry of the Interior and Kingdom Relations was provided for the further organisation and balancing of the Dutch Safety Board. Due to the unexpectedly large amount and time at which it was granted, it was not possible to make full and effective use of this funding for organisational development in 2006. A number of matters were not dealt with, among other things due to the time and effort required by the investigation into the fire at the detention centre and also because the structuring of a new organisation is not a process that can be completed in one or two years. Developments already initiated in 2006 will be continued. In addition, the further formulation of programme management as well as professional personnel and information policies will also take place in the coming years.

Due to the exceptional contributions referred to, the 2006 financial year ended with a positive balance of \notin 2.245 million. This balance made it possible for the Dutch Safety Board to increase its own capital to the statutory maximum; something required to ensure, among other things, an investigation budget that is immediately available in the event of major incidents in the future. The unused part of the exceptional government contribution for organisational development (\notin 0.888 million) was allocated to the reserve for special purposes.

The Dutch Safety Board's own capital at the end of 2006 therefore amounted to \in 4.03 million (2005: \in 1.998 million), which broke down as follows:

| • | General reserve | €0.433 million |
|---|---|----------------|
| • | Equalisation reserve | €0.866 million |
| • | Revaluation reserve | €0.964 million |
| • | Reserve for reinvestments | €0.847 million |
| • | Reserve for commitments relating to investigations | €0.32 million |
| • | Reserve for the structuring and development of the Dutch Safety Board | €0.888 million |

The reserve for the structuring and development of the Dutch Safety Board is intended for:

- The development of Dutch Safety Board strategy
- The further development of project management methods
- The laying down of project management methods in an investigation manual
- The further development and introduction of policies relating to personnel and FTE capacity
- The terms of employment
- The procurement policy
- The development and implementation of security, ICT and information policies

The Dutch Safety Board intends to use this reserve in 2007 and 2008; without it, the further structuring of the organisation, which is continuing apace, would stagnate.

3.2. 2007 RESULT AND OWN CAPITAL

Both income and expenditure in 2007 were lower than had been estimated. The contribution of the Minister of the Interior and Kingdom Relations was $\in 10.2$ million rather than the expected $\in 11.1$ million. At the beginning of 2007, the minister expressed a readiness in a letter dated 2 February 2007 (reference 2007-0000023045), subject to there being sufficient substantiation in support of such a course, to gradually and structurally increase the Dutch Safety Board's annual budget to $\in 11.1$ million. Within the context of this gradual increase, the budget for 2007 rose from $\notin 9.363$ million to $\notin 10.2$ million. Expenditure amounted to $\notin 9.4$ million rather than $\notin 11.1$ million. Numerous initiatives were taken in the second half of 2007 that resulted in the conclusion of a series of contracts worth $\notin 1.1$ million. As these contracts will not necessarily result in costs, they have not been stated on



the balance sheet. In addition, a provision of $\notin 0.5$ million for commitments relating to investigations in progress was included on the balance sheet.

Just as had been the case in 2005 and 2006, the 2007 budget had been set only in broad terms, which made managing and monitoring it difficult. The nature of the Dutch Safety Board's work means that investigation related costs are hard to factor into the planning. Only after the experience of a few years have been acquired will it be possible to improve the planning, in broad terms, for investigation related costs. Furthermore, the fact that the Dutch Safety Board is a new organisation also means that a relatively high number of unexpected developments may occur in the coming years. Nevertheless, a new, more detailed method of setting the long range budget and 2008 budget was successfully introduced in 2007.

Following consultations with the Minister of the Interior and Kingdom Relations about the growth of the Dutch Safety Board's budget, FTE capacity was increased in 2007 from 56 to 65, including the permanent secondment of four investigators from the Ministry of Defence. A reorganisation process was carried out at the same time, with respect to which the decision making procedure was completed in December 2007. The placing of employees in the new organisation started thereafter. The recruitment of new employees to fill the increased capacity could only begin once current employees had been placed. For this reason, and anticipating the budget increase (from ≤ 10.2 million to ≤ 11.1 million) by the Minister of the Interior and Kingdom Relations, the budget approved for 2008 assumes a reserve for FTE capacity expansion and other personnel costs that is already included in these financial statements. In anticipation of an increase in the Dutch Safety Board's budget, this reserve will be used to finance capacity expansion in 2008.

The Dutch Safety Board's own capital at the end of 2007 therefore amounted to \in 4.586 million (2006: \in 4.03 million), consisting of:

| • | General reserve | €0.457 million |
|---|---|----------------|
| • | Equalisation reserve | €0.915 million |
| • | Revaluation reserve | €0.645 million |
| • | Reserve for reinvestments | €I.3I6 million |
| • | Reserve for commitments relating to investigations | €0.455 million |
| • | Reserve for the structuring and development of the Dutch Safety Board | €0.08 million |
| • | Reserve for FTE capacity expansion and other personnel costs | €0.718 million |
| | | |

3.3. EFFICIENCY AND EFFECTIVENESS

No agreements relating to efficiency and effectiveness were made with the Ministry of the Interior and Kingdom Affairs. In preparing the key figures, a new time recording system was adopted in the middle of 2006. Insight into capacity utilization in 2006 is therefore as yet insufficiently representative. A new financial administration structure was also put in place at the end of 2006, which will make it possible to prepare more specific overviews of costs per project and sector in the coming years. The purpose of the new, more detailed long range budget and 2008 budget is to enable greater use to be made of the budget as a management instrument. The explicit linking of objectives, activities and resources is intended to enhance the degree to which efficiency and effectiveness can be monitored and managed.

3.4. INVESTIGATION RELATED COSTS AND SECTORS

There were costs that were directly incurred for investigations and costs that can be allocated directly to a specific sector but cannot be unequivocally allocated to individual investigations within the sector in question. These concern investigation related costs and costs incurred for the sectors and their development and maintenance. The budget for implementation of the 2006 work schedule was, at almost 0.6 million, used according to plan.

Table 7.

Costs distributed over the sectors (including investigation related costs) as at 31 December 2006 and 31 December 2007

| Costs in €1.000 Sector | Investigation related costs 31.12.2006 | Sector related costs 31.12.2006 | Investigation and sector related costs 31.12.2006 | Investigation related costs 31.12.2007 | Sector related costs 31.12.2007 | Investigation and sector related costs 31.12.2007 |
|--|--|---------------------------------------|--|--|---------------------------------------|--|
| Inland navigation | 49 | 50 | 99 | 35 | 16 | 51 |
| Construction and business services | 54 | 4 | 58 | П | I | 12 |
| Crisis management and relief services | 1.037 | 33 | 1.070 | -17 | 12 | -5 |
| Military | - | 249 | 249 | Ι | П | 12 |
| Human and animal health | 219 | 2 | 221 | 494 | 24 | 518 |
| Industry, pipelines and networks | 107 | 10 | 117 | 69 | 22 | 91 |
| Aviation | 105 | 77 | 182 | 142 | 51 | 193 |
| Rail transport | 94 | 3 | 97 | 261 | 14 | 275 |
| Water | - | 3 | 3 | 8 | I | 9 |
| Road traffic | 68 | 8 | 76 | 19 | 3 | 22 |
| Ocean shipping * | 59 | - | 59 | 7 | I | 8 |
| Recommendations and general follow up | - | 118 | 118 | - | 274 | 274 |
| Investigation & other general analysis | 57 | 186 | 243 | 170 | 4 | 174 |
| Totaal | I,849 | 743 | 2,592 | I,200 | 434 | I,634 |

* These costs were incurred in preparation of the eventual transfer of ocean shipping to the Dutch Safety Board. The appropriate capacity and resources required for this task were studied.

3.5 BALANCE SHEET

Appendix 4 contains an overview of the financial terms used. The financial report was prepared according to the provisions of Title 9, Book 2 of the Dutch Civil Code insofar as the Dutch Safety Board Act and Information Regulations do not expressly determine otherwise.

| Table 8. Balance sheet as at 31 December 2005, 2006 and 2007 (after allocation of income and expenditure balance), EUR 1,000 | | | | | | |
|--|------------------|-------|------------------|-------|------------------|-------|
| | 31 December 2007 | | 31 December 2006 | | 31 December 2005 | |
| Fixed assets | | | | | | |
| Tangible fixed assets | 1,012 | | 1,386 | | ١,538 | |
| Total fixed assets | | 1,012 | | I,386 | | I,538 |
| | | | | | | |
| Current assets | | | | | | |
| Receivables and accrued income | 467 | | 531 | | 240 | |
| Liquid assets | 5,602 | | 4,590 | | 3,073 | |
| Total current assets | | 6,069 | | 5,121 | | 3,313 |
| Total assets | | 7,081 | | 6,507 | | 4,851 |
| | | | | | | |
| Own capital | | | | | | |
| General reserve | 457 | | 433 | | 168 | |
| Equalisation reserve | 915 | | 866 | | - | |
| Revaluation reserve | 645 | | 964 | | 1,177 | |
| Reserve for reinvestments | 1,316 | | 847 | | 399 | |
| Reserve for commitments relating to investigations | 455 | | 32 | | 254 | |
| Reserve for the structuring and development of the Dutch Safety Board | 80 | | 888 | | - | |
| Reserve for FTE expansion and other personnel costs | 718 | | | | | |
| Total own capital | | 4,586 | | 4,030 | | I,998 |
| | | | | · | | |
| Provisions | | | | | | |
| Redundancy payment provision | 250 | | 290 | | 320 | |
| Personnel reduction provision | 120 | | 340 | | - | |
| Total provisions | | 370 | | 630 | | 320 |
| | | | | | | |
| Current liabilities | | | | | | |
| Payables | 573 | | 665 | | 244 | |
| Other liabilities and accruals | I,552 | | 1,182 | | 2,289 | |
| Total current liabilities | | 2,125 | | I,847 | | 2,533 |
| Grand total | | 7,081 | | 6,507 | | 4,851 |

3.6. STATEMENT OF INCOME AND EXPENDITURE

| Table 9.Statement of income and expenditure for the period 1 January 2006 up to and including31 December 2007, EUR 1,000 | | | | | |
|--|------------------------|-------------|------------------------|-------------|------------------------|
| | 2007 implementation | 2007 budget | 2006 implementation | 2006 budget | 2005 implementation |
| Income | | | | | |
| Contribution from central government budget | 10,163 | 11,100 | 9,363 | 9,956 | 7,736 |
| Exceptional government contribution | -43 | | 2,538 | | |
| Interest income | 145 | | 70 | - | 55 |
| Other income | 7 | | 104 | - | 6 |
| Total income | 10,272 | | 12,075 | 9,956 | 7,797 |
| | | | | | |
| Expenditure | | | Г П | | |
| Personnel costs | 4,629 | 5,350 | 4,757 | 5,155 | 3,690 |
| Costs of material | 2,396 | 2,500 | 2,497 | 2,098 | 2,720 |
| Allowances/attendance allowances | 574 | 650 | 612 | 1,000 | 379 |
| Depreciation/amortisation costs | 164 | 700 | 115 | 600 | 64 |
| Investigations/studies into safety | 1,634 | 1,900 | 1,849 | 1,103 | 1,032 |
| Total expenditure | 9,397 | 11,100 | 9,830 | 9,956 | 7,885 |
| Income and expenditure belance | 975 | | 2 245 | | 00 |
| income and expenditure balance | 075 | | 2,243 | | -00 |
| Allocation of income and expendit | ure balance | | | | |
| Withdrawal from base capital | | | - | | -416 |
| Withdrawal from reserve for special purposes | | | - | | -100 |
| Withdrawal from general reserve | | | - | | -225 |
| Addition to general reserve | 24 | | 265 | | - |
| Addition to equalisation reserve | 49 | | 866 | | - |
| Addition to reserve for reinvestments | 469 | | 448 | | 399 |
| Withdrawal from reserve for commitments relating to investigations | -26 | | -254 | | - |
| Addition to reserve for commitments relating to investigations | 449 | | 32 | | 254 |
| Addition to reserve for the structuring and development of the Dutch Safety Board | - | | 888 | | - |
| Withdrawal from reserve for the structuring and development of the Dutch Safety Board | -808 | | | | |
| Addition to reserve for FTE capacity expansion and other personnel costs | 718 | | | | |
| Sum of allocation of income and expenditure balance | 875 | | 2,245 | | -88 |

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4. 2008 PROGRAMME

A description of the Dutch Safety Board's key objectives is given below. These are further detailed and explained in the 2008 budget. Furthermore, the budget and work schedule have been integrated for 2008.

