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Harry van den Tweel and Eelco Beukers

Introduction

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In 2002 the Dutch government and chlorine manufacturer Akzo Nobel signed an agreement to bring large-scale chlorine transportation in the Netherlands to an end in 2006. This agreement is unique: no other country in the world has banned the transportation of chlorine.

This is the summary of the book 'Onder druk wordt alles vloeibaar; een geschiedenis van het chloortransport in Nederland' which means: 'Everything flows under pressure; a history of chlorine transportation in the Netherlands'. In this summary you 'll find a brief description of the way towards the agreement between the Dutch government and Akzo Nobel.
The summary was written at the request of the Dutch ministry of Housing, Spatial Planning and the Environment by the authors of the book mentioned before, Harry van den Tweel en Eelco Beukers.

Summary

In 2002 the Dutch government and chlorine manufacturer Akzo Nobel signed an agreement to bring large-scale chlorine transportation in the Netherlands to an end in 2006. This agreement is unique: no other country in the world has banned the transportation of chlorine.

There is a long history to this extraordinary agreement. The acceptability of transporting chlorine by rail was first debated as long ago as 1968. This prompted the government of the time to impose extra safety measures and put pressure on manufacturers to sharply reduce the amount of chlorine being transported (1972-1973). No ban was introduced, however.

In an entirely independent development, public interest in the transportation of chlorine began to grow from 1976 onwards. At various times between 1976 and 2000 the debate would heat up, almost always in response to a major accident involving a hazardous substance. The protests were not very effective, however. On only one occasion was a route changed. But they did succeed in making the 'chlorine train' a powerful symbol for the Dutch of the hazards of an industrialised society. Increasingly, politicians of various political hue adopted the view that chlorine transportation through heavily populated areas simply could not be justified to the public.

By the time chlorine trains became the focus of public attention again in 2000 (this time in response to two derailments and a firework factory explosion), the climate of opinion in the Netherlands was such that drastic measures had become virtually inevitable. Local and regional authorities, political parties, environmental groups and many members of the public felt that the time was ripe for a ban on the transportation of chlorine. Though manufacturer Akzo Nobel insisted that chlorine transportation in the Netherlands met all the requirements, it did concede that it would be best to work towards a situation in which it would no longer be necessary, with production and processing taking place on the same site. And there was now a Minister of Housing, Spatial Planning and the Environment who, from the moment he took office, had made public safety one of his main political priorities. He was keen to see progress on this issue.

One important stumbling block, however, lay in the fact that it would take major investments to combine chlorine production and processing at one site. Akzo Nobel let it be known that it could not and would not

bear these costs alone, as this would make chlorine production in the Netherlands financially unviable. The company demanded that the government contribute towards the investments needed. This was a sensitive matter, since European legislation imposes strict conditions on state financial assistance for companies. Furthermore, the minister regarded Akzo Nobel's original estimate of the necessary government contribution as entirely disproportionate. Finally, staff and unions at Akzo Nobel were concerned about the impact on local jobs, some of them in economically weak regions.

Ultimately, after two years of negotiation, and under intense public pressure, the parties were able to reach agreement. After much deliberation, it was found that the company's activities could be rearranged in such a way that chlorine transportation could be brought to an end without jeopardising the profitability of the divisions concerned. Unpopular decisions on jobs would however be unavoidable. It was also uncertain for a long time whether the financial assistance for relocating parts of the company (between € 56 and 64 million) would be permissible under European law. On 16 June 2004, almost two years after the Dutch government and Akzo Nobel signed an agreement in principle, Brussels gave the green light. A little over two years later, the last regular chlorine transportation took place in the Netherlands.

Never before had chlorine transportation been terminated for political rather than commercial reasons. However, the Dutch solution has its limitations. It is based on an agreement between the government and a single company (and its legal successors). So there is no absolute ban on chlorine transportation in the Netherlands. This would in fact contravene European law. It would therefore theoretically be possible for other companies to build chlorine plants at locations that would again require chlorine to be transported around the country. 'Theoretically', because the government will in the near future have the tools it needs to ensure this does not happen. Transit through the country cannot be ruled out, on the other hand. Any company that tried to initiate new movements of chlorine around the Netherlands would, however, meet with fierce public opposition.

