
ENFORCEMENT AND ENCOURAGEMENT; AN INVESTIGATION IN THE BRICK AND ROOFINGTILE INDUSTRY

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SUMMARY

Enforcement can be applied in different ways. In this project, a form has been chosen in which enforcement and encouragement go hand in hand. The article describes a project carried out by the Inspectorate for the Environment in the brick and roofingtile industry in the province of Gelderland in the Netherlands. Both the environmental and organizational aspects are described.

1 INTRODUCTION

The duties of the Inspectorate for the Environment include the supervision of compliance with environmental policy and environmental regulations. One of the ways in which it performs this duty is by the systematic investigation of branches of industry, taking account of the roles of both the competent authorities and the companies. The present article describes an investigation of the brick and roofingtile industry carried out in the province of Gelderland in 1995.

The primary motive for the investigation was the agreements reached between the industry and the Ministry of Housing, Spatial Planning and the Environment (VROM) on the reduction of fluorine emissions from approximately 420 tons in 1993 to 160 in 2000. These agreements are recorded in the 'Plan of Approach' of the industry organization. The investigation examined whether these agreements have been properly implemented; it also considered a number of other important environmental aspects.

2 DESCRIPTION OF THE INDUSTRY

At present, the brick and roofingtile industry in the Netherlands includes approximately 50 brickworks and 10 roofingtile factories. There are 27 brickworks and one tile factory in the province of Gelderland. In 1994 the total brick production in Gelderland was approximately one billion bricks, accounting for approximately two-thirds of the total brick production in the Netherlands. Without exception, the Gelderland companies are members of the industry organization, the Royal Dutch Brick Manufacturers Association or KNB (Koninklijk Nederlands Verbond van Baksteenfabrikanten).

The most important raw material for bricks is clay. The clay, which is normally extracted from local claypits, undergoes a number of pretreatments and after a shaping and drying process is baked at temperatures from 1000 to 1200°C. This is done increasingly in energy-efficient tunnel kilns using natural gas as fuel. Old ring kilns and reveratory kilns are generally being replaced by kilns of this type. The use of oil and coal is constantly decreasing.

The main environmental issues involved in the manufacture of heavy clay products are earth removal as a result of clay extraction, the burning of fossil fuels and the emission of fluorine. The heavy clay industry is one of the main sources of fluorine emissions in the Netherlands.

3 REGULATION AND COMPETENT AUTHORITIES

The heavy clay industry is covered by a variety of environmental legislation, for which different official bodies (Local Authorities, Provinces, Water Quality Boards) are the competent authorities. Companies must have a license under the Environmental Management Act, and normally also licenses under the Pollution of Surface Waters Act and Groundwater Act.

The Plan of Approach already mentioned in the introduction is also of importance for the official supervision of the industry. In the province of Gelderland, 11 companies have to take measures to reduce emissions under this Plan of Approach. An agreement on limiting energy consumption has also been reached with the industry. These are not statutory regulations but voluntary agreements between the industry and the authorities.

4 METHOD

In the following sections the various steps of the method that was used in the project are described.

4.1 Determination of methodology

In advance of the investigation, a study was made of the environmental aspects of the industry and an analysis was carried out of the current regulations and the roles of the different competent authorities involved. Based on this, an extensive questionnaire was drawn up covering all the matters relevant to the environment.

4.2 Consultation

Before the companies were visited, the relevant competent authorities were informed of the investigation and information was collected. Consultations were held with representatives of the Water Quality Boards, the Province of Gelderland and the local authorities concerned. In some cases the competent authority was present during the company visit. The relevant industry organization, the Royal Dutch Brick Manufacturers Association (KNB) was also informed in advance of the organization, object and method of investigation.

4.3 Desk research

In the desk research all the available details from licenses, the applications relating to them and correspondence between the different competent authorities was examined. Information from inspections carried out by the various bodies was also studied.

4.4 Company visits

Written notice was given of the company visits. The actual arrangement was made by telephone. During the company visits, interviews were held with the company management and/or the environmental coordinator. These were followed by a tour of the works, during which spot checks were carried out on a number of license requirements. The extent to which internal company environmental protection was applied in the company was also looked at.

4.5 Analysis

All the data from the desk research and the company visits were recorded and analyzed with the help of the questionnaire.