Notifications and observations

The Dutch Safety Board seeks to acquire an accurate impression of the nature and magnitude of incidents that occur in the Netherlands with respect to which there may be structural shortcomings in terms of safety, and, to that end, receives notifications. The Dutch Safety Board therefore aims to establish a network and position that will make parties involved in incidents aware of the organisation's existence and, furthermore, willing and able to notify.

Investigations and notifications

The Dutch Safety Board seeks to determine the causes or probable causes of individual incidents or categories of incidents, as well as the magnitude of their consequences, and issue notifications in this regard. Such reporting enables parties involved to take measures that will remove or reduce the safety related shortcomings observed.

With regard to investigations in progress, publications are expected on the following in 2008:

- RandstadRail derailment, 29 November 2006
- Dispatch and emergency landing, Eurocopter Super Puma SAR helicopter , 21 November 2006, Den Helder
- Runway excursion after landing, Boeing 737, 12 August 2006, Amsterdam Airport Schiphol
- Fire on passenger ships, thematic study
- Fast ferry collision, 8 October 2007, Amsterdam
- Abseiling incident during army exhibition days, 2 June 2007, Wezep (since published, 8 April 2008)
- Accident involving Apache helicopter during a night flight exercise, 12 December 2007, in the area of Rossum
- Problems in the cardiac surgery department of St Radboud UMC, Nijmegen (since published, 28 April 2008);
- Child abuse, thematic study
- Fire in operating theatre of Twenteborg hospital, 28 September 2006, Almelo

Monitoring recommendations

The Dutch Safety Board is charged with investigating the actual or probable causes of incidents. The main purpose of such investigations is to bring underlying causes to light and detect shortcomings in systems used. The Dutch Safety Board must ascertain, therefore, whether an incident being investigated ultimately originated from structural safety related shortcomings. If this is indeed the case, recommendations must if possible be formulated on the basis of the shortcomings revealed. Furthermore, an investigation must conclude with the publication of a report.

Although investigations and their associated notifications heighten awareness of a safety related problem that has been detected, they do not automatically lead to the prevention of similar incidents and therefore do not in themselves increase safety. In practical terms, safety must be increased through implementation of the Dutch Safety Board's recommendations. As such, the recommendations play an important part in preventing the recurrence of incidents or at least limiting their consequences.

The Dutch Safety Board is authorized to direct its recommendations to any party that should, in its opinion, take measures. Its recommendations may therefore be directed to, for example, a government body, social association or private companies and organisations.

In the recent past, insufficient use was made of the options made available by the broader, legal framework of recommendations. The Dutch Safety Board therefore intends to monitor the responses to and actions taken as a result of its recommendations in a more active and systematic way.

Sector orientation for investigations

The purpose of sector orientation is to create basic conditions for thorough investigations into safety. To that end, the organisation must have an adequate level of knowledge and a sufficiently large network. If the network and level of knowledge are up to standard, the notifications are better targeted and more complete. Furthermore, there is also greater clarity with regard to the incidents that require closer attention, the way in which an investigation should be organised and the recommendations that will be effective.

It is not, for that matter, the case that an investigation is necessarily preceded by an improvement in the network or level of knowledge. Sometimes the decision is made to further develop the network and level of knowledge through an investigation and subsequently embed both within the organisation. In 2007 this was the case, for example, with regard to the human and animal health sector.

With regard to the transport sectors, the Dutch Safety Board generally prepares for the consequences of the introduction of new means of transport. Examples in terms of rail transport are the high speed line (HSL), freight only Betuwelijn and light rail services and, in terms of international aviation, the introduction of the Airbus A380 with a potential seating capacity of up to 840 passengers.

Development of cross-sectoral knowledge and methods

Knowledge is a key quality factor in the Dutch Safety Board's work: the Board needs knowledge to be able to carry out proper investigations into safety. The purpose of knowledge management is therefore to further develop knowledge, to record collectively acquired knowledge, and to manage and make knowledge accessible.

Operations and support

Operations within the Dutch Safety Board are aimed at supporting the primary processes as effectively and efficiently as possible. Uniformity of policy is a key factor in this regard. In addition, operations must be orderly and transparent.



APPENDIX I. SPECIAL MEMBERS

The Dutch Safety Board has the following extraordinary members:

A.Aalbers B.M. van Balen (until I february 2006) J.T. Bakker G. Blom A.H. Brouwer-Korf D.M. Dragt G.C. Gillissen L.H. Haring R.E.C.M. van der Heijden J.S.J. Hillen M. Koornstra P.M.J. Kreuze J. Marijnen H. Munniks de Jongh Luchsinger K. Nije J.G.W. van Ruitenbeek B.C. de Savornin Lohman F.R. Smeding I. Spapé J. Spiekhout Y.E. Suurenbroek M.J.Torpstra W.A. Wagenaar H.J.G. Walenkamp J.F.M. Wessels MBA C.Wildervanck J.Wismans L.P.A. de Winter

Additional experts (participants in the meetings of the Dutch Safety Board's permanent sector committees):

F. Bauduin D.P. Rookmaker R.W.M. van den Heuvel W.B. Patberg M. Schouten W.A. Vriesendorp G.J.M. Prieckaerts J.A. Mulder E.J. Burmeister J.F.M. Kitzen M.A. Dutrée

APPENDIX 2. OVERVIEW OF 2006 AND 2007 PUBLICATIONS

The Dutch Safety Board published the reports listed below in 2006. The following pages contain summaries of the associated considerations.

- Gas Explosion as a result of a coupling failure in the distribution pipe, Schijndel, 11 March 2004
- Loss of steering on a slippery runway, Amsterdam Airport Schiphol, 22 December 2003
- Runway overrun after rejected take off, Groningen Airport Eelde 17 June 2003
- Chlorine gas intoxication in the "Bever" damage simulator, 4 July 2005
- Sagging of a barge, IJmuiden, 5 July 2004
- Fire at detention centre Schiphol Oost, night of 26 27 October 2005
- Occupational accident during the repair of a gas leak, Assen, 30 September 2004
- Tail strike during take off, Rotterdam, 12 Januari 2003
- Thematic study into tank lorry fires involving hazardous substances
- Thematic study into safety problems with facade elements
- Derailments at Amsterdam Central Station, 6 and 10 June 2005
- Accidents involving Russian aircraft stationed in the Netherlands, 9 March 2001 and 7 June 2002

The Dutch Safety Board published the reports listed below in 2007. The following pages contain summaries of the associated considerations.

- Fire at Kingdom Venue Disco in Amsterdam, 15 May 2005
- Personnel injured due to use of a smoke grenade (WP), 26 April 2006
- Explosion on board a two mast clipper, Medemblik, 8 June 2006
- Loss of control of a banner towing aircraft, 18 August 2003
- Unintended loss of altitude during approach, 30 November 2004
- Explosion of natural gas condensation tank at Nederlandse Aardolie Maatschappij (NAM), Warffum, 31 May 2005
- Derailment at Amsterdam Central Station, 15 August 2005

In addition, the Dutch Safety Board issued an advance warning in 2007 during the investigation into the emergency landing at sea of a Eurocopter L2 Super Puma G JSAR helicopter. In this connection, the Dutch Safety Board also directed a number of recommendations to Direction General de l'Aviation Civile (DGAC), the certifying body for Eurocopter helicopters.

GAS EXPLOSION, SCHIJNDEL, 11 MARCH 2004

On Thursday, 11 March 2004, a gas explosion, which was followed by a brief fire, occurred in a detached, single family residence in Schijndel. The two residents suffered severe burns and the building was heavily damaged as a result of the explosion. Two technicians were quick to arrive on the scene. The gas leak could easily be detected and digging work was carried out to reveal the connecting pipe of the opposite residence. It became apparent that this connecting pipe was no longer in place in the connecting element of the gas main. All components of the connecting element were still in place, which meant the technicians were able to restore the connection using the same element. In the days preceding the gas explosion, the municipal authorities had commissioned a contractor to replace the sewage main underneath the middle of the street in question. Contractor personnel were not present on the evening of the gas explosion. A digging machine was situated close to the damaged residence and the sewage main had been partially uncovered.

In accordance with applicable requirements, the connection should have been tensile resistant. However, the connection appears to have been shifted apart so that it was no longer closed as it should have been. No traces of damage were observed in this regard and the components, including the swivel joint, were still in place as such.

Based on this investigation, the Dutch Safety Board concluded that gas was released as a result of the loosening of what should have been a tensile resistant connection. There was sufficient reason to believe that the connection concerned was not tensile resistant due to a manufacturing error. The gas released subsequently spread through the soil. The two residents present did not detect a natural gas odour and, ultimately, a gas explosion occurred in the residence, injuring both individuals and causing extensive damage to the building.

The manager of the gas pipeline network in Schijndel used around 1000 of these 'unreliable' connecting elements in the network and neglected to test their tensile resistance during assembly, as a result of which the flaw was not detected. The quality control processes of both the manufacturer and the manager of the gas pipeline network were not sufficiently attuned to each other and did not incorporate enough safeguards to guarantee the proper functioning of the connecting elements. The Dutch Safety Board therefore recommended that both parties harmonize the quality control processes of manufacture and assembly so as to ensure the presence of the safeguards referred to.

The organisation charged with certifying the material should have detected shortcomings in the quality control processes of both parties at an earlier stage. The investigation revealed, however, that the certification process was insufficiently rigorous. Furthermore, both parties attached an excessive importance to the certification process itself. An evaluation and tightening of the certification process was therefore recommended, as was periodic verification to ensure that the quality control processes of certified suppliers incorporated sufficient safeguards to guarantee the continued supply of reliable products.

Finally, the investigation revealed that the degree to which natural gas can be smelled – this being the first line in the detection of gas leaks – was not sufficiently evaluated by the sector. Furthermore, there were strong indications that the artificial odour added is in some cases absorbed in the soil, as a result of which gas that is harder to smell or even odourless can accumulate in a residence. A recommendation was therefore issued to gas network managers to evaluate the degree to which natural gas can be smelled and, in this regard, devote specific attention to the absorption of artificial odours in the soil, as such absorption could mean that any gas released is harder to smell or even odourless.

LOSS OF STEERING ON A SLIPPERY TAXIWAY, AMSTERDAM AIRPORT SCHIPHOL,

2 DECEMBER 2003

On 22 December 2003, at around 21.55, a Boeing 737 700 was taxiing to a runway at Amsterdam Airport Schiphol. The aircraft was carrying 98 passengers and five crew members. It was raining at the time and the outside temperature was slightly below freezing. Within the context of the prevailing weather conditions, the information made available by Schiphol controllers to airline crews of inbound and outbound flights referred to "slippery spots" on all taxiways and platforms. When taxiing, the crew of the aircraft in question opted to use a route other than that which had been indicated by air traffic control. Because the taxiway chosen was covered with ice, nose wheel steering was no longer effective during a turn, as a result of which the aircraft continued to slide towards the side of the platform (P6), its left wing striking a light mast. The collision resulted in heavy damage to both the aircraft and the light mast. One passenger suffered light injury during the accident, while another had physical complaints following evacuation from the aircraft.

Failure of the flight crew to follow the instructions of air traffic control and the decision to take an alternative taxiing route resulted in the pilot losing control of the aircraft due to the layer of ice on that route. This decision could be explained by, among other things, the usual but incorrect practice applicable to that section of the taxiway network to allow aircraft crew to themselves determine, in connection with the lighting of both parallel taxiways and the lighting of the platforms, which taxiway they wish to use. The crew had not been informed and could therefore not be aware of the nature and degree of slipperiness at the location in question. The Dutch Safety Board was of the opinion that Air Traffic Control the Netherlands (LVNL) should have done more to ensure that its controllers adhered to existing procedures.

The information provided to airlines was incorrect both in terms of the terminology used and in relation to the actual situation. Too much time separated the point at which accurate information was made available to the operational chain as a whole from the point at which action based on that information, such as measures to counter surface slipperiness, was taken, thereby increasing the probability of human error. Given the recommendations issued in the past, the Dutch Safety Board was of the opinion that the parties responsible at Amsterdam Airport Schiphol for making information available to airlines could have exercised their duties more comprehensively to reduce risks in terms of the information provided and action taken to counter surface slipperiness. The Dutch Safety Board was therefore also of the opinion that the matter concerned a structural safety related shortcoming and a recommendation was directed to Air Traffic Control the Netherlands to further specify the duties of air traffic controllers during exceptional conditions, in this case slipperiness.