The end of chlorine transportation in the Netherlands

In 2002 the Dutch government and chlorine manufacturer Akzo Nobel entered into an agreement designed to bring the large-scale transportation of chlorine around the Netherlands, which had begun in the 1950s, to an end in the foreseeable future. Four years later, on 10 August 2006, the last regular 'chlorine train' ran in the Netherlands.

The agreement between Akzo Nobel did not just happen overnight, however. Since the late 1960s, there had been a debate in the Netherlands about the acceptability of large-scale chlorine transportation. The history of this debate and its implications were studied in 2006.[1] This memorandum/article sets out the findings of that study. The focus is on events since 2000, the first three pages merely giving a brief impression of the period prior to that.

The rise of mass chlorine transportation

Production of chlorine (Cl_2) began relatively late in the Netherlands. It started during the First World War, when the Dutch were forced to begin producing the raw materials they had previously imported. Initially, they used electrolysis installations with a very limited capacity. Chlorine was probably being transported around the Netherlands in the 1920s, or even earlier, albeit not in very large quantities. It was not until the Second World War that the quantities of chlorine being transported increased rapidly, and manufacturers began to use tankers for the purpose. A further scaling up occurred when major petrochemical company Shell began producing polyvinylchloride (PVC) in Rotterdam in 1949. From that point on, there was a massive increase in the demand for chlorine in Rotterdam. Demand in the Netherlands, which had been around 10,000 tonnes a year, rose forty-fold between 1946 and 1970.

For various reasons, Dutch chlorine was not initially produced in Rotterdam. The pre-war electrolysis installations were in the east of the country, in Boekelo and Hengelo, in a salt-mining area, and in the south, in Linne-Herten, close to the German and Belgian markets. In 1959 a new electrolysis installation was commissioned in the far northeast, in Delfzijl, again close to a salt mine. This location had been chosen partly in an attempt by the Dutch government to foster economic development in the northeast.

1 Eelco Beukers and Harry van den Tweel, Onder druk wordt alles vloeibaar. Een geschiedenis van het chloortransport in Nederland ('Everything flows under pressure. A history of chlorine transportation in the Netherlands', Utrecht 2006).

In 1960, therefore, all chlorine was manufactured on the other side of the country from the main consumer, in Rotterdam, which is in the southwest. All the chlorine therefore had to be transported across the country. It was not until 1961 that a chlorine plant was constructed in Rotterdam itself. Though this plant would rapidly increase in capacity, the other electrolysis installations were also regularly extended and modernised. So chlorine continued to be transported around the country. In 1970, the amount of chlorine transported in the Netherlands passed the 100,000 tonne mark for the first time. Long chlorine trains ran almost daily through many of the country's main population centres. And there was no sign of the growth – in either demand or transportation – abating.

Measures in the 1970s

Large-scale transportation of chlorine was not regarded as a problem in the 1950s and '60s. The general public were not concerned about the growing volume of chlorine being transported by rail. Only a small group of people were alarmed. Some experts pointed out to the authorities the risks associated with transporting chlorine through heavily populated areas.

As far as is known, the chemist Henri Boddaert was the first to meet with any success. After a huge explosion in an oil tank, in 1968 Rotterdam city council commissioned him to identify the risks posed by hazardous substances in the city's port. He found that one substance rose head and shoulders above the rest: chlorine. Boddaert therefore advocated that the manufacture and transportation of chlorine be subjected to stringent rules and restrictions.

Around 1970 the efforts of Boddaert and others began to set alarm bells ringing with the authorities, even up to the highest level. The stakeholders looked at the alternatives to rail transport. The possible solutions fell into two categories. One involved reducing the risks but continuing chlorine transportation itself. This would involve more transportation by water, which would require major investments, and was not necessarily safer. The second involved bringing chlorine production and processing closer together. However, the costs of relocating manufacturing plants appeared to be prohibitively high.

