

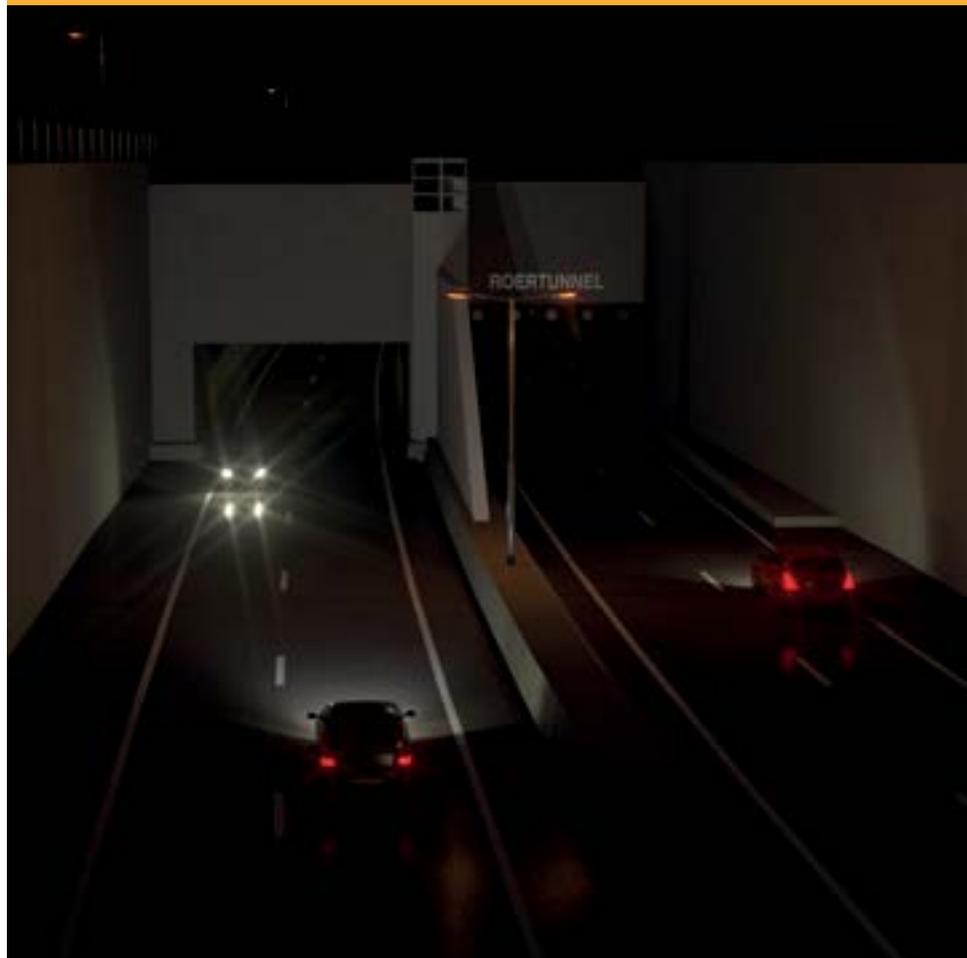


DUTCH
SAFETY BOARD

Summary

Wrong-way driving accident on the A73 motorway

Learning from road traffic accidents



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Learning from road traffic accidents

The Hague, September 2020

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The Dutch Safety Board

When accidents or disasters happen, the Dutch Safety Board investigates how it was possible for these to occur, with the aim of learning lessons for the future and, ultimately, improving safety in the Netherlands. The Safety Board is independent and is free to decide which incidents to investigate. In particular, it focuses on situations in which people's personal safety is dependent on third parties, such as the government or companies. In certain cases the Board is under an obligation to carry out an investigation. Its investigations do not address issues of blame or liability.

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N.B. The full report is published in the Dutch language. If there is a difference in interpretation between the Dutch report and English summary, the Dutch text will prevail.

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At just before 22.30 hours on the evening of 19 November 2017, a fatal collision took place on the A73 motorway near Roermond, between a wrong-way driver and another road user. The accident raised a number of questions within Rijkswaterstaat, such as: how could the wrong-way driver have driven through the Roertunnel without being detected and without the tunnel operators being notified. Rijkswaterstaat commissioned Royal HaskoningDHV to carry out the investigation into this accident. During the course of the investigation into the accident, it emerged that in 2010, Rijkswaterstaat had commissioned an investigation into a wrong-way driving accident on the same section of road, and that it was unknown to what extent the recommendations from that investigation had been followed up. The Minister of Infrastructure and Water Management called upon the Dutch Safety Board “to launch an investigation into the accident in order to remove any uncertainties, where possible, and to answer the question what lessons could be learned. The evaluation of the previous accident in the Roertunnel in 2010, the investigation by Royal HaskoningDHV and the road design at the time of the accident will be included.”¹ The Board complied with this request, and based on its independent position structured the investigation in its own way.