In addition, there was insufficient communication between the members of the flight deck crew that a taxiing route other than the one indicated by air traffic control was being taken. Other incidents also revealed that flight deck crews of the airline in question devoted insufficient attention to all aspects of the work during this phase of a flight. The division of responsibilities and communication between both members of the flight deck crew were not optimal and not in accordance with the crew resource management concept. A recommendation was therefore directed to the airline involved to address the shortcomings relating to crew resource management in its training programmes and take appropriate measures to resolve them.

The investigation furthermore revealed shortcomings in parts of Amsterdam Airport Schiphol's Operations Manual. The Dutch Safety Board therefore directed a recommendation to all responsible parties at the airport to further define their duties concerning the reduction of risk in the provision of information. In addition, the recommendation also specified that Amsterdam Airport Schiphol should evaluate the practical effect of the Operations Manual and its underlying regulations such as those per-taining to countering snow and slipperiness, and should in any case resolve the shortcomings identified by this investigation.

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RUNWAY OVERRUN AFTER REJECTED TAKE OFF, GRONINGEN EELDE AIRPORT,

17 JUNE 2003

On 17 June 2003, the flight crew of an MD-88 (Boeing McDonnell Douglas) aircraft at Groningen Airport Eelde rejected take off at a late stage, which resulted in a runway overrun. Both the aircraft, which was carrying 142 passengers and seven crew members, and part of the airport infrastructure were heavily damaged. None of those on board sustained any serious injury as a result of the accident.

The investigation revealed that the flight crew had originally postponed take off because an acoustic warning signal had been activated. The crew did not find any peculiarities in their subsequent check, although these were present. After this brief delay, the take off procedure was resumed and, when it again sounded, the (repetitive) acoustic warning signal was ignored by the flight crew. Given that this warning signal was sounding, the Dutch Safety Board was of the opinion that the take off procedure should not have been initiated. In addition, the investigation revealed a number of other operational shortcomings relating mainly to the loading of the aircraft, the effect this had on the aircraft's centre of gravity, and the way in which this aspect was handled. In terms of safety, the Dutch Safety Board was of the opinion that ignoring a (repetitive) acoustic warning signal was incorrect and extremely serious. The airline in question acknowledged that this was indeed the case during the report's inspection round and took internal measures immediately after the incident.

When the captain noticed that the control force required to rotate the aircraft was significantly higher than normal, he decided to reject the take off. At that point, the remaining length of runway was insufficient to bring the aircraft to a stop before the runway end. After the aircraft had overrun the runway end, it collided with the approach lights system and underground concrete elements of the approach lights system before coming to a stop in the soft soil, resulting in serious damage. As the accident did not result in a fire, there were no serious consequences for passengers and crew. Evacuation after the incident advanced with difficulty.

The international character of civil aviation makes exercising supervision to ensure sufficient safeguards in relation to safety complicated. The government of the country in which the aircraft is registered bears first responsibility in terms of the supervision exercised by government authorities. The Dutch Safety Board notes that Member States of the European Civil Aviation Conference (ECAC) and/or European Union (EU) apply different policies when respective governments detect (structural) safety related shortcomings in an airline. This can lead to uncertainty and confusion on the part of the traveller about the level of safety of a given airline as well as doubts on the part of the airline itself. It is therefore necessary for the Member States to adopt a uniform approach and method of dealing with the matter.

All in all, the Dutch Safety Board's conclusion was that the safety related monitoring of aircraft within Europe and of aircraft entering or departing from Europe should be tightened. The Dutch Safety Board therefore agrees with the announced European Commission measures to assess airlines placed on a European blacklist. Furthermore, the Dutch Safety Board fully agrees with proposals to expand the powers of the European Aviation Safety Agency (EASA) to enable it to monitor all aircraft in terms of European safety requirements as well as the certification of airlines based in non EU countries.

Based on this investigation, a recommendation was directed to the Minister of Transport, Public Works and Water Management to investigate the extent to which requirements relating to underground infrastructure in the immediate vicinity of runways must be tightened to prevent serious damage to aircraft that accidentally leave them.

CHLORINE GAS INTOXICATION IN THE "BEVER" DAMAGE SIMULATOR, DEN HELDER,

4 JULY 2005

On 4 July 2005, at the School for Nuclear, Biological and Chemical Warfare, Damage Control and Operational Safety (SNBCD&BV) of the Royal Dutch Navy (KM) in Den Helder, a group of trainees was undergoing an exercise in the "Bever" damage simulator. The aim of the exercise was to learn how to carry out emergency repairs to a heavily damaged ship under difficult conditions, which were being simulated at the time. The trainees had to ensure that holes caused by hits sustained and shell fragments as well as deformed doors and hatches were temporarily sealed through "propping up and buttressing". Water was entering the training area through the holes caused by hostile fire and the deformed doors and hatches. During such exercises, trainees can end up being chest deep in water. To disinfect this water, chemicals (hydrochloric acid and liquid chlorine) are added just as they are to a swimming pool. During the exercise in question, the chemical composition of the water entering the training area was such that chlorine gas was released.

Of the 17 individuals who came into contact with the chlorine gas, 13 had subsequent respiratory complaints. Two were admitted to hospital while the other 11 were treated in the naval base's sickbay. All were discharged from the hospital or sickbay 24 hours after the incident. A similar incident could also occur in swimming pools used by the Ministry of Defence for training purposes as well as in civilian swimming pools.

It was not possible to establish with certainty how the chlorine gas came to be released. It is very probable, however, that the buffer capacity had been reduced to such an extent through incorrect dosing as a result of a malfunctioning flow sensor, the discontinuation of adding fresh water on a daily basis and a modification to the pipe connection that chlorine gas came to be present in the water and was then released when the water was entering the training area. The flow sensor comprising the measurement and regulation system was blocked, as a result of which the flow contained excessive amounts of hydrochloric acid and liquid chlorine. It was not possible to determine how the flow sensor had come to be in the blocked mode. Further investigation revealed, however, that it had been in this mode for a number of weeks already. If maintenance on the installation based on proper methods had been planned and carried out, the flow sensors improper functioning would have been readily discovered.

Although there is extensive knowledge and experience within the Royal Dutch Navy, its own specific methods are not always applied to a sufficient degree. It is therefore possible that the risk of chlorine gas being released had been overlooked, that maintenance on the installation in question had been carried out according to schedules based on general technical insights, and that the installation was not operated according to the state of the art.

The shortcomings or problem areas identified by this investigation could have been resolved by an effective system of risk analyses, periodic checks, inspections and audits.

With regard to the "Bever" installation, the Dutch Safety Board directed a concrete recommendation to the Minister of Defence to ensure that all possible improvements specified in this report in terms of both the installation and its operation were implemented and that (technical) flaws were resolved. In addition, the Dutch Safety Board expressed its opinion that a safety management system, applicable throughout the Ministry of Defence, should be introduced in the near future. This system should incorporate feedback processes, safeguards and RI&Es so that insight into safety management aspects for purposes of continuous improvement could be acquired at all command and policy levels by means, among other things, of a fully implemented and effective working conditions and environmental management system, audits, checks and inspections, and performance indicators.

SAGGING OF A BARGE, IJMUIDEN, 5 JULY 2004

On 5 July 2004 at around 10:45, a new well barge folded at around its midpoint and partially sank in IJmuiden's Middensluis lock. The vessel had been newly delivered on 9 June 2004 and was on its third laden journey. All of those on board were able to leave the vessel without injury following this serious accident. The lock could not be used for some time, however.

The Dutch Safety Board's investigation quickly revealed that the sagging had not been caused by circumstances in the lock or an excessive load but by a construction error caused by a faulty design. The vessel was not designed to take the loads to which it could be subjected. This was made apparent by check calculations carried out by both the Shipping Division of the Transport, Public Works and Water Management Inspectorate and the Dutch Safety Board. It could therefore be concluded with confidence that the accident had resulted from a lack of longitudinal strength.

Although the design of the vessel in question differed from those of well barges already in existence, the same design aids were used. None of the parties involved sufficiently recognized the potential practical effects that its different dimensions and ratios might have, and therefore the usual design aids were used without a thorough analysis of whether doing so was technically justified. Had calculations been carried out to cover all aspects of the intended construction, it would have become apparent that the vessel would have insufficient strength.

Both the designers of the vessel and the inspectorate virtually always work with the same design aids to determine the bending moment and permissible loads of certain construction elements. The working method in question was developed before the computer era, when it was still very labour intensive to carry out the underlying calculations. In the case of the vessel in question, the design aids were used outside the scope of validity for which they were established. Although the use of these aids is usual in the design of inland navigation vessels, the length of the holding area in relation to the overall length of the particular vessel in question deviated considerably from the ratios for which the formulas were established. The Dutch Safety Board therefore directed a recommendation to the Inspector General of the Transport, Public Works and Water Management Inspectorate to further investigate or commission a investigation into the construction rigidity of well barges that are longer than 80 metres and/or have a different length/width ratio, and that have not been granted the certificate of technical investigation (CvO) based on complete calculations.

Traditional methods are still relied upon heavily in the inland navigation sector without questions being raised as to whether these are still adequate. Given that designs are now increasing in size, one must ask whether such methods are still appropriate. The use of design aids in general and in the design of vessels that deviate from the usual ratios and/or dimensions in particular is highly undesirable. Now that the opportunities to do so are available, the Dutch Safety Board is of the opinion that complete calculations using state of the art methods must be carried out for all designs, as is already done in the ocean shipping sector.

In addition, the inland navigation sector should exercise greater self regulation. In this connection, the Dutch Safety Board believes that measures should be introduced to improve the monitoring and in depth analysis of developments.

With regard to this issue, the Dutch Safety Board directed a recommendation to the Inspector General of the Transport, Public Works and Water Management to make it obligatory for parties applying for certification with regard to a newly constructed or radically modified inland navigation vessel to demonstrate the vessel's construction rigidity on the basis of complete calculations. In addition, certification processes used in the construction of other types of vessels, such as those that transport hazardous substances and ocean going vessels, can serve as examples and models.

FIRE AT THE DETENTION CENTRE SCHIPHOL-OOST; FINAL REPORT ON THE INVESTIGA-

TION INTO THE FIRE AT THE SCHIPHOL-OOST DETENTION AND DEPORTATION CENTRE

DURING THE NIGHT OF 26 27 OCTOBER 2005

During the night of 26 27 October 2005, 11 people died in a fire at the Schiphol-Oost detention centre. These individuals could not be released from their cells by the centre's guards. The guards did, however, manage to open 21 of the 26 cells, enabling 32 detainees to leave to safety. A total of 15 individuals, including both officers and detainees, were injured and a wing of the centre was destroyed. The majority of detainees, totalling 298, were transferred to other locations following the fire. A large part of this group requested (psychological and social) counselling.

The following questions were central to the Dutch Safety Board's investigation: "Why did 11 detainees die in the fire?" and "How were the other parties involved subsequently accommodated and cared for?"

With these questions, the Dutch Safety Board focused only on the circumstances that contributed to the fatal results of the fire and the consequences of these circumstances for those who had been directly involved.

The investigation revealed that the organisations involved had a tendency to refer to the responsibilities of others in order to lessen their own respective responsibilities. In addition, the Dutch Safety Board discovered that the organisations involved were not very critical with regard to their own responsibilities and the structuring of those responsibilities. An exceptional feature of the present case was that it did not concern the division of responsibility between the government and private citizens but, rather, the interaction between essentially three government organisations, each with their own role and set of duties. These organisations were:

- The Custodial Institutions Service (DJI) as the author of the Schedule of Requirements for the builder, as the end user of the Schiphol-Oost detention centre and as the party responsible for the safety of detainees
- The Government Buildings Agency (RGD) as the party that commissioned construction and as the owner of the Schiphol-Oost detention centre, and
- The Municipality of Haarlemmermeer as the party that granted permits for the construction of the facility and for its designated use, as supervisor and enforcer, and as the party responsible for the fire emergency services

Safety is regarded by the government as being one of its core duties. The same government may therefore be expected to comply with both legislation and regulations and informal rules pertaining to (fire) safety, among other things because of its "role model" function and due to the fact that the present matter concerned detainees; that is, incarcerated individuals who were not capable of seeking safety themselves.