It took two accidents to break the deadlock. In 1970 a train pulling empty chlorine tankers derailed in a residential area of Utrecht, the

fourth largest city in the country; and in 1972 a train of full chlorine tankers was hit by a train transporting oil in the village of Zenderen in the east of the country. No chlorine gas escaped in either of these accidents. But it was clear to all concerned that something had to be done. After the first of these accidents, a special chlorine emergency service was set up. A number of emergency response teams would be on standby day and night to attend any emergency with specialist equipment. This service came on stream in 1972. The Dutch Railways also initiated a number of further safety measures:

- a ban on the hump shunting of chlorine tankers
- introduction of 'block trains' carrying only chlorine, which travelled non-stop to their destination
- chlorine would only be transported at night
- the average speed was restricted to 65 km/h

These measures came into force in late 1972, and were reaffirmed in a discussion with the minister responsible, the Minister for Social Affairs, in 1973. The industry would also have to work towards a rapid reduction in the number of units requiring transportation, to reduce the level to 100,000–150,000 tonnes by 1976. This reduction was to be achieved, among other things, by shifting to transportation of a semi-manufacture of PVC, ethylene dichloride (EDC).

These arrangements were never put into practice in this form, however. The 1973 oil crisis hit the Dutch economy hard, ending all possibility of the required investments being made. The reduction therefore took much longer to achieve than had been agreed. After 1974, when the quantity of chlorine being transported around the Netherlands reached a peak (323,775 tonnes), it was not until 1981 that it fell below 200,000 tonnes.

Nevertheless, the pressure exerted by experts and administrators appears to have had an effect. The special safety measures for chlorine transportation that the Netherlands introduced in 1972 had never been seen before anywhere in the world. And that remained the case until the beginning of this century, when Switzerland also introduced the block trains system, in anticipation of a new type of chlorine tanker becoming available. Furthermore, after 1974, there was an unmistakable decline in the quantities of chlorine being transported in the Netherlands, despite the fact that demand continued to rise. This reduction was possible because chlorine was increasingly being used where it was produced.

Public opinion

The 1972 compromise had been reached under pressure from politicians and administrators; pressure from the public had not been a factor. It was not until the mid-1970s that public opinion turned against chlorine trains. The opposition began in 1976 in Bergen op Zoom in the southern Netherlands, where chlorine trains ran on an old line right through the town. Some of the rails were even on the pavement. Between 1978 and 1982 opposition also grew in other towns on the chlorine trains' route. The protests were not coordinated, however, and no national opposition movement emerged. They remained local initiatives (often involving residents whose homes bordered a railway line, who wanted the chlorine trains out of their backyard). The protests were also typically directed against the carrier – Dutch Railways – rather than the chlorine manufacturers or processors.

The burgeoning protests against chlorine transportation were certainly fuelled by the critical spirit of the times. The debate on the dangers of nuclear energy had sensitised both the public and the media to the similar risks associated with transporting hazardous substances. This fear was fed by actual events. Over just a short period of time, there was a series of major accidents involving freight transport in the United States (Waverly, Tennessee; Youngstown, Florida) and Spain (Los Alfaques) in 1978, and in Canada (Mississauga) in 1979. In the Netherlands itself, a diverted (empty) chlorine train was derailed at Tilburg station on 13 May 1978. While the public had merely raised an eyebrow at the much more serious accident in Utrecht eight years previously, this latest accident led to a furore over the transport of hazardous substances in general, and chlorine in particular.

The protests of concerned citizens drew a lot of attention. Nevertheless, they had virtually no discernible effect on chlorine transportation. The authorities and industry were of the opinion that the measures introduced in 1972 guaranteed an adequate level of safety. Only in Bergen op Zoom did the protesters achieve results: under pressure from local residents, in 1987 the government paid for a special 'chlorine line' to be built bypassing the town.

However, the protests in the 1970s and '80s were a major success in terms of influencing public opinion in the Netherlands. The 'chlorine train' became a powerful, universally recognised symbol of the invisible dangers

of an industrialised society. A symbol that remains equally powerful to this day.

Local authorities and environmental groups
The public protests had peaked by 1982, though the issue of the 'chlorine train' continued to come up on a regular basis thereafter. From then on, various 'waves' can be distinguished: periods of quiet interspersed by peaks of concern. In 1989, for instance, after a major incident with a freight train, several local authorities publicly took a stand. They wanted to know more about the hazardous substances being transported through their territory: when they were being transported, and how frequently. Local administrators were baffled at Dutch Railways' silence on the issue. Despite this, however, there were no real measures or reductions in transportation.

The same was true of the protests led by Dutch environmental groups in 1993. They had been fighting for some time, not specifically against chlorine transportation, but against the chlorine industry as a whole. They went much further than the local campaigns, trying to make it clear to the public that substances containing chlorine are damaging to the environment and that industry had plenty of alternatives. Their campaigns targeted both chlorine manufacturers and chlorine processors.