In its investigation, the Board subjected the information available about both accidents to further analysis and added further details that were not available in the investigations by Rijkswaterstaat. As a result, a number of the still unanswered questions could be answered and it was concluded that for several of the other questions, the information needed to provide an answer is not available. Because the process of learning from accidents is vital to improving safety, the Board also investigated how Rijkswaterstaat and other parties investigate accidents and how lessons are learned from those investigations.

The accident in 2017

On 19 November 2017, the driver entered the motorway at the Maasbracht exit, against oncoming traffic. After driving through the Roertunnel, having travelled 9.4 km wrong-way on the A73, he was involved in a head-on collision with another road user, who at the time was overtaking on the left-hand lane. Both drivers were killed as a result of the accident. Any accident is the result of a combination of factors (road layout, weather conditions, light conditions, visibility, traffic conditions, fitness to drive, etc.). Because of the death of the wrong-way driver, the investigation for criminal prosecution was halted. Information received by the Board showed that the blood and urine samples had been disposed of. As a result, it was no longer possible to determine whether at the time of the accident the driver’s ability to drive was impaired due to substance use.

¹ Parliamentary Papers II 2018-2019, 29 296, no. 35. Letter to Parliament from the Minister of Infrastructure and Water Management about the evaluation of a fatal accident involving a wrong-way driver on the A73 motorway, 27 December 2018.

The route

Despite the fact that the Maasbracht exit complies with the guidelines, it does represent an increased risk of wrong-way driving. This is due to the intersection being incomplete, the signposting provides no clear indication to road users for more southerly destinations, the road signs do not indicate a clear prohibition against turning off, and an incorrect turn to the exit is not rendered impossible or illogical, by physical means. In addition, once on the A73 motorway, in quiet traffic conditions and certainly in darkness and in rainy conditions, there are few further indications for a wrong-way driver that he is indeed travelling in the wrong direction on a motorway.

The report

As soon as the wrong-way driver joined the motorway in the wrong direction, other road users started calling the 112 emergency number to report the dangerous situation. The reports of the wrong-way driver were passed on both via the Dutch Traffic Control Centre (VCNL) to the regional traffic control centre and via the regional emergency control room to the regional traffic control centre, where confusion arose about the position of the wrong-way driver. The report was transferred by telephone on a number of occasions. This process lasted several minutes, and as a result the report led to traffic measures being taken after the accident had already occurred. The traffic measures that were taken were nonetheless valuable in dealing with the consequences of the accident.

Investigating and learning from the wrong-way driving accidents in 2010 and 2017

Rijkswaterstaat commissioned evaluations in response to the wrong-way driving accidents in both 2010 and 2017. The focus of these evaluations was placed on the tunnels, and in particular on reporting and detecting wrong-way drivers. The evaluations did not consider preventing wrong-way driving as such.

Lessons from the accident investigations 2010

Rijkswaterstaat learned from the problems involving the tunnel systems that were revealed by the evaluations of the accidents on the A73 motorway and from problems with the technical tunnel installations at the moment of the opening of the tunnels in the A73 motorway. This led to the introduction of the National Tunnel Standard (LTS). All new tunnels are built in accordance with this standard. Wherever and whenever possible, existing tunnels are adapted to meet this new standard. The accident in 2010 was investigated as a tunnel accident, focusing on tunnel systems and procedures. In respect of the measures taken to reduce the sensitivity of the wrong-way driver detection system, the main focus was not placed on the expectations of the people required working with the system. Concentrating on the role of the tunnel also meant that the accident investigation failed to generate new insights which could have led to measures aimed at preventing accidents involving wrong-way drivers (whether or not in relation to tunnels).

Lessons from the accident investigation in 2017

The accident in 2017 was primarily investigated as a tunnel accident. Attention was focused on the detection and reporting of the wrong-way driver. Any attention for the prevention of wrong-way driving was above all concentrated on the question whether the road design complied with the guidelines. The route taken by the wrong-way driver was not subsequently reconstructed. A reconstruction of the actual route taken is

essential in order to gain an insight into the elements of the road layout which could be relevant in helping to prevent wrong-way driving in the future. In response to complaints, the Province of Limburg did examine the road situation and, on the basis of incomplete accident information, carried out a number of local adjustments.