The general conclusion was that insufficient attention had been paid to safety, and to fire safety in particular, at the government organisations involved. With regard to several points, these organisations neglected to properly translate prevailing fire safety laws and regulations as well as informal rules such as those specified in the "Fire Safety Concept for Cells and Cell Complexes" into practical terms. The organisations charged with monitoring implementation of such laws and regulations – in the first and second instances the municipal authorities and national inspectorates, respectively – also failed to function adequately as corrective mechanisms. For example, the emergency response organisation of the DJI should have been more properly thought out and better prepared and trained, also in terms of cooperation and coordination with the fire brigade; the RGD should have ensured that wings J and K of the detention centre were built in accordance with the Buildings Decree; and the Municipality should have manifested itself more actively in its capacity as permit provider, supervisor and enforcer.

In the opinion of the Dutch Safety Board, the investigation revealed that the organisations involved had been insufficiently critical with regard to their own responsibilities. In addition, these responsibilities were inadequately communicated and coordinated in relation to the responsibilities of other parties involved. Within this context, the Dutch Safety Board also observed that each party involved believed that they could trust and rely on the expertise of the other parties that, in their turn, unfortunately operated on the basis of the same belief. Consequently, all of the parties involved did not assume their own responsibilities or minimised these, as a result of which fire safety risks were insufficiently acknowledged and alternative solutions opted for were not evaluated rigorously enough.

The failure of the parties involved to assume their respective responsibilities was all the more worrying to the Dutch Safety Board due to the fact that they were all government organisations; organisations, therefore, that may be expected to accord high priority to safety and fulfil a "role model" function with regard to compliance with legislation and regulations.



The Dutch Safety Board recommended the following to the Minister of Justice:

- To have all correctional institutions and detention centres inspected to determine their status in terms of fire safety and the quality of their respective emergency response organisations, and, where necessary, to implement improvements and report the results of this process to the House of Representatives.
- To make (fire) safety an explicit point of policy in the management of institutions and centres under his responsibility, to give the newly established Sanctions Application Inspectorate an integral supervisory role, and to periodically report on the status of (fire) safety.
- To subject the allocation of responsibilities within the Ministry of Justice, in particular within the DJI between central and local management, to a critical study and review focusing mainly on the responsibility of on location management, and to clearly record the results of such a study and review.
- To subject the emergency plans of correctional institutions and detention centres to rigorous checks to determine whether they are realistic, to devote particular attention to the accommodation and aftercare provided to detainees and to explicitly charge the DJI with the supra local coordination of that provision.

The Dutch Safety Board recommended the following to the Minister of Housing, Spatial Planning and the Environment:

- To make building regulations governing special building complexes more accessible. In addition, the Dutch Safety Board requested that attention be paid to the provision of information, instruction, periodic training and so on to support the correct application of building regulations and the build up of national expertise.
- Given the architectural shortcomings of the cell complex, to further define the role and responsibility of the Government Buildings Agency to ensure that the quality of cell complexes as buildings is guaranteed at all times and that quality is also incorporated into the services provided in relation to the designated function of such complexes.
- To ensure that additional conditions are set for temporary buildings designated to serve high risk functions so that, on balance, their level of safety is the same as that of permanent buildings.

The Dutch Safety Board recommended the following to the Municipality of Haarlemmermeer:

- To ensure sufficient expertise so that applications for buildings that deviate from specifications in the Buildings Decree but that nevertheless propose equal architectural alternatives are or at least can be carefully checked.
- In order to preserve the independence required for the proper fulfilment of its supervisory role, to prevent situations from arising in which the Municipality itself acts as an adviser to a party applying for a building permit.
- To carefully coordinate fire emergency services and an institution's own emergency response organisation at high risk locations and arrange joint exercises.

The Dutch Safety Board recommended the following to the Minister of the Interior and Kingdom Relations:

- In consultation with the Minister of Justice, to re evaluate whether the status of informal rules such as those specified in the Fire Safety Concept for Cells and Cell Complexes is adequate for dealing with risks to safety.
- To update the content of these informal rules.
- Together with the Association of Netherlands Municipalities, to determine how municipal authorities can professionally organise their duty as a supervisor of buildings with high risk functions such as cell complexes.

All in all, the Dutch Safety Board believes that there would have been fewer or no victims if greater attention had been paid to the issue of fire safety by the organisations involved.

OCCUPATIONAL ACCIDENT DURING THE REPAIR OF A GAS LEAK, ASSEN,

30 SEPTEMBER 2004

On 30 September 2004, an occupational accident took place at Rolderstraat in Assen. A technician was seriously injured by the explosive combustion of discharged natural gas while repairing a distribution pipeline.

Rationale for the investigation

Based on an exploratory investigation, the Dutch Safety Board decided to carry out a short investigation into the accident referred to. An initial in depth look at the subject matter revealed that situations in which natural gas is (being) freely discharged at the working location occur regularly in the Netherlands. Despite this fact, the cases studied showed that virtually no work preparations had been made that incorporated this risk. In the present case, the Dutch Safety Board did not investigate the origin of the gas leak and the subsequent actions of the emergency services.

Risks of natural gas discharge

The usual working methods used until now by gas network managers to repair gas distribution pipelines can lead to high risk situations and accidents. The gas sector must therefore find innovative alternatives for the repair of pipelines carrying gas and must also tighten its working instructions.

The Dutch Safety Board's investigation revealed that, under certain conditions, natural gas that has been or is being discharged can easily combust within a few seconds up to ten metres from the point of discharge. The standard operating assumption is that the combustion of discharged natural gas can be prevented by limiting the duration of discharge to the greatest extent possible and keeping the area clear of sources of ignition. It is not always possible to do so, however, and dangerous situations arise as a result. The sector's working instructions do not sufficiently take this possibility into account.

Risks associated with repairs to a gas distribution network are comparable to those in, for example, the chemical industry. A different inspection and supervision regime applies in the latter sector, however. The Dutch Safety Board therefore directed a recommendation to the Labour Inspectorate to review the way in which the gas sector was supervised and to adopt a more proactive stance. The Labour Inspectorate was therefore urged to use its knowledge with regard to natural gas related risks and accidents in a more effective and preventative way.

The Dutch Safety Board considers it irresponsible that employees are regularly and deliberately having to carry out work in an atmospheric environment that can quickly become explosive due to the discharge of gas. The Board is therefore of the opinion that work must always be carried out in such a way as to ensure that employees or third parties are not exposed to explosive gas/air mixtures. It is possible, however, that a safe method of repair of this kind is not yet available. The Dutch Safety Board therefore urged EnergieNed, the Association of Energy Producers, Traders and Retailers in the Netherlands , to launch a study in the near future, and involving all its members, into innovative alternatives to current technical operations on gas carrying pipelines so that exposure of employees or third parties to explosive atmospheric mixtures could in the long term be structurally limited.

A recommendation was directed to energy company Essent to have a work safety policy in place within one year that was demonstrable in practice and that had been incorporated into operating processes. Such a policy would also include working instructions for operations on gas carrying pipelines that expressly stated safety related instructions and the work preparations required.

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TAIL STRIKE DURING TAKE OFF, ROTTERDAM AIRPORT, 12 JANUARY 2003

On 12 January 2003, a Boeing 737-800 at Rotterdam Airport began what was supposed to be a three stop flight to Maastricht-Aachen Airport, Lanzarote Airport in Arrecife and Amsterdam Airport Schiphol. During the take off run, the aircraft's nose unexpectedly lifted off, resulting in a tail strike. The pilots immediately rejected the take off. The aircraft was badly damaged and the flight could not be continued. None of the 113 passengers and seven crew members had been injured in the incident, however, and the aircraft was able to taxi back to the platform at the terminal, where the passengers disembarked.

The Dutch Safety Board's investigation revealed that almost all passengers on the flight in question had been seated at the rear of the cabin, a seating arrangement that had been opted for by the ground handling company in order to ease boarding at Maastricht-Aachen Airport. This allocation of seats resulted in an unequal distribution of passengers that shifted the aircraft's centre of gravity too far towards the rear. Consequently, the aircraft's nose lifted off almost immediately after the take off run began, ensuing in a tail strike.

Various factors contributed directly to the incident; factors relating to an awareness of the centre of gravity on the part of the flight crew, the aircraft loading procedure, the supervision exercised by the airline and its quality system, and the quality system of the ground handling company. In the opinion of the Dutch Safety Board, the airline's quality system was a significant underlying factor in the occurrence of the incident.

The investigation revealed that the flight deck crew were not aware of the important effect of passenger distribution on the location of a Boeing 737 800's centre of gravity (and therefore also its handling characteristics). As a result, an observation made by the purser about the incorrect distribution of passengers did not lead to corrective action by the flight crew. Moreover, an analysis of 23 other flights of the airline in question showed that there was insufficient awareness on the part of other flight crews about the important effect of uneven passenger distribution. The Dutch Safety Board therefore urged the airline to promote such awareness among its pilots. By having pilots complete a load and trim sheet using actual load data for every flight, flight crews would see a visual representation of limitations regarding the centre of gravity in advance.

The investigation also revealed that the airline did not exercise sufficient supervision on the ground handling company. The airline did not ascertain, for example, whether ground personnel were aware of and trained in the airline's loading procedures. Due in part to this loading related factor, ground personnel were ultimately unaware of the way in which seats should be allocated to the passengers. Because it had not provided sufficient training to its ground personnel, the ground handling company did not act according to its agreement with the airline. The Dutch Safety Board therefore directed a recommendation to the handling company urging it to improve its quality system. The airline itself, however, always remains responsible for the quality and safety of the work carried out. This arrangement is all the more important because there is no legal foundation for the certification of ground handling companies. The Dutch Safety Board therefore believes that quality and safety related regulations should be introduced at European level for ground handling companies. The Board is of the opinion that such regulations would enable ground handling companies to organise their responsibilities in a better and more uniform way. On the basis of this investigation, the Dutch Safety Board recommended to the airline that it evaluate its quality system in terms of the supervision exercised on contracted ground handling companies, the results of audits, and the effectiveness of associated corrective actions and procedures concerning the reporting on safety related incidents.

TANK LORRY FIRES INVOLVING HAZARDOUS SUBSTANCES, THEMATIC STUDY

The transport of hazardous substances by road is a source of safety related concerns, not because things often go wrong but because the consequences of an accident could be extremely serious. The thematic study "Tank lorry fires involving hazardous substances" was started following two large tank lorry fires near Ewijk in May 2001 and Eindhoven in July 2003. Following the Ewijk accident, the drivers of the tank lorry involved and two other lorries were able to walk away uninjured. During the Eindhoven accident, however, the driver of the tank lorry became trapped in the burning cabin and died. While the study was underway, another major tank lorry fire occurred on the A28 motorway near 't Harde (August 2005). The drivers of the tank lorry and another lorries were carrying flammable substances and were involved in a traffic accident. A further, notable common denominator of the accidents was the leaking of the fuel tanks underneath the tractor unit, as a result of which fire became a possibility due to the substantial amounts of diesel released. Removal of the vehicles from the road and evacuation of the surrounding area caused considerable inconvenience and economic damage.

Tank lorry fires that require the response of fire brigades occur regularly. The potential consequences for emergency services personnel, road users and/or other people in the vicinity are considerable. In addition, data on accidents that occur in the road transport of hazardous substances is not collected, analyzed and shared in a systematic way, as a result of which there is insufficient insight into the actual risks and risk factors involved in the road transport of hazardous substances. A recommendation was therefore directed to the Minister of Transport, Public Works and Water Management to acquire better insight into the reliability of substance data on orange signs and transport documents, and, if necessary, to introduce measures to improve such insight. The Minister was furthermore advised to ensure, in cooperation with transporters, the systematic reporting, registration and analysis of accidents and near accidents in the road transport of hazardous substances, to learn from the information thus gathered and analysed, and to share this knowledge, also in an international context.