Greenpeace joined the campaign in 1990. A number of spectacular actions which drew a lot of media attention failed to spark a debate on the chlorine industry, however. The environmental hazards of chlorine appeared to be too abstract a theme to mobilise public opinion. The Dutch branch of Greenpeace therefore briefly tried, in 1993, to link the protest against the chlorine industry to the newly reignited public protests against chlorine transportation. But to no avail. People who were kept awake by the chlorine trains passing their back door every night were not really interested in the more abstract side of the chlorine industry. And the environmentally-aware who did not live on one of the chlorine routes would not take to their feet to protest against chlorine transportation. The debates on the industry and on the transportation of chlorine seemed to exist in two different worlds.

After the Greenpeace campaign, things went quiet on the issue. Until 2000.

Effects and probability

On 13 May 2000 fire broke out in a fireworks storage depot in Enschede, in the east of the country. The resulting explosions took the lives of 22 people and devastated hundreds of homes. This was a major disaster by Dutch standards, and it shocked the nation. The Minister of Housing, Spatial Planning and the Environment, Jan Pronk, instructed all local authorities to make an immediate inventory of all hazardous storage depots and report on their licensing and monitoring status. The city of Groningen turned out to have a huge fireworks warehouse of which the local fire service was entirely unaware. 'An unpleasant surprise' admitted the mayor of Groningen to journalists. After which he went on to divert attention to what he believed was a much bigger threat: the train loaded with chlorine that passed through his municipality several times a week.

By 2000 Akzo Nobel, owner of the electrolysis installations in Delfzijl, Hengelo and Rotterdam, was the only company still transporting chlorine by rail. The others had ended the practice for commercial reasons. Akzo Nobel's chlorine plant in Hengelo was still producing 70,000 tonnes a year, and in Delfzijl it was producing 130,000 tonnes. Only 50,000 tonnes of its total production still had to be transported to Rotterdam, significantly less that the quantities being transported in the 1970s, but a substantial amount nevertheless.

Immediately after the mayor of Groningen's comment, the spotlight fell once more on chlorine transportation. Prompted by the Enschede disaster, the media turned its attention to all kinds of potential disasters said to be looming in the Netherlands. The focus was always on the effects of a disaster; the probability that one would occur was of little interest. Akzo Nobel's argument that the extensive safety precautions that had been put in place had reduced the likelihood of a catastrophic accident to virtually zero fell on deaf ears. The firework disaster in Enschede had also been an impossible event, people countered, but that didn't stop it happening. And indeed, Akzo Nobel had to admit that if something were to go radically wrong with a chlorine train, the implications would be very serious indeed.

Basis for dialogue

Actually, the seeds of the renewed furore over chlorine transportation had been sown months before the Enschede disaster. On 31 January 2000 a tanker containing 50 tonnes of chlorine gas and an empty tanker had derailed

in Akzo Nobel's marshalling yard in Delfzijl. This incident prompted the Waddenvereniging, an environmental group that had been campaigning against the chlorine industry since 1989, to ensure that the potential dangers of chlorine transportation were once more high on the political agenda. The group sent a letter to the ministries responsible calling for an end to chlorine transportation. In late May, once the spotlight had once more been directed towards chlorine trains, it received a response from The Hague. The environment minister let it be known that, under national and international law, it would not be possible to end chlorine transportation, that special measures had been taken and that no norms were being exceeded.

When he took office, the minister had stated that public safety would be one of his highest priorities. Ending the transportation of chlorine was something he had to lobby for, particularly after the new wave of public unrest. He announced that he shared people's concerns about the transporting of chlorine, and promised to talk to Akzo Nobel 'about the possibilities of bringing the production and use of chlorine closer together'. The aim was the same as that of the government in the early 1970s: to avoid and minimise the transportation of chlorine as much as possible. By this time, this was also policy at Akzo Nobel. The company announced in 2000 that the 150,000 tonnes of chlorine it was transporting to Rotterdam in the 1970s had been cut by two-thirds, thanks to a better balance between supply and demand. According to the environment minister, the transportation of chlorine would ideally no longer be necessary – a position that policymakers at Akzo Nobel supported. Not transporting chlorine is safer, and the costs of transportation were by now relatively high, as a result of all the safety precautions. This was not very good for the base chemicals industry, a sector in which every penny had always counted. So Akzo Nobel concluded that there was an excellent basis for serious dialogue with the authorities. The parties agreed to meet for the first time on 15 August 2000.