4.6 Individual follow-up

Both the companies and the relevant competent authorities were informed individually in writing of the findings and where necessary their attention was drawn to any violations. Where necessary, the competent authorities, as the immediately responsible supervisory bodies, were asked to take enforcing action; here of course due account was taken to the seriousness of the violations.

4.7 Report and publication

Finally, the main findings of the investigation were recorded in a report, which also contained a summary of the conclusions and recommendations to all parties concerned. The report was published and sent to all the companies and official bodies involved.

5 RESULTS

5.1 Licenses under the Environmental Management Act

The licenses which the companies are required to have under the Environmental Management Act are in general properly up to date. The quality of the licenses granted recently is a reasonable to good. In most cases the local authorities have included adequate regulations in the licenses; one exception here is on the subject of energy.

In general, the companies' compliance with the licenses is also reasonable to good. The violations noted are mostly not serious. However, the relatively large number of violations relating to the soil protection measures prescribed is remarkable.

5.2 Fluorine emissions

Under the voluntary agreement with the Ministry of Housing, Spatial Planning and the Environment, 11 in the province of Gelderland companies have to lower their fluorine emissions between 1994 and 2000. This can be done using a so-called lime chip reactor. In a reactor of this kind, the fluorine compounds in the flue gases are bound by grains of lime. These lime chip reactors are now used in four companies and in three of them working properly. In one installation it has emerged that where clay with a relatively high sulfur content is processed the fluorides are not removed sufficiently from the flue gases. That company is now working on a solution. Some companies have not yet decided finally whether they will install a lime chip reactor. They are still looking for possibilities of reducing the emission of fluorine by so-called

process-integrated measures. One problem which has not yet been fully solved is caused by the lime chip residue, a solid residue released by the lime chip reactor. Several companies are looking into the possibility of using this material in the manufacturing process to avoid removing it at high costs, and this is already being done in at least one company.

5.3 Groundwater abstraction

A growing number of companies recycles their rinsing water (used for washing the mold). This has meant a sharp reduction in groundwater abstraction in recent years, so that this is now much less than the total quantity permitted by license. All companies subject to license hold a license under the Groundwater Act. These licenses are no longer up to date and will be modified by the province of Gelderland in the near future.

5.4 Energy

In October 1993, the industry and the Ministry of Economic Affairs signed a Multi-Year Agreement with the central target of improving energy efficiency in the year 2000 by 20% as compared to 1989. It was established that the individual companies would draw up and implement an energy saving plan. A large number of companies have still not drawn up and energy saving plan. Furthermore, these plans are not public. Accordingly the investigation did not produce a clear picture of the industry's progress with respect to energy saving. The Royal Dutch Brick Manufacturers Association (KNB) states that the industry is on course.

5.5 In-company environmental management

The results of the investigation make it clear that more attention needs to be paid to in-company environmental management. The number of companies with an environmental program available for inspection and showing what measures the companies intend to take in the environmental report. Therefore the industry's target to have a functioning environmental management system in all the companies that participate in the Industry Association in 1993 has not been achieved.

5.6 Recommendations

The report makes recommendations towards all parties concerned, specifically the local authorities, the individual companies and the Royal Dutch Brick Manufactures Association.

This association is asked to coordinate the research being carried out by the various companies on process-integrated measures and the possibilities of processing lime chip residues, in order to limit the risk that the agreed cleanup period will be exceeded. It is also recommended that further encouragement and support be given to the development of in-company environmental management.

The individual companies are also called on to observe the Multi-Year Agreement with the Ministry of Economic Affairs. Companies must set up an energy saving plan where this has not already been done.

It is recommended that the local authorities concerned should among other things pay more attention to the subject of energy when granting licenses.

6 PROJECT EVALUATION

The project has run particularly successfully. A number of factors played a role in this. Firstly, when carrying out the project an explicit choice was made for intensive and open contacts with the competent authorities principally responsible, the individual companies and the Industry Association. This open approach meant that maximum cooperation was obtained and all parties accessible to the results of the investigation and the recommendations formulated by the Inspectorate. The project's timing was a second important factor. The investigation of progress on achieving reductions in fluorine emissions was carried out at an early stage; after all, the measures do not need to be in place until 2000. This form of early inspection has an important stimulating effect of the companies' implementation of measures.

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