In combating tanker vehicle fires, fire brigades can opt to intervene "offensively" (i.e. immediate intervention) or more "defensively" (i.e. await a possible explosion prior to moving in closer). Offensive action can prevent an explosion that might have major consequences for the wider environment. At the same time, however, such action can have fatal consequences for members of a fire brigade. Defensive action is safer for fire brigades, although whether such a course of action is appropriate depends, among other things, on whether there are people in the vicinity or trapped in the burning vehicle. There is no clear framework to guide the considerations that fire brigades must make. The various cases studied indicated that the actions of fire brigades are judged after the event without clearly defined expectations having been communicated to the fire brigades in advance. Thus far, such expectations have been confined to the statement that fire brigades "must ensure their own safety", a formulation that is inadequate in practice.

The Dutch Safety Board therefore directed a recommendation to the Ministers of the Interior and Kingdom Relations and Transport, Public Works and Water Management to establish an information system together with fire brigades that would ensure that, in the case of an accident, a fire brigade could acquire details about the vehicle and load involved as quickly as possible, to determine whether the timely availability can be guaranteed of sufficient fire extinguishing water along points on transport routes for hazardous substances that are prone to traffic jams or near buildings, and, where necessary, to take appropriate measures in this regard.

Requirements governing the fuel tanks of lorries are limited. There are no requirements with regard to the prevention of leaking as a result of damage following an accident, for example. In this particular respect, no additional requirements are imposed on the fuel tanks of lorries transporting hazardous substances relative to those of lorries with regular loads. In addition, the current design trend means that fuel tank capacity is increasing. Due to the potential consequences of a tank lorry fire, the Dutch Safety Board believes that measures should be taken to limit the vulnerability of fuel tanks. A start can be made with the fuel tanks of lorries transporting hazardous substances, although ultimately the scope of such measures should apply to all lorries, as a fire in the tractor unit can also have major consequences for a flammable load not classified as a hazardous substance. Furthermore, even if no fire occurs, the leaking of hundreds of litres of fuel endangers motorcyclists, hinders traffic and causes environmental damage. The Dutch Safety Board believes that the Minister of Transport, Public Works and Water Management should also press for a tightening of international regulations to prevent the leaking of lorry fuel tanks, starting with those of lorries that transport hazardous substances.

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SAFETY RELATED PROBLEMS WITH FACADE ELEMENTS

Facade elements made of glass or stone can easily weigh over 100 kilograms a piece, causing potentially lethal situations if they become detached and fall. During incidents in Rotterdam and Sneek, facade elements landed on busy pedestrian areas. The consequences of these incidents were fortunately limited, but they could have been very different indeed. The Dutch Safety Board was concerned about the number of incidents that had occurred within a short span of time, and because the use of facade elements has become increasingly common in large buildings, the Board decided to launch a thematic study into safety related problems with facade elements. The topicality of the study was underlined in the summer of 2006 by a number of incidents involving falling facade elements in, among other places, Rotterdam and Zoetermeer.

The investigation revealed a number of problem areas in the overall construction process relating to facade elements in terms of the design phase (including the granting of the building permit), the implementation phase and the phase of use.

The design phase incorporated insufficient safeguards to ensure that the overall design of the building, including therefore the use of facade elements, satisfied requirements set by the Buildings Decree. Furthermore, it emerged that communication between the designer of the building and designer of the facade was inadequate. The design of the main load bearing structure or outline design is usually separate from the specific design of the facade. The facade is usually designed at a later stage (when construction work has already started) and implemented by a contractor. Good coordination in that regard is vital, given that the load bearing part of the building and facade will ultimately form a single whole. In practice, however, this coordination is often inadequate.

Furthermore, a number of problem areas were brought to light regarding the granting of a building permit; that is, at the point of demarcation between design and implementation. The Dutch Safety Board noted that applicants for building permits submitted such applications without first sufficiently checking them. In other words, applicants were failing to adequately define their own respective responsibilities, whereas safeguarding quality is something that may be expected from a principal. Moreover, municipal authorities, who have to assess crucial aspects of an application, are entitled to expect that the principal will present the quality of a building plan in a transparent way. That having been said, it is also the duty of municipal authorities to organise the proper assessment of building plans, i.e. if necessary with the aid of external agencies or colleagues from other municipalities.

Mistakes are also made during construction, the implementation phase. The investigation revealed that the supervision exercised by or on behalf of principals at the construction site is limited. A principal is responsible for the quality of a completed building. Adequate quality control is therefore necessary, certainly with regard to the attachment of facade elements, given that the attachment mechanism or material is in most cases no longer visible once the facade has been completed.

In a number of cases, facade elements had become detached due to age. The Dutch Safety Board noted in this connection that, with a few exceptions, no regulations or policies had been adopted regarding the inspection of the (attachment of the) facade during the period of use or, where such regulations and policies had been adopted, it had not been made clear how such inspections were to be carried out in practice. Building owners, who bear primary responsibility in this regard, tended to have visual inspections of their respective buildings carried out. However, this kind of inspection does not provide insight into the quality of the attachment of facade elements. The investigation found no evidence whatsoever to suggest that building owners or municipalities devoted any attention to this problem. Given the risks to individuals constituted by falling facade elements, the Dutch Safety Board deems this situation to be undesirable.

Given the considerable use of facade elements in utilities construction at the present time, it is quite possible that incidents involving facade elements that have become detached will increase in the future. In addition, unequivocal information on the number of incidents involving facade elements that have become detached is lacking due to there being no central register of incidents concerning structural safety.

The recommendation directed to the Minister of Housing, Spatial Planning and the Environment and sectoral associations for contractors, architects and constructors was therefore to ensure in joint consultation that, for every construction project, there would be a single, responsible point of contact for structural safety in the design and implementation phases.

The recommendation directed to municipal authorities was to set requirements for the granting of building permits for large construction projects in terms of the demonstrable incorporation of quality safeguards in the design phase (adequate checking by the principal), the implementation phase (supervision by or on behalf of the principal during construction) and the phase of use (instructions for the periodic inspection of facade elements during the period of use and particularly upon expiry of the reference period). The recommendation also stated that, if necessary, the Minister of Housing, Spatial Planning and the Environment and municipal authorities should amend construction regulations to make the imposition of such requirements possible.

The recommendation directed to the associations in the building sector was to set up a single register for incidents involving structural safety and to make the investigation of these incidents and their underlying causes part of their standard operating procedures.

DERAILMENTS AT AMSTERDAM CENTRAL STATION, 6 AND 10 JUNE 2005

On 6 June, 10 June and 15 August 2005, respectively, trains derailed at the western section of Amsterdam Central Station's railway yard. The Dutch Safety Board did not initially intend to carry out a separate investigation into the derailments of 6 and 10 June. However, following the third derailment on 15 August, the two earlier incidents were nevertheless investigated. The investigation's main question was therefore the extent to which a common cause for the three derailments could be found in the local infrastructure.

The Dutch Safety Board concluded that the three derailments did not have a common cause in terms of Amsterdam Central Station's railway yard. The first derailment was caused by a railway wagon's defective wheel. The wagon in question could therefore have derailed at any location. The second derailment was caused by a railway switch that had been damaged as a result of shortcomings in the repair of the infrastructure following the first derailment. These shortcomings could likewise have manifested themselves at another railway yard. So even though there was a direct connection between the first and second derailment, this connection had nothing to do as such with the quality of the railway yard in question. Many factors played a role in the third derailment of 15 August, which involved a pushed passenger train. The report on this incident was published in the spring of 2007.

Based on the investigation into the 6 June derailment, the Dutch Safety Board recommended that the maintenance system be developed so as to ensure that all railway material always met applicable requirements. This also included the complete and transparent recording of the state of maintenance of all rolling stock (powered and unpowered vehicles).

A second recommendation related to implementation, as a matter of priority, of the intended tightening of supervision on the maintenance of and maintenance processes for goods rolling stock. In this connection, the Dutch Safety Board drew specific attention to the need to improve the system of technical checks and regular maintenance so as to rule out shortcomings such as the lack of wheel markings.

Based on the investigation into the second derailment of 10 June, a recommendation was directed to ProRail, the company responsible for managing and maintaining the railway infrastructure, to ensure that a safety management system was implemented in such a way as to guarantee safety in its own daily work processes as well as in those of contractors. In addition, a recommendation was directed to the Transport and Water Management Inspectorate to evaluate the effectiveness of ProRail's safety management system in practice.

ACCIDENTS INVOLVING RUSSIAN AIRCRAFT STATIONED IN THE NETHERLANDS, 9 MARCH

2001 AND 7 JUNE 2002

During aerobatic manoeuvres in 2001, a Yakovlev Yak-52 aircraft entered into a flat spin. The pilot and accompanying instructor were both unable to recover the aircraft from this spin, as a result of which it crashed to the ground at high speed, killing both the pilot and the instructor and causing irreparable damage to the aircraft.

The investigation revealed that the Czech instructor, the owners and the pilots were unaware of the importance of sufficient flight experience on the part of the flight instructor in relation to the Yak 52 aircraft, in particular with regard to spin flight. In addition, it became clear that these Russian registered aircraft are insufficiently supervised in the Netherlands.

During aerobatic manoeuvres in 2002, a Sukhoi Su-29 aircraft lost substantial height and speed. The pilot was unable to regain control of the aircraft on time, as a result of which it hit the ground at an acute angle and burst into flames. The pilot, who suffered relatively minor injuries, was freed from the wreck by fire fighters. The aircraft was irreparably damaged.

The investigation revealed that the following factors had contributed to the accident: the limited experience of the pilot with the type of aircraft in question, the low cloud base for air show purposes and the lack of adequate regulations for air shows.

Air Show Regulations

The Air Show Regulations (*Regeling luchtvaartvertoningen*) came into force in January 2004. These Regulations set out obligations and requirements for, among others, participants in air shows. Had they been in force at the time of the air show in 2002, an accident such as the one involving the Su 29 would probably not have happened, since the Regulations require, among other things, substantial experience with the type of aircraft in question.

Registration

Proof of registration and flying licences are issued by the authorities of the country of registration. In addition, the organisation that carries out aircraft maintenance and the inspection required prior to the renewal of the certificate of airworthiness must be accredited by the authorities of the country of registration. The aircraft's owner is responsible for ensuring that the aircraft is reported to the proper authorities on time for its annual inspection.

Supervision

The authorities of the country in question are responsible for exercising supervision in terms of airworthiness and aircraft maintenance. After every inspection carried out by an accredited organisation on an aircraft registered in the Netherlands for the renewal of the certificate of airworthiness, the Transport and Water Management Inspectorate (IVW) is given the opportunity to conduct a random check.

Formal supervision of a civilian aircraft is the responsibility of the authorities of the country in which the aircraft is registered. In practice, the system appears to work well for Joint Aviation Authorities (JAA)-registered aircraft stationed in the Netherlands. This is not the case, however, for non JAA registered aircraft stationed in the Netherlands, usually due to a lack of supervision of the implementation of individual responsibility. As a result, there are non JAA registered aircraft in the Netherlands of dubious airworthiness. Moreover, given that some of these aircraft have already been stationed in the Netherlands for some time, fly in the Netherlands, are flown by Dutch pilots and are sometimes used for commercial purposes, the Dutch Safety Board must conclude that the current system does not provide sufficient safety guarantees. Individual responsibility must therefore be exercised more fully.

FIRE AT KINGDOM VENUE DISCO, AMSTERDAM, 15 MAY 2005

At around 04.30 on Sunday morning, 15 May 2005, Club Night in the Kingdom Venue building located in Amsterdam's Westerpark municipal district was coming to an end. The fire brigade had set the maximum number of visitors for this building at 1,413. Only around 200 visitors remained towards the end of Club Night on the Sunday morning in question. At approximately 04.30, the automatic fire alarms sounded in all rooms of Kingdom Venue. On their own initiative, the firemen on duty first called the fire brigade's central emergency number. It was agreed that the fire brigade would await further information from the firemen on duty before deploying to the scene. Following this consultation by telephone, the firemen present in the building further investigated the situation, after which it became clear that the assistance of the fire brigade was indeed required. The fire brigade arrived on location at 04.53. Because the ventilation system had remained in operation, the smoke had by that time spread throughout the entire building and led to a complete evacuation. The fire was extinguished shortly afterwards.

Fire is a substantial risk in large buildings like Kingdom Venue, which is capable of accommodating over 1,400 people. For this reason, the Dutch Safety Board decided to investigate a number of essential aspects associated with this fire.