Lessons from research into wrong-way driving

To explain wrong-way driving accidents and to be able to take effective measures, accident investigations must be provided with scientific insights into the phenomenon and vice versa. One obstacle to this approach is that there is no up-to-date or location-specific overview of the problem of wrong-way driving in the Netherlands.

International experience with innovations in measures aimed at tackling wrong-way driving could be better used in tackling the problem in the Netherlands.

Learning from accident investigations

To be able to learn from an accident, it is essential to systematically examine how the various accident factors interact with one another, and how accidents arise.

Assumptions and choices in the focus of the accident investigations undertaken

The investigations by Rijkswaterstaat reveal implicit assumptions and explicit choices with regard to the focus and object of the accident investigations. These choices clearly influenced the outcome of the investigations. The investigations by Rijkswaterstaat were concentrated mainly on the tunnels on the A73 motorway. Given the prior history of these tunnels and the focus on tunnels in general, it is understandable that the investigations into the wrong-way driving accidents concentrated mainly on tunnels, and not on the phenomenon of wrong-way driving itself.

The investigation questions drawn up by Rijkswaterstaat for the evaluation of the wrong-way driving accidents on the A73 motorway are focused mainly on compliance with standards. However, preventing wrong-way driving accidents in the future also requires reflection on the principles that underly these standards. An accident investigation that contributes to learning calls for a search for explanations as to how the accident could happen, and questions the principles employed.

The investigations by Rijkswaterstaat into the wrong-way driving accidents in 2010 and 2017 were focused on how the organization itself responded. This narrow view restricted the consideration of explanations for the occurrence of the accident and of possibilities for improvement.

In the evaluation of the accident in 2017 that was published in December 2018, the emphasis was placed on how individuals handled the situation. The factors relevant at the level of the Rijkswaterstaat organization and the surrounding context appeared in chapters which were left out due to a legal assessment prior to publication. At the time, this hindered Rijkswaterstaat in its capacity to learn about its own role in the accident.

Learning from accidents calls for a coherent approach by all parties involved. Rijkswaterstaat did not involve the Province of Limburg and the police in the accident investigation. Wrong-way driving is an example of a safety problem for which Rijkswaterstaat needs input from other parties in order to gain an insight into the factors that result in wrong-way driving, and to introduce countermeasures. There are other examples of accident investigation in which Rijkswaterstaat drew joint lessons together with other parties involved.

Essential conditions for learning

In the event of accidents where prosecution is not possible, the Public Prosecution Service halts any investigation by the police. Legislation and regulations do not yet provide any grounds for a broader role for the police enabling them to investigate accidents in order to identify insights necessary for improving road safety. As a consequence, Rijkswaterstaat lacks information that is essential for improving safety, while victims and possible next of kin are left with unanswered questions.

In these cases there is also no investigation being carried out to determine whether the driver was under the influence of alcohol, drugs or medication at the time of the accident. As a consequence, there is no information available about the extent to which substance use may have played a role.

To be able to learn from accidents, a safe environment is needed in which staff (employees, suppliers) are willing to speak out. It is therefore of vital importance that the management of Rijkswaterstaat expresses its view on making mistakes (that it is not a question of failure, but that the primary objective is to learn from mistakes). Rijkswaterstaat faces a dilemma between confidentiality and public openness, and experiences tension in respect of liability and prosecution. This can be a barrier to learning.

The criminal legal framework results in criminal investigations aimed at the culpable conduct of individual parties involved and assessing that conduct according to the standards of criminal law. The criminal legal framework can itself hinder the investigation into explanations and improvement measures at system level, that are needed in order to improve safety.

Serious road traffic accidents lead to considerable suffering for those involved and their next of kin. The cost to society as a result of road traffic accidents is also considerable. In that light, road managers may be expected to constantly make every possible effort to learn from road traffic accidents, in order to reduce the risk of recurrence as far as possible. In this report, the Dutch Safety Board has investigated the way in which Rijkswaterstaat and other organizations learn from road traffic accidents.

In this investigation, the Board observed that Rijkswaterstaat has developed practices for learning from serious road traffic accidents, such as the wrong-way driving accident as described in this report. In certain cases Rijkswaterstaat uses external experts. On the basis of the analysis of the learning process following this wrong-way driving accident, the Board concludes that accident investigations by Rijkswaterstaat can be improved in a number of ways, so that the lessons from the investigation make a greater contribution to road safety.

In response to the wrong-way driving accident on the A73 motorway, Rijkswaterstaat investigated whether the standards had been complied with. However, compliance is not enough for preventing future accidents. It is just as important to assess whether those standards are (still) sufficient. In the investigation by Rijkswaterstaat into this wrong-way driving accident, and in other investigations into road traffic accidents, this latter question was left unanswered.