Emotional

In the two months prior to the meeting, the public debate continued unabated. Environmental groups were particularly active. They knew that this was a unique opportunity to reduce chlorine transportation, perhaps even to bring it to an end completely. More and more local authorities were also speaking out against the practice. Two accidents in close succession – one that actually amounted to very little, the other more serious – gave

opponents the opportunity to open a debate on the safety of transporting hazardous substances by rail in general, and chlorine in particular. On 31 July a chlorine tanker had nearly been derailed in the Delfzijl marshalling yard, and on 12 August five tankers containing various chemicals had been derailed just across the border in Belgium. Only in the northern Netherlands was there still support for the practice of transporting hazardous chemicals by rail. Ending it might mean the plant in Delfzijl had to close, which would have disastrous direct and indirect implications for jobs in this economically weak region.

The debate on chlorine transportation was more emotional than rational, in the view of Akzo Nobel's Base Chemicals general manager René Scheffers, who was negotiating on behalf of the company. He felt the company had a strong position. Chlorine transportation was perfectly legal, met all the safety and environmental requirements and the tightening up of safety precautions over the years had reduced the risks to an absolute minimum. This most secure form of transportation accounted for only a fraction (something in the order of 1%) of the total quantity of hazardous substances being transported by rail in the country. No one had ever been killed as a result of chlorine transportation in the Netherlands.

Abolishing chlorine transportation altogether would, depending on the solution ultimately chosen, mean closing the plant in Hengelo, or in Delfzijl, or both. Both installations were nowhere near the end of their life cycle, argued Akzo Nobel, and there was no reason to decommission the sites. From a commercial point of view both Hengelo and Delfzijl would have to continue producing their annual 70,000 and 130,000 tonnes of chlorine respectively. Without overproduction (amounting to some 50,000 tonnes), the two plants would no longer be viable. Chlorine transportation thus provided the economic basis for both plants, as the demand for chlorine in Rotterdam continued to outstrip the production capacity of the Rotterdam plant, despite major expansions.

Akzo Nobel had no reason to be particularly accommodating. If, the company argued, the country as a whole was convinced that chlorine transportation must stop because it posed an unacceptable risk to the public, the country would have to help Akzo Nobel bring it to an end.

Constructive
In November 2000, as the talks proper got underway, both parties displayed their more constructive side. Both acknowledged that, though the risk of an accident was minimal, the impact would be huge. Both saw the need to achieve a good solution. The environment minister announced that he was prepared to consider indemnifying any losses or providing government assistance if Akzo Nobel could demonstrate that it could not afford the investments and operations needed to reduce chlorine transportation. One important condition was that any solution must meet with the approval of the European Commission, under European competition legislation.

The promised assistance with the costs, and above all the amount involved, was however an important stumbling block. Akzo Nobel estimated that, whatever the solution, the government would have to provide at least € 50 million. The minister announced to the outside world that he considered this sum much too high. He told the House of Representatives that Akzo Nobel continually focused on the costs in, paying scant attention to the likely benefits, or to the costs and investments it would be able to avoid.

Red light
In the early days of negotiations, public pressure increased even further. A report setting out a plan for tackling incidents involving chlorine trains was published in late November 2000. It had been commissioned by a number of local authorities in the north of the country. The findings did not make pleasant reading, prompting a new wave of publications on the dangers of chlorine transportation by rail.

Several weeks later the Socialist Party (a leftwing campaigning party with seats in parliament) set up the 'Red light for chlorine trains' committee, together with a number of environmental groups, launching a major, well-coordinated campaign against chlorine transportation. With blockades of the 'murderer in the night', spectacular publicity stunts at railway stations, press releases, reports and discussion evenings, 'Red Light' managed to keep the issue in the politicians', media and public eye for two years. The campaign was effective, perfectly attuned to the mood of the time, and the media was only too pleased to give it coverage. And it bore fruit. The Dutch had grown extremely concerned about threats to public safety, particularly after a fire in a bar in Volendam on 31 December 2000 took the lives of fourteen young people.