The user, as operator of the building, must ensure compliance with safety regulations as specified in the user permit. In its turn, the fire brigade of the Municipality of Amsterdam monitors compliance with such regulations and, in case of a fire, moves to extinguish it. An organisation's emergency response team must work to ensure the safety of those present and extinguish a fire in its first phase if circumstances permit. Moreover, an organisation's emergency response team serves as the first point of contact for a fire brigade upon the latter's arrival on the scene.

In the present case, the 2005 user permit had been granted while there were still, in the opinion of the Dutch Safety Board, three outstanding shortcomings. Investigation carried out after the fire revealed that:

- Smoke had been able to spread throughout the building due to incorrect compartmentalisation
- No evacuation plan was available, and

• The electrical system and facilities did not, in the opinion of the Dutch Safety Board, meet safety related requirements as set out in the municipal building regulations

The user permit had been granted on condition that a proposal for a new evacuation plan would be submitted within 13 weeks. This condition had still not been met one year later. Furthermore, the user had not made an adequate inventory of the risks associated with using the property as a disco. The requirement to make a proper inventory stemmed primarily from the user's individual responsibility for the fire safety of the Kingdom Venue building. Moreover, the approach to fire safety adopted by both the municipal fire brigade and authorities of the municipal district in question was not geared to ensuring compliance. The fire brigade, municipal authorities and authorities of the municipal district did not systematically learn from incidents/fires and investigation into incidents.

In the opinion of the Dutch Safety Board, the user had not organised and met its obligations to a sufficient degree, while the authorities of the municipal district, as the permit provider and supervisor, had not been critical enough, certainly in light of the fact that a building capable of accommodating over 1,400 people was involved.

Once the requirement to have a user permit to operate facilities like Kingdom Venue is abolished, as is expected with the forthcoming legislative amendment (the coming into force of the national decree governing use), greater emphasis will come to rest on the individual responsibility of the operator and municipal authorities in their supervisory capacity. For the authorities of the municipal district, the Municipality of Amsterdam and other municipalities involved, this anticipated change should constitute additional reason to implement an adequate monitoring programme to facilitate proper supervision in terms of both the frequency and intensity of checks.



PERSONNEL INJURED THROUGH USE OF A SMOKE GRENADE (WP), CURACAO,

26 APRIL 2006

In the week of 24 to 28 April 2006, a training exercise took place at a military facility on Curacao in the Netherlands Antilles. The exercise involved the use of training ammunition which consisted of, among other things, smoke grenades. On the morning of 26 April, the exercise involved relocation without ammunition. The smoke grenades were first used in the afternoon of the same day. As the exercise progressed, the supply of standard smoke grenades ran out and white phosphorus grenades (WP), No. 23, were issued as replacements. WPs, No. 23, had been indicated as replacements of the standard smoke grenades as a result of a typing error.

The chief sergeant instructor assigned to the training unit had not previously worked with the type of WP in question and therefore took one for closer examination. He subsequently walked 25 metres into the training area and pulled the safety pin. The second sergeant instructor, who was also unfamiliar with this type of smoke grenade, advised throwing the grenade away. The chief sergeant instructor followed this advice and threw the grenade into the wind a few metres away. Nothing happened at first, but a few seconds later an explosion occurred, followed by the release of phosphorus. Both instructors were within the area of effect of the burning phosphorus and sustained first and second degree burns as a result. An Antillean conscript also suffered burns.

Every marine receives education and training. Attention is devoted to various types of smoke grenade throughout the first training course. In addition, the various training courses emphasise a "safety doctrine" which makes clear that ammunition may not be used if the type of ammunition in question is unknown or if the effects of its use are unknown. This safety doctrine is not, however, explicitly established in writing, which, given the essential importance of such a doctrine, the Dutch Safety Board considers a notable omission; an omission all the more striking because, in a unit as professional and operationally meritorious as the Dutch Marine Corps, four experienced marines, one of whom was a shooting instructor, failed to act in accordance with this safety doctrine and were unaware of the specific safety instructions that applied to the type of smoke grenade in question.

The current logistics process in relation to planning, budgeting, applying for and issuing smoke grenades does not have the control mechanisms required to prevent the incorrect allocation and issuing of such grenades. It is striking that a single typing error could lead to the type of incident that took place on Curacao. The incident indicates that a minor error in one link of the process can have major consequences.

The investigation revealed that none of those directly involved – one officer and three NCOs – recognised or had previously worked with the type of WP in question. Ascertaining whether this lack of knowledge and experience in relation to this type of WP, and more generally with respect to infantry weapons and ammunition, is more widespread among naval and land forces lay beyond the scope of the investigation. The Dutch Safety Board therefore issued a general recommendation concerning what may be a gap affecting all branches of the armed forces.

EXPLOSION ON BOARD A TWO MAST CLIPPER, MEDEMBLIK, 8 JUNE 2006

On 8 June 2006, an explosion occurred on board a two masted clipper. At the time of the incident, the vessel was moored in Medemblik harbour and there were eleven students on board, a number of whom were preparing the evening meal. Eight of the students were injured by the explosion, four of them seriously.

The Dutch Safety Board devotes particular attention to passenger vessels due to the composition and size of groups that can be found on board such vessels; people of all age categories use these vessels for recreational purposes. Furthermore, the Dutch Safety Board deemed an investigation necessary after the explosion because of the serious injuries sustained by a number of young people and the potential risk of using gas aboard such vessels.

Based on a study of the damage, the explosion could be attributed to the combustion of a gas/air mixture below deck. The injuries sustained by the students also indicated that the explosion had occurred below deck. Leaked propane gas was the most probable cause of the explosion, as the gas cooker was being used at the time. The thermo electrical safety mechanism of one of the cooker's adjusting knobs was not functioning properly due to food residue. As a result, unburned gas flowed out of the oven and, via the oven door and ventilation openings, spread underneath it, both above and below the wooden deck of the living quarters. A propane gas/air mixture subsequently formed that resulted in an explosion. The gas pipelines showed no defects.

The students present on the vessel did not detect a gaseous odour prior to the explosion. For safety reasons, an artificial odour (odorant) is added to gas. Earlier investigations carried out by the Dutch Safety Board have revealed, however, that gases can still be difficult to detect despite the use of odorants. For this reason, the Dutch Safety Board calls for research into improving the detectability of propane gas. It must be borne in mind in this regard that propane gas, unlike natural gas, is heavier than air and therefore flows downward to the lowest points. In vessels, these are closed areas where an accumulation of gas can very quickly become dangerous. Given the fact that relatively large groups of people congregate on vessels like the one involved in the present case, the above findings and considerations are a matter of concern to the Dutch Safety Board.

In addition, the Dutch Safety Board determined that gases which develop in sump tanks may, under certain conditions, pose a considerable risk to those on board. One of the critical conditions in this regard is the malfunctioning of a sump tank's ventilation system so that gases are no longer expelled into the open air. As a result, they escape along other routes (such as sewage pipelines, shower and sink drainage holes, and toilets) and can accumulate undetected in a certain area of the vessel where, when mixed with a certain quantity of oxygen, they become explosive.

Given the risks associated with the use of gas and the numerous alternatives already available, the Dutch Safety Board is of the opinion that the applicable period of transition, which applies until 2045, should be reconsidered.



LOSS OF CONTROL OF A BANNER TOWING AIRCRAFT, 18 AUGUST 2003

On 18 August 2003, while picking up an advertising banner, a banner towing aircraft stalled and crashed almost vertically to the ground. The pilot died on the site of the crash. The Dutch Safety Board's investigation revealed that the pick up manoeuvre was executed without full engine power, and this probably contributed to the stalling of the aircraft. It also emerged that the pilot had picked up advertising banners with reduced power on previous occasions in order to spare the engine. In this respect, the pilot's employer had deviated from the manual for banner towing operators in the Netherlands without safeguarding flight safety in its own procedures.

Several accidents involving banner towing aircraft that stalled during the pick up manoeuvre are known. It was because of these accidents that the then Dutch Aviation Safety Board directed recommendations to the Minister of Transport, Public Works and Water Management and the sectoral organisation, VNLO, already in 1995 – in advance of European legislation – to establish a uniform training programme for the piloting of banner towing aircraft in which special attention would be devoted to the pick up manoeuvre. In January 2002 the Minister undertook to introduce an operational manual in the event that it was decided not to ban the towing of aircraft banners in the Netherlands, but failed to fulfil this promise. Equally, no European legislation in this area has as yet been introduced.VNLO did, however, publish a manual, and the Minister of Transport, Public Works and Water Management strongly urged the introduction of this manual in the sector, though stopped short of making it legally obligatory. The Minister expressed the view that responsibility in this case rested with the sector itself.

The Dutch Safety Board understands the government's preference for self regulation with regard to a number of sectors. In such cases, however, ministers must set conditions to ensure that such self regulation is taken seriously. This means setting the necessary preconditions and developing policies that stimulate parties involved to organise and exercise individual safety related responsibilities in a sustainable – and indeed sustained – way. Although the issue of balancing self regulation with external supervision is of course not confined to the towing aircraft sector, the Dutch Safety Board directed a recommendation to the Minister of Transport, Public Works and Water Management to reconsider the self regulation and supervisory regime chosen for the towing aircraft sector with a view to reducing, within reason, the risks associated with aircraft banner towing to the greatest extent possible.

INADVERTENT LOSS OF ALTITUDE DURING APPROACH, NORTH SEA NEAR DEN HELDER,

30 NOVEMBER 2004

On 30 November 2004, a Sikorsky S-61N helicopter, carrying three crew members and 12 passengers, was on a return flight from a platform in the North Sea to Den Helder Airport. During the approach above the Wadden Sea, the helicopter's flight speed dropped unnoticed and, because this reduction in speed was not compensated for by an increase power, the helicopter also lost height. After the captain noticed the loss of height, he took over control and attempted to stop the helicopter's rapid descent. The helicopter nevertheless touched the surface of the Wadden Sea, after which it was immediately able to gain altitude and land a few minutes later at Den Helder Airport. The incident did not lead to injury or significant damage.

The reduction in speed and consequent rapid descent was not noticed by either pilot for an extended period of time, a remarkable fact given that the allocation of duties in helicopter cockpits is defined in such a way as to ensure that such a situation cannot occur if the crew complies with that allocation. No conclusive explanation could be found as to why the procedure in question failed to work.

Possible reasons for the failure on the part of the pilots to notice the drop in flight speed and increasing rate of descent until a late stage include fatigue, a lack of recent experience in the type of helicopter involved, a focus on a problem with the Automatic Flight Control System (AFCS), and an Instrument Landing System (ILS) approach at 70 knots that was not standard procedure. In addition, the pilot flying was ordered four times in quick succession by the pilot non flying to allow the helicopter to descend in order to fly under the glide path. This descent was effected in the belief that visual contact with the lighting of the landing area would be established sooner. It is possible that, as a result, the pilot flying was focusing mainly on the instrument that indicates the position of the helicopter relative to the glide path.

Furthermore, the investigation revealed that the crew had not made use of checklists during the flight and that procedures had not been adhered to in full. The crew did indeed possess the knowledge and skills required to execute an approach according to procedures but did not apply this professional know how. The Dutch Safety Board subscribes to and emphasises the importance of crew resource management (CRM) but notes at the same time that, in the present case, the training provided by the company proved inadequate. This is a matter of concern to the Dutch Safety Board, especially because investigations carried out in the past by the Board and its counterparts in other countries indicate that, in many cases, shortcomings in the area of CRM skills play a prominent part in safety related incidents.

During the flight the in question, there was also very little or no difference in authority between the captain and first officer. This crew related arrangement is not a problem as such during a standard flight but can lead to a lack of clarity and confusion precisely in situations that deviate from the norm.

Lastly, the investigation revealed that the company's management had received numerous indications, both from within and outside the company, that the operational process was in need of improvement. The operational process was emphasised within the organisation at the expense of safety. The scheduling of pilots, for example, was not optimal, as a result of which it was not possible to properly consider crew compositions. In the opinion of the Dutch Safety Board, the company's management did not do enough to introduce effective improvements in response to the indications referred to.