It is also essential that organizations (like Rijkswaterstaat) do not search for factors that result in a road traffic accident in isolation. The wrong-way driving accident in this report, for example, started on a road section operated by another road manager, but Rijkswaterstaat did not involve this manager in the investigation. A number of different organizations are responsible for road safety in the Netherlands: Rijkswaterstaat and other road and tunnel managers, the police, the Public Prosecution Service, and the Ministry of Infrastructure and Water Management. All these organizations should be involved in accident investigations to systematically determine what can be learned from road traffic accidents in order to prevent similar accidents recurring in the future.

Also notable is the fact that the police halts its investigations when possible suspects are killed; the reason being that there is no criminal case to be prosecuted. As a consequence, information crucial to the accident investigation, such as information about the use of alcohol, drugs or medication by the killed drivers, can be lost. In the interests of road safety, but also in the interests of those directly involved and possible next of kin, the Board finds that the police and other parties involved should carry out and complete their investigations in full. Any legal obstacles to a complete investigation should be removed.

Finally a factor that played a role was that Rijkswaterstaat felt inhibited in its learning process by the fact that its employees and suppliers as natural persons are subject to criminal prosecution for their individual actions in implementing their work. Developments in society increase the perception that the risk of criminal prosecution is real. It is essential that people involved in an accident feel safe in sharing their observations and insights in order to be able to learn from accidents.

First and foremost it is up to Rijkswaterstaat to ensure that any obstacles to optimum learning from accidents are removed. A twofold strategy could contribute, starting by reinforcing the level of professionalism at Rijkswaterstaat: learning must be embedded in the organizational learning culture, in which professional standards are employed, and which ensures a continuous process of reflection at all levels in the organization. Secondly, it is essential that Rijkswaterstaat and the Public Prosecution Service join forces in identifying a balanced distribution of tasks in promoting road safety – after all, both organizations have emphasized the fact that they recognize the importance of that particular objective. Criminal prosecution may play a role, but a limited one (*ultimum remedium*). With this in mind, the Dutch Safety Board has issued a number of recommendations in relation to this investigation.

RECOMMENDATIONS

To the Minister of Infrastructure and Water Management:

1. Encourage insight into the problem of wrong-way driving within the Ministry and at Rijkswaterstaat and use the knowledge acquired to take preventive measures. In that respect, at least the following actions must be taken:
 - Start with the situation on the A73 motorway as described in this report. Take measures at this wrong-way driving location and any comparable locations, to ensure that the risk of wrong-way driving is reduced as much as reasonably possible.²
 - Collect information about the nature and scope of the problem of wrong-way driving.
 - Organize a trial with detection and alarm notices for wrong-way drivers on exits.
 - Investigate and implement measures aimed at ensuring that a report about a wrong-way driver is passed on as quickly as possible to as many road users as possible.
 - Improve the effectiveness of existing guidelines aimed at preventing wrong-way driving, and broaden the opportunities for tunnel managers to respond.³
 - In all these activities, work together with other road managers.

2. Promote the effectiveness of the investigation into road traffic accidents. With that in mind, at least take the following measures:⁴
 - Develop criteria to determine which road traffic accidents and near accidents should be investigated.
 - Ensure that those investigations are carried out in such a way that they offer an insight into the accident factors. Do not only investigate whether standards, guidelines and protocols have been complied with, but also whether they remain adequate.
 - Involve all relevant parties in these investigations, including other road managers and the police.
 - Ensure that there is a working environment within Rijkswaterstaat in which staff are safe and feel safe to express their opinions and to reflect on errors made, to allow optimum learning from accidents.

² Chapter 2 of this report describes those elements of the road infrastructure that played a role in the occurrence of this accident and which therefore require changes, in as much as these changes have not already been implemented.

³ This recommendation ties in with Chapter 3 and Appendix E to this report.

⁴ This recommendation ties in with Chapter 3 and sections 4.1 and 4.2 of this report.

To the Minister of Infrastructure and Water Management and the Minister of Justice and Security:

3. Adjust the legal framework for road traffic accident investigations so that the police are able to collect all relevant information about road traffic accidents, even if there is no criminal prosecution. This applies in particular to investigations into the use of alcohol, drugs or medication while participating in traffic.⁵

To the Public Prosecution Service and Rijkswaterstaat:

4. Ensure a better mutual understanding of one another's working methods by holding executive discussions both on a periodic basis and in response to specific accident investigations and evaluations. Also explain the guidelines employed by the Public Prosecution Service in considering whether or not to start criminal proceedings in response to an accident to staff and contractors of Rijkswaterstaat.

⁵ This recommendation ties in with section 4.2 of this report.



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