Critical mass

On 14 February 2001 there was even a parliamentary hearing about chlorine transportation. Local and provincial authorities, experts, environmental and other groups all got a chance to have their say. The hearing turned into a widely endorsed plea for higher safety standards in freight transport in general. And as far as chlorine transportation in particular was concerned, the representatives of the seven provinces and 57 municipalities through which chlorine trains passed were unanimous: given the risks it would be better to put an end to it, and the sooner the better. The message was clear. The hearing clearly showed that the protests were no longer confined to individual members of the public and a few local authorities along the route, as in the past. Now virtually all local and provincial authorities and government ministries were against the practice. In just a short time a critical mass had been achieved – now virtually everyone, on both the left and the right, wanted an end to chlorine transportation.

More difficult

The external pressure, the many possible solutions and the preconditions made the negotiations between the government and Akzo Nobel difficult and time-consuming. To limit or even end transportation, supply and demand would need to be better balanced. The capacity of the Rotterdam plant would at any rate have to be increased, as the shortage of chlorine there was one of the reasons why it had to be transported across the country. Another reason was the overcapacity in Hengelo and Delfzijl. Though there were many possible scenarios for addressing this last problem, it was clear that Akzo Nobel would insist on substantial assistance from the government. Agreement therefore had to be reached. However, the environment minister had to make sure that any state aid for Akzo Nobel received the approval of the European Commission. He would also have to defend any government contribution to the public. Five different scenarios were studied in detail and budgeted, but the solution was still not evident. The outside world received virtually no information, and the dissatisfaction and scepticism grew. This was not entirely without foundation, as the talks were becoming more and more difficult. And things did not get any easier when Akzo Nobel announced in early October 2001 that it planned to close its unprofitable organochlorine plant in Delfzijl. This would probably mean the closure of the entire chlorine plant there, as the organochlorine plant was one of the biggest customers at the chemical industry complex.

The two sides met again in early November 2001. The minister made it clear that something specific would have to be achieved in the near future. If not, he would attempt to simply ban chlorine transportation. Though there was little chance of success, years of legal wrangling and even more fuss surrounding the transportation of chlorine was not an attractive prospect. The meeting ended with an agreement to reconvene two weeks later for a brainstorming session, to force a breakthrough.

Solution, and a race against time

The brainstorming session was a success. It gave rise to a 'relocation plan', an radical reorganisation of Akzo Nobel's chlorine activities. They would be concentrated in their entirety in Rotterdam and Delfzijl. This would mean the closure of both the chlorine plant in Hengelo and the chlorine processing division there, Akzo Nobel's monochloroacetic acid factory. In Delfzijl, on the other hand, the company would build a new chlorine plant based on membrane technology to produce monochloroacetic acid (MCA). Akzo Nobel would be able to fulfil its desire to close its organochlorine plant in Delfzijl, as the presence of an MCA plant there would provide solid foundations for a new, modern, profitable chlorine plant at the chemical industry complex, which would also be able to supply other customers there. The plan would also mean that Akzo Nobel could bring chlorine transportation to an end. And since the reorganisation would have positive implications for public safety, land use planning, the economy and the environment – the chlorine plant in Delfzijl used asbestos, and the one in Hengelo used mercury – the company should be able to quality for government assistance without any objections from the European Commission.

The final plan had come about at a late stage in the proceedings, and time was now of the essence. The government's period in office was almost at an end, and the environment minister wanted to resolve the issue before he left his post. In around six months those involved would have to work out the details of the plan, calculate the overall costs, have them checked and budgeted by independent outsiders and investigate what proportion would be eligible for support under European Commission rules, in order to get a reliable indication of what the government's share would be.

In early April 2002 the minister – who had not reported to parliament for over a year in order not to disrupt the process – announced that the discussions with Akzo Nobel had reached

a decisive phase. He said he was certain that the issue could be settled in a few weeks. However, just two weeks later, on 16 April, the Dutch government fell over another issue. The minister was able to inform the House of Representatives that same day that Akzo Nobel had proposed to end regular chlorine transportation, and that the government would be giving the company some financial assistance.