EXPLOSION OF NATURAL GAS CONDENSATION TANK AT NEDERLANDSE AARDOLIE MAAT

SCHAPPIJ (NAM)

On Tuesday 31 May 2005, a storage tank containing natural gas and belonging to Nederlandse Aardolie Maatschappij (NAM) in Warffum exploded during renovation work, killing two employees of contractor GTI. A third GTI employee was seriously injured. The Dutch Safety Board's investigation focused on the question as to how such a serious accident could have occurred at NAM's Warffum location, given that NAM is a company that has years of experience in and knowledge of safety, devotes considerable attention and effort to safety related aspects, and enjoys a relatively low frequency of accidents arising from negligence with respect to safety.

The direct cause of the explosion was the contact, via an open valve, between an explosive gas mixture and a welding flame. Nevertheless, the explosion could not be attributed to a single factor as such, as a combination of factors contributed to it. In the opinion of the Dutch Safety Board, knowledge about working safely is a basic requirement for all parties operating in the sector in question. In addition, there are so called process risks, which are risks that arise directly from the process and can also affect work safety. The Dutch Safety Board noted that the accident took place in an environment in which insufficient attention was paid to process risks. The investigation revealed that, in practice, the focus had shifted from process safety to work safety. Finally, the Dutch Safety Board found insufficient (internal) checks with regard to process safety and an inadequate degree of compliance with procedures. As manager of the location and permit provider, NAM did not exercise enough internal supervision.

As stated above, the Dutch Safety Board's basic assumption was that NAM has years of knowledge and experience relating to safety. Nevertheless, its safety management system failed to prevent a serious accident from occurring. The Dutch Safety Board therefore believes that, in such situations, lessons must be learned and the opportunity should be taken to subject the safety management system in place to a critical review.

Furthermore, the Dutch Safety Board also had a number of critical remarks to make with regard to State Supervision of Mines (SodM), the government body involved at Warffum as the enforcer of working conditions legislation and regulations. State Supervision of Mines was one the parties that had observed shortcomings in NAM's risk management in advance. The supervision exercised in this connection by Sate Supervision of Mines would have been more effective if it had used all enforcement options available to it. A point of concern to the Dutch Safety Board is that government supervision currently focuses primarily on compliance with legislation and regulations, as a result of which the self regulation exercised by companies in practice is not supervised at the present time. The Dutch Safety Board believes that a balance must be found between individual responsibility and government supervision on the exercise of this responsibility.

Although the Dutch Safety Board did not take an in depth look at other locations during this investigation, the nature of the shortcomings observed are generally such that it is quite probable that the same problems apply elsewhere. The Dutch Safety Board would expressly emphasise that it does not wish to unduly exaggerate the safety related problems detected within NAM. The Board does believe, however, that it is crucial for NAM to learn as much as possible from the accident in question, and that the shortcomings detected must be handled as matters of utmost priority. In the view of the Dutch Safety Board, only then will it be possible to prevent the recurrence of such an accident.

DERAILMENT AT AMSTERDAM CENTRAL STATION, 15 AUGUST 2005

On Monday, 15 August 2005, an intercity train heading towards Haarlem derailed at the western section of Amsterdam Central Station's railway yard. There were no injuries but the damage to rolling and fixed stock was considerable. As it was the third derailment in quick succession in the same part of the railway yard, the Dutch Safety Board decided to launch an investigation. The investigation's conclusion was that shortcomings in the infrastructure were not the cause of the three derailments.

The Dutch Safety Board established that a combination of factors had given rise to a high risk situation. These factors were the layout of the infrastructure, considerable pushing power, the length of the train and its speed. The investigation also revealed that simulation models relating to derailment safety are as yet insufficiently validated to be wholly reliable for the kinds of situations in question. Finally, it became apparent that the parties involved had not properly defined and organised their respective responsibilities with regard to safety and, in addition, it was not always clear how these responsibilities related to each other. Partly on the basis of previous investigations, the Dutch Safety Board believes that the proper organisation and coordination of responsibilities is essential to safety.

NS Reizigers is responsible for passenger safety and therefore also for investigating the safety of new or modified trains. In this connection, NS Reizigers concluded that the train in question was fit for service on the basis of simulation results. The simulation test carried out was not, however, based on the actual railway situation. The Dutch Safety Board was therefore of the opinion that NS Reizigers, given its final responsibility for passenger safety, should in future draw conclusions from the simulation results with a more critical eye.

ProRail is responsible for the safety of the railway infrastructure (the fixed stock). The Dutch Safety Board was forced to conclude that ProRail was not sufficiently aware of the true state of that infrastructure. Given the importance of accurate information on infrastructural conditions, this deficiency is a matter of concern.

The Dutch Safety Board adheres to the view that a transporter should determine whether the use of a given train is safe or not on the basis of its own responsibility and refrain from invoking the judgement of an external inspectorate after a given event. For this reason, the Dutch Safety Board also believes that an inspectorate should exercise extreme restraint in issuing formal opinions when doing so is not required by law.

NS Reizigers and ProRail have since announced that they have taken measures to prevent a recurrence.

APPENDIX 3. OVERVIEW OF PUBLISHED INVESTIGATION REPORTS

A list of reports published by the Dutch Safety Board according to year is given below. The date of publication is given first, followed by the subject and date on which the incident occurred. A distinction has been maintained between reports on full investigations, interim reports and short reports.

Overview of published investigation notifications

| 22.03.2005 | Open railway crossing at Veenendaal during approach of train, 31 October 2002 |
|------------|--|
| 24.03.2005 | Derailment of goods train in Apeldoorn, 30 April 2003 |
| 23.06.2005 | Accident with the fast ferry Voskhod 605,,Amsterdam, 18 October 2003 |
| 30.06.2005 | Investigation into seven roads with prolonged unsafety, from 1999 |
| 05.07.2005 | Through Red at Amsterdam on 21 May 2004, 21 May 2004 |
| 04.10.2005 | Pipeline fracture causes dike subsidence, Stein (NL), 27 January 2004 |
| 09.12.2005 | Interim report on investigation into the fire at the detention centre Schiphol Oost, night of 26 27 October 2005 |
| 20.01.2006 | Short report on exploratory investigation into power failure in Haaksbergen |
| 25.01.2006 | Gas explosion as a result of a coupling failure in the distribution pipe, Schijndel, 11 March 2004 |
| 23.03.2006 | Loss of steering on a slippery taxiway, Amsterdam Airport Schiphol), 22 December 2003 |
| 20.04.2006 | Runway overrun after rejected take off, Groningen, 17 June 2003 |
| 06.06.2006 | Chlorine gas intoxication in the "Bever" damage simulator, 4 July 2005 |
| 04.07.2006 | Sagging of a barge, IJmuiden), 5 July 2004 |
| 01.08.2006 | Letter concerning collisions with sign and light signal posts |
| 21.09.2006 | Fire at detention centre Schiphol Oost, night of 26 27 October 2005 |
| 19.10.2006 | Occupational accident during the repair of a gas leak, Assen, 30 September 2004 |
| 09.11.2006 | Tail strike during take off, Rotterdam Airport, 12 January 2003 |
| 21.11.2006 | Study into tank lorry fires involving hazardous substances |
| 23.11.2006 | Study into safety related problems with facade elements |
| 30.11.2006 | Derailments at Amsterdam Central Station, 6 and 10 June 2005 |
| 21.12.2006 | Accidents involving Russian aircraft stationed in the Netherlands, 9 March 2001 and 7 June 2002 |
| 16.02.2007 | Fire in Kingdom Venue Disco in Amsterdam, 15 May 2005 |
| 03.05.2007 | Personnel injured due to the use of a smoke grenade (WP), Curacao, 26 April 2006 |
| 16.08.2007 | Explosion on board a two mast clipper, Medemblik, 8 June 2006 |
| 28.08.2007 | Loss of control of a banner towing aircraft, 18 August 2003 |
| 30.08.2007 | Inadvertent loss of altitude during approach, 30 November 2004 |
| 13.09.2007 | Explosion of natural gas condensation tank at Nederlandse Aardolie Maatschappij (NAM) in Warffum, 31 May 2005 |
| 20.12.2007 | Derailment at Amsterdam Central Station, 15 August 2005 |

Overview of interim investigation reports

| 27.11.2006 | Boeing B747-200(F), Amsterdam, 17 July 2006 |
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| 27.11.2006 | Airbus A321, Rotterdam, 18 July 2006 |
| 21.12.2006 | Boeing 737-900, Amsterdam, 12 August 2006 |
| 21.12.2006 | Cessna Citation 525, Amsterdam, 25 October 2006 |
| 21.12.2006 | Alitalia Boeing MD-82,Amsterdam, 22 May 2006 |
| 29.03.2007 | Emergency Landing of a Eurocopter Super Puma L2 Search and Rescue Helicopter), North Sea, 21-11-2006 |
| 23.08.2007 | Fokker F 50, Groningen, 18 May 2005 |

Overview of reports on short investigations

| 17.08.2005 | Overrun following Rejected Take Off, Hoogeveen, 19 August 2001 |
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| 17.08.2005 | Crash in a Crop Field, Mussel, 30 May 2002 |
| 17.08.2005 | Low Altitude Turn following Engine Malfunction, Onstwedde, I June 2006 |
| 17.08.2005 | Collapsed right landing gear), Beek, 15 June 2002 |
| 17.08.2005 | Cylinder breaks away from engine block during flight, 29 July 2002 |
| 17.08.2005 | Departure with insufficient fuel, 's-Gravendeel, 30 August 2002 |
| 17.08.2005 | Crash following practice of steep turns, Dalmsholte, 8 September 2002 |
| 17.08.2005 | Undershoot at finals, Schindveld, 7 July 2003 |
| 17.08.2005 | Stall during Approach, Terlet, 20 June 2003 |
| 17.08.2005 | Emergency landing due to insufficient fuel, Texel, 11 June 2003 |
| 17.08.2005 | High weight and poor grass runway condition, Lelystad, 16 March 2003 |
| 17.08.2005 | Stall of left wing during landing, Lelystad, 15 March 2003 |
| 17.08.2005 | Crashed shortly after take off, Grubbenvorst, 11 January 2003 |
| 01.12.2005 | Failure to recover from a spin, near Huijbergen, 28 June 2003 |
| 23.05.2006 | Stopping off the runway after landing, Teuge, 10 July 2003 |
| 23.05.2006 | Hitting a fence during landing, near Groesbeek, 13 July 2005 |
| 23.05.2006 | Hitting a tractor during landing, Eindhoven, 24 August 2003 |
| 23.05.2006 | Overturned during taxiing, Schiphol, 31 August 2003 |
| 23.05.2006 | Hitting an ILS antenna during landing, Lelystad, 7 December 2003 |
| 23.05.2006 | Hard touchdown during uncontrolled landing, Geesteren, 24 April 2004 |
| 23.05.2006 | Collapsed front landing gear during landing, Eelde, 6 May 2004 |
| 23.05.2006 | Emergency landing due to blocked air intake, Den Helder, 24 May 2004 |
| 23.05.2006 | Engine cut out during landing due to insufficient fuel, Rotterdam, 20 July 2004 |
| 23.05.2006 | Engine stopped during flight, Lelystad, 12 October 2004 |
| 23.05.2006 | Runway excursion while taxiing, Budel, 21 March 2003 |
| 23.05.2006 | Problems during landing due to open brake valves, Nistelrode, 23 April 2005 |



- 23.05.2006 Wingtip touches ground during take off, Lemelerveld, 13 May 2005
- 23.05.2006 Right wing touches ground during take off, Leeuwarden, 14 May 2005
- 23.05.2006 Loss of altitude and collision with a building, Kilder, 15 May 2005
- 23.05.2006 Overturn during landing, Lelystad, 25 May 2005
- 22.06.2006 Damaged due to flying through a cumulonimbus cloud, German airspace, 2 June 2006
- 22.06.2006 Damaged during landing due to failure to extend landing gear, Groningen, 26 June 2003
- 22.06.2006 Damaged during emergency landing, Hank, 10 November 2003
- 22.06.2006 Damaged during glide landing practice, Seppe, 8 May 2004
- 22.06.2006 Rapid loss of altitude shortly after take off and contact with the ground, near Oudehorne, 17 June 2003
- 22.06.2006 Damaged during landing, Central Zeeland, 26 June 2004
- 22.06.2006 Damaged during emergency landing due to insufficient fuel, Lelystad, 30 July 2004
- 22.06.2006 Damaged during slip landing practice, Malden, 25 September 2004
- 22.06.2006 Crashed following dangerous manoeuvre in poor visibility, East of Terlet, 28 March 2005
- 06.09.2006 Blocked elevation rudder trim during landing, Dutch airspace, 2 April 2003
- 06.09.2006 Broken fuselage following check flight, Terlet, 6 May 2004
- 06.09.2006 Low fuel emergency during diversion, Bremen, 17 July 2004
- 06.09.2006 Heavy damage to Micro Light Aeroplane after take off), Grubbenvorst, I May 2005
- 06.09.2006 Emergency landing following engine malfunction, Kats, 20 May 2005
- 06.09.2006 Return following landing rear problems, Amsterdam, 14 September 2005
- 21.12.2006 Engine malfunction during take off resulting in the ejection of detached components), Amsterdam Airport Schiphol, 29 June 2005
- 21.12.2006 Rough landing during instruction flight, Lelystad, 22 March 2003
- 21.12.2006 Rejected take off, Amsterdam, 6 July 2004
- 21.12.2006 Runway excursion and overturn, Groningen, 8 November 2004
- 21.12.2006 Damaged following emergency landing, Lelystad, 2 April 2005
- 21.12.2006 Belly landing during instruction flight, Maastricht, 15 April 2005
- 21.12.2006 Pilot error in transition from hovering to forward flight, near Medemblik, 8 June 2005
- 21.12.2006 Crashed during instruction flight, 10 July 2005
- 21.12.2006 Emergency landing following engine malfunction, near Naarden, 14 January 2006
- 12.07.2007 Crashed outside landing area, Teuge, 15 August 2003
- 12.07.2007 Runway excursion while taxiing, Rotterdam, 12 January 2004
- 12.07.2007 Damaged due to jet blast while taxiing, Amsterdam, 19 September 2004
- 12.07.2007 Landing problems during instruction flight, Wieringermeer, 16 July 2005
- 12.07.2007 Emergency landing due to engine malfunction, near Terneuzen, 27 July 2005
- 12.07.2007 Runway excursion due to brake malfunction, Terlet, 8 September 2005
- 12.07.2007 Crashed in meadow, near Clinge, 9 December 2005

APPENDIX 4. GENERAL ACCOUNTING PRINCIPLES USED IN THE PREPARATION OF THE

FINANCIAL STATEMENTS

General

The valuation of assets and liabilities and determination of the balance of income and expenditure takes place on the basis of historical costs. Unless otherwise stated in an explanatory note to the accounting principle applied to a specific item on the balance sheet, assets and liabilities are carried at face value.

Income and expenditure is allocated to the year to which it relates. Profit is only recognised to the extent that it has been realised on the balance sheet date. Accounts payable and possible losses that have a point of origin prior to the end of the year under review are recognised if they have become known before preparation of the financial statements.

Tangible fixed assets

Tangible fixed assets are valued at acquisition price less the cumulative depreciation and, if applicable, taking into account exceptional reductions in value. Depreciation is based on the estimated useful economic life and is calculated on the basis of a fixed percentage of the acquisition price, taking into account any residual value. Depreciation commences from the point at which the given asset is put into operation.

Receivables

Receivables are carried at face value net of provisions deemed necessary to cover the risk of doubtful debts. These provisions are determined on the basis of individual assessments of the receivables.

Revaluation reserve

A revaluation reserve is formed that corresponds with the book value of assets acquired free of charge. Formation takes place per transaction of assets acquired free of charge, each time in the amount corresponding with the book value of the asset in question at the time of transfer. This reserves expires in parallel with the depreciation of the assets acquired free of charge.

Reserve for reinvestments

The Dutch Safety Board uses the reserve for reinvestments to ensure continuity with regard to the operational resources it requires to carry out its duties. Contributions to the reserve for reinvestments are made each year in the amount of the notional depreciation of fixed assets.

Reserve for commitments relating to investigations

The reserve for commitments relating to investigations comprises commitments undertaken vis à vis third parties insofar as performance has not been completed as at the balance sheet date.

Provisions

Provisions are made for known commitments and losses. The same applies to risks associated with future commitments and losses subject to the condition that these can be reasonably estimated and have a point of origin in the current financial year. Unless stated otherwise, provisions are carried at the face value of the expected commitments.

Other assets and liabilities

Other assets and liabilities are carried at face value unless stated otherwise.

Cash flow statement

The cash flow statement is prepared according to the indirect method.

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History

The Netherlands has a long tradition of investigation into the causes of disasters and accidents. Indeed, the transport sectors have had bodies charged with monitoring safety since the beginning of the 20th century: the Maritime Court of the Netherlands has been in existence since 1909, the Inland Navigation (Accidents) Act Committee was established in 1931, the Aviation Safety Board in 1937 and the Railway Accidents Board in 1956. Although these bodies issued independent final opinions, the actual investigations were carried out mainly by the various inspectorates of the Ministry of Transport, Public Works and Water Management. The 1990s witnessed a shift in this regard, as calls for independent investigations placed entirely within the mandate of designated investigative organisations became increasingly vocal. This led to the establishment in 1999 of the Transport Safety Board, an organisation charged with carrying out all investigations in the transport sectors, including road traffic and pipeline networks. An additional aim in setting up this organisation was to explicitly separate the question of guilt from the investigation in order to maximize what could be learned from incidents and accidents. The earlier Aviation Safety Board retained disciplinary powers until 1992, while the Maritime Court of the Netherlands still has them.

The developments and process of convergence described above subsequently led to motions being submitted in the House of Representatives for the expansion of independent investigation to all sectors. After all, why should independent investigations be carried out in the transport sectors by a permanent investigative board while, by contrast, ad hoc committees had to be set up following major incidents in other sectors? Following the fireworks disaster in Enschede (13 May 2000), an explosion which resulted in considerable human and material loss, and a fire in a café in Voldendam (New Year's Day 2001) which claimed over a dozen lives and injured close to 200, the government adopted the motions. Preparations were then made for the drafting of an Act to establish a Safety Board authorized to conduct investigations throughout the Kingdom of the Netherlands into incidents (disasters, accidents and near accidents) in the various transport sectors and in the areas of defence (military), trade and industry, healthcare, nature and the environment, and crisis management & relief operations.

Establishment of the Dutch Safety Board

The Dutch Safety Board Act entered into force on 1 February 2005 and, on February 7 of the same year, the Board was officially installed by the Minister of the Interior and Kingdom Relations.

By virtue of the Kingdom Act by which it was established, the Dutch Safety Board is an independent administrative body that carries out independent, integral investigations into the causes or probable causes of incidents or categories of incidents. As defined by law, "incidents" is understood to mean actual disasters and accidents as well as events in a potential sense; incidents, in other words, that could have resulted in human and/or material loss. Furthermore, the Dutch Safety Board is authorised to investigate incidents in "all conceivable sectors". In practice, the Board currently works according to the following classifications: aviation, ocean shipping, rail transport, road traffic, military, human and animal health, industry and pipeline networks, construction and provision of services, water, and crisis management & relief operations.

Scope and object

The object of the Dutch Safety Board's activity is to "prevent future incidents or limit their consequences". The purpose of an investigation carried out by the Dutch Safety Board is therefore not merely to uncover the immediate causes of an incident but also, and primarily, to trace the underlying causes in order to identify shortcomings in the overall system in question. If, therefore, the investigative process reveals structural shortcomings, the Board will subsequently formulate recommendations aimed at resolving such problems and preventing recurrence or at least limiting the consequences of future incidents. In addition to government authorities, parties to whom recommendations may be addressed include private individuals, organisations and companies.

Investigation into the issue of guilt or liability is expressly excluded from the Dutch Safety Board's activity. Recommendations issued by the Board therefore do not encompass suspicion or allegations in this regard. Explanations provided by the Board within the context of an investigation, information it has gathered, results of technical studies and analyses and documents prepared – including the published investigation report – may not be used as evidence in criminal, disciplinary or civil proceedings. Among other things, this means that, in addition to the work performed by the Board, separate (criminal) investigations may be carried out to determine the issue of guilt.

With regard to comparatively less serious incidents, it is also sometimes the case that other agencies, such as government inspectorates, carry out their own investigations in addition to the one conducted by the Dutch Safety Board. This is in part because the Board may always decide to discontinue a given investigation if it concludes – and this may already occur in the initial, exploratory phase of an investigation – that nothing or not enough can be learned from the incident in question for future purposes. In such situations, other parties such as judicial authorities or government inspectorates may decide to continue their own investigations for reasons that are relevant to their own respective functions. Moreover, as stated in the previous paragraph, the Dutch Safety Board may not pass information acquired through its own investigations on to third parties, which means that it may at times be necessary for such parties to gather their own information.

Disturbances of public order, law enforcement by competent authorities and the actions of the armed forces in war situations or during operations to enforce international law (peacekeeping missions) fall outside the investigative scope of the Dutch Safety Board. Incidents that occur in war situations and during peacekeeping missions that are evidently not the result of a military action can be investigated, however.

Assessment framework

In addition to prevailing legislation and regulations and sector specific standards, the Dutch Safety Board applies its own assessment framework during investigations. Among other things, this framework defines the way in which, in the opinion of the board, the parties involved in an incident should have organised and exercised individual responsibility. Furthermore, this framework is based on generally accepted and implemented standards as well as national and international legislation and regulations, such as Section 5 of the Working Conditions Act, which obliges an employer to carry out a Risk Inventory and Evaluation (RI&E) and take appropriate measures on that basis.

The Dutch Safety Board Act specifies a number of areas with respect to which, by virtue of international commitments, investigations must always be carried out. These obligations apply mainly to aviation and ocean shipping (not yet in force), as well as to rail transport and accidents which resulted in the release of hazardous substances. Apart from these areas, the Dutch Safety Board is free to decide for itself, on the basis of its own responsibility to society at large, which incident or series of incidents to investigate.

Procedure

In order to minimize the probability of error and enable the parties involved to exercise their right to hear and be heard, the Dutch Safety Board adheres to an inspection procedure. This means that the draft version of an investigation report, excluding a leading foreword and recommendations, is made available to the parties involved with an accompanying request to provide commentary within a month. Insofar as the Dutch Safety Board agrees with the commentary thus provided, it is then incorporated into the definitive version of the report. Where the Board has concluded that a particular comment or set of comments does not warrant a change in the substance of the report, substantiating reasons are provided in the definitive version, usually in an appendix.

Following publication of the report and its forwarding to the parties to whom recommendations have been directed, these parties have a maximum period of six months, in the case of government organisations, or 12 months, in the case of private parties, to respond. The response must be directed to the minister responsible for the professional field concerned. A copy of this response must simultaneously be sent to the chairman of the Dutch Safety Board and the Minister of the Interior and Kingdom Relations. This enables the ministry involved to determine what follow up action to take on the basis of the recommendations. In contrast to its predecessor, the Transport Safety Board, the Dutch Safety Board is legally empowered to carry out checks to ascertain the follow up action actually taken in response to its recommendations.

Powers

Specific and far reaching powers have been vested in the Dutch Safety Board for the carrying out of investigations; powers that make it possible to collect and protect large quantities of information that is also, at times, unique in nature. The Dutch Safety Board Act guarantees the protection of that information, i.e. information obtained by the Board is not made available to third parties.

The powers of Dutch Safety Board investigators are set out in the Dutch Safety Board Act, in such a way as to enable investigators to obtain whatever information they believe is relevant. As such, investigators are authorised to enter buildings to gather information such as, for example, radar images, tape recordings, documents or witness statements, and to collect items for further investigation. Moreover, investigators are empowered to demand that wreckage parts not be immediately removed following an accident and that an accident scene be left unchanged to the greatest extent possible during the opening phase of an investigation. Obviously, the provision of assistance to any victims always takes precedence. The same applies to limiting material and environmental damage. For that reason, investigators always work in close cooperation with relief workers, the police and other staff of the Ministry of Justice. Where possible, Dutch Safety Board investigators make use of incident related information gathered by the police and other staff of the Ministry of Justice. Investigators will not, however, make information available to the police and other staff of the Ministry of Justice.

Dutch Safety Board investigators do not always immediately proceed to the scene of an incident. The various organisations involved investigate the facts on the basis of their own respective responsibilities. In certain situations, therefore, the Dutch Safety Board may opt to launch an investigation at a later stage, making use of the (mainly technical) results of investigations carried out by other parties. The Dutch Safety Board only adopts such a course of action when it believes that an investigation focusing on underlying causes would have added value.