Agreement in principle

The problem was that 'public safety' (which covered chlorine transportation) was in principle one of the *controversial issues* which parliament no longer wanted to debate with the fallen government. To prevent the decision on chlorine transportation from being postponed indefinitely, the Socialist Party – which had campaigned vigorously against chlorine trains for two years – submitted a motion designed to allow proceedings on the issue of chlorine transportation to continue. The motion was successful.

And so, before an entirely new government of a completely different political hue took office on 22 July 2002, the outgoing environment minister managed, at the eleventh hour, to bring Akzo Nobel's chlorine trains to a standstill.

On 4 July 2002 Akzo Nobel and the Dutch government announced that they had reached an agreement in principle. Efforts would be geared towards ending regular chlorine transportation as of 1 January 2006. To achieve this, it had been agreed that Akzo Nobel would implement the relocation plan and that the company would pay for production capacity at the chlorine installation in Rotterdam to be expanded to balance supply and demand at the site. The company would still be allowed to transport 10,000 tonnes of chlorine a year on an incidental basis (in connection with maintenance work on its plants, for example), and it would receive financial assistance from the government amounting to at least € 56.7 million.

The assistance would consist of an indemnity and a subsidy. When a public authority takes measures over and above the statutory limits that prevent a company from continuing its activities, the national government may reimburse any loss suffered by the company. The damages paid to Akzo Nobel were based on the complete withdrawal (by the competent authority, Overijssel provincial council) of its environmental licence for chlorine production and shipment in Hengelo. This in fact made it impossible for the company to produce and transport chlorine. An independent

consultancy put the damages at € 39.6 million; the state would cover the maximum permissible proportion of 80% (€ 31.7 million).

The rest of the money would take the form of a subsidy, also from the state, for the investments required for relocation. This was based on the 'environmental aid framework', officially known as the Community Framework on State Aid in Environmental Matters. The environmental aid framework, a subsidy scheme overseen by the European Commission in order to prevent improper state aid, applies to all aid measures aimed at environmental protection. The scheme defines environmental protection as any measure designed to prevent or repair damage to the natural environment or natural resources, or to encourage rational use of those resources. It is thus fairly broad-ranging. It was therefore possible, under certain conditions, for the investment aid for the relocation of the company to qualify for the environmental aid framework (up to 30%). The government and Akzo Nobel were aiming for € 25 million. They had agreed that, if the European Commission ruled that the government could provide more under the environmental aid framework, the maximum payment would be € 32.5 million. Altogether, therefore, Akzo Nobel would receive between € 56.7 million and € 64.2 million.

This was all contingent on the European Commission agreeing to the deal, and not regarding the contribution as improper state aid to a company. If this were the case, or if the House of Representatives failed to endorse the agreement, it would be dissolved.

Profit and loss

The agreement in principle received a positive reception in virtually all quarters. The controversial practice of transporting chlorine would cease. Employment in the north would not be jeopardised, as 150 extra jobs would be created there. The local and provincial authorities on the chlorine train route breathed a collective sigh of relief. Hengelo authority could now, for example, proceed with its ambitious plans to build a new commercial, residential and leisure development.

But the agreement was a bitter pill for the 270 staff of the chlorine and MCA plant in Hengelo and the support services there, whose jobs would disappear. This loss of jobs must have made the agreement something of a Pyrrhic victory for the Socialist Party, whose 'Red Light' campaign had played a key role in the entire process. Environmental groups also saw a downside to the agreement, as it gave the chlorine industry in the Netherlands the go-ahead for further expansion. This signalled

the failure of the entire debate on the chlorine industry. The environmental movement could have objected to the new plant in Delfzijl and the expansion of the Rotterdam plant by initiating time-consuming appeal procedures. But they did not. Any legal delays might mean chlorine transportation continuing for years, and jeopardise the entire agreement. The environmentalists had no other option than to 'put up and shut up'.

Criticism focused on the assistance the government was to give the company. Far too much, was the general objection. This response was undoubtedly prompted by the fact that the environment minister had always said that € 50 million was too much. It now turned out that he was prepared to put much more on the table. But the debate on the amount of assistance was primarily a ritual affair. There was, for example, little discussion of the more fundamental issue of the cost-effectiveness of paying € 56 to 64 million to prevent a disastrous accident involving a chlorine train (by way of comparison: rebuilding the area of Enschede destroyed by the firework disaster would eventually cost more than a billion euros). The new House of Representatives debated the proposal on 5 December 2002. Again, however, the debate was limited to some grumbling about the amount of financial assistance. It formed no obstacle to endorsement of the deal. Less than two weeks later the agreements between the government and Akzo Nobel were reaffirmed in a covenant.

However, the company was not happy with the impression that the state was paying for it to restructure. It would also cost Akzo Nobel a considerable amount to stop transporting chlorine. The demolition of the chlorine plants in Hengelo and Delfzijl and the MCA plant in Hengelo, the redundancy package for the staff in Hengelo and the construction of the new MCA and chlorine plant (with a capacity of 90,000 tonnes) in Delfzijl would cost some € 200 million. The expansion of the Rotterdam site (to a capacity of 600,000 tonnes) would also cost the company around € 45 million.

European Commission

The ball was now in the European Commission's court. But in order to stop transporting chlorine by 1 January 2006, Akzo Nobel would have to at least start preparing for relocation, drawing up building plans, approaching contractors and suppliers, tentatively placing orders, drawing up a redundancy plan for the Hengelo staff, and applying for permits.

The company went ahead with its preparations, trusting that Brussels would give the green light. The way had been prepared, after all, and there had been regular discussions with Brussels. But just like the Ministry of Housing, Spatial Planning and the Environment before it, the European Commission now had to examine the matter in detail. The framework scheme did not include any explicit rules on aid in a situation such as this, and the Commission had to be careful not to create an undesirable precedent. The officials who prepared the way for the decision that would ultimately be taken by European Commissioner Mario Monti therefore repeatedly applied to the ministry and Akzo Nobel for more information, only to ask them to further clarify their answers either in writing or in person in Brussels.

The decision-making process took longer than expected. It had been hoped that the matter would be settled in January 2004. In mid-May 2004 the European Commission put a further round of questions, and the long-awaited final decision threatened to be postponed once more. Though this was the Commission's final opportunity under the procedures to ask further questions, this did not exclude the possibility of a further delay. A final decision might not be taken if the Commission decided to institute an official consultation procedure. In that case, all the member states of the European Union would have the opportunity to ask further questions. This would take at least six months.

Akzo Nobel had had enough. Its preparations were already advanced. If the Commission were to tarry any further, it announced it would not honour the covenant, and would proceed with its own plans (though it was not clear what those plans were). The Hague, particularly the environment ministry, also stepped up the pressure on Brussels. The State Secretary for Housing, Spatial Planning and the Environment eventually managed, in a personal meeting with Monti, to persuade him that further delay would spell the end of the covenant, and that he really must take a final decision.

On 16 June 2004 the matter was officially settled. Brussels had agreed. The Commission ruled that Akzo Nobel was entitled to a maximum of € 32.5 million under the environmental aid scheme, over and above the € 31.7 million in damages. It had concluded that 30% of € 116.8 million could be reimbursed. The Dutch government could also have provided an extra 5% subsidy because the investments were being made in

an aid region, Northeast Groningen. So the Commission actually approved a total of € 40.9 million. 'The maximum subsidy of 32.5 million is lower. The aid can therefore be regarded as compatible with the common market,' said the European Commission in the letter setting out its final decision. The relocation could go ahead. On 10 August 2006, six months later than intended, the final regular consignment of chlorine was transported across the Netherlands.

Whether this really was the last consignment, only time will tell. The only blemish on the covenant lies in the fact that the agreement to end regular chlorine transportation is only between Akzo Nobel and the government. An automatic transfer provision in the agreement does stipulate that any third party that took over the chlorine-related divisions of Akzo Nobel would have to stick to the arrangements. Other companies are not, however, bound by them. Though the Dutch government has the means to prevent a chlorine plant being built in an undesirable location, and could therefore indirectly prevent chlorine from being transported by rail, under European legislation it would not be able to stop chlorine in transit being transported across the Netherlands, for example. It is however clear that any company that wanted to regularly transport chlorine in the Netherlands would meet with major public opposition.

More interesting information and useful websites:
www.vrom.nl/externeveiligheid. Surf to the international site 'external safety' Here you can also find information about other external safety topics.

www.brzo99.nl
www.groepsrisico.nl
www.infomil.nl
(especially for municipalities and provinces)
www.relevant.nl
(for external safety professionals)
www.risicokaart.nl

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