



**Riksrevisjonen**

The Office of the Auditor  
General of Norway

## The Office of the Auditor General's investigation of the authorities' monitoring and control of hazardous chemicals

The Office of the Auditor General of Norway

**Document no. 3:9  
(2001–2002)**

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of the authorities' monitoring and control  
of hazardous chemicals**

## **TO THE STORTING (NORWAY'S PARLIAMENT)**

The Office of the Auditor General hereby submits Document no. 3:9 (2001–2002), the Office of the Auditor General's investigation of the authorities' monitoring and control of hazardous chemicals.

Office of the Auditor General, 28 June 2002.

For the Board of the Auditors General

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Auditor General

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# 1. THE MINISTRY OF THE ENVIRONMENT, MINISTRY OF AGRICULTURE, AND MINISTRY OF LABOUR AND GOVERNMENT ADMINISTRATION

## The Office of the Auditor General's investigation of the authorities' monitoring and control of hazardous chemicals

### 1 Introduction

In 1997 the Government presented new objectives for the authorities' efforts regarding chemicals hazardous to human health or the environment, cf. Report No. 58 (1996-97) to the Storting, *Environmental Policy for a Sustainable Development*. It is a long-range objective for the use and release of chemicals hazardous to human health or the environment not to cause damage to human health or to the productivity of the natural environment and its capacity for regeneration.

The use of chemicals is closely linked to society's production and consumption patterns. There has been a gradual increase in the use of chemicals, with new chemical substances and products continually appearing on the market. The Norwegian Pollution Control Authority estimates that in Norway there are approx. 8000-10,000 substances in approx. 50,000 products. It is a major challenge to identify relevant products and ascertain the risk to health and the environment both in the workplace and in everyday life. This was the background of the Office of the Auditor General's investigation.

Manufacturers, importers and users of chemical products have the primary responsibility for the products in question being handled properly. The authorities' responsibility consists in, among other things, monitoring trends in the use of such substances in society and ensuring that laws and regulations governing hazardous chemicals are complied with.

The Office of the Auditor General investigated how the Ministry of the Environment and the Norwegian Pollution Control Authority have followed up on selected goals in their work on hazardous chemicals. The performance reports were evaluated with regard to the objectives in question, and the environmental protection authorities' compliance monitoring activities were reviewed on the basis of the Product Control Act and Pollution Control Act.

The Ministry of Agriculture and the Norwegian Agricultural Inspection

Service administer the Act relating to Pesticides. Since pesticides consist of chemicals that can pose significant health and environmental risks, the Norwegian Agricultural Inspection Service's monitoring of compliance with the regulations in question was included in the investigation. The sector's objectives for, and performance reports on, the use of pesticides were reviewed.

The Ministry of Labour and Government Administration and the Norwegian Labour Inspection Authority administer the Working Environment Act, which regulates *inter alia* the use of chemicals hazardous to health in the workplace. The Ministry stated that reducing the chemical health risks for employees over several years has been a priority for the Norwegian Labour Inspection Authority. The Office of the Auditor General therefore investigated how the Norwegian Labour Inspection Authority addresses chemical health risks as part of its inspection and monitoring activities. In this connection, relevant objectives and appurtenant reporting of the agency's performance were evaluated.

One aim of the Office of the Auditor General's investigation was to determine whether in their inspection and monitoring activities the regulatory authorities reached those enterprises and workplaces where the risk of serious harm to human health or the environment posed by chemical use is greatest. Agency practice in reacting when inspections uncover breaches of the regulations was also investigated.

The Office of the Auditor General's audit report of this investigation follows as a printed appendix. A draft of this report was presented in a letter dated 22 March 2002 to the Ministry of the Environment, the Ministry of Agriculture and the Ministry of Labour and Government Affairs. The ministries issued statements on the circumstances brought to light, and in the main, comments from the ministries were taken into consideration in the preparation of the final report. The ministries' comments on the judgements of the Office of the Auditor General are reported in Chapter 3.

## 2. SUMMARY OF THE INVESTIGATION

The Office of the Auditor General's investigation took as its starting point Starting documents and current legislation and regulations governing chemicals. Letters of allocation with performance requirements from the ministries to the agencies in question as well as reports, internal memoranda and letters from the agencies were reviewed. Furthermore, auditors held meetings and interviews with key agency personnel. In addition, auditors gathered information from the Norwegian Labour Inspection Authority and Norwegian Agricultural Inspection Service with the aid of written questionnaires.

In light of information from the authorities and experts in the area of chemicals, the Office of the Auditor General looked more closely at seven chemicals or substance categories. Professor Leiv K. Sydnes of the Norwegian Institute for Air Research assisted the Office of the Auditor General with a scientific evaluation of reporting from the Norwegian Pollution Control Authority on the use and release of selected hazardous chemicals.

### *2.1 The use and release of hazardous chemicals*

Maintaining an overview the use of relevant hazardous chemicals is a daunting task. It is difficult to strike a balance between devoting resources to monitoring and using resources on release-reducing measures. The chemicals in question are found in numerous products and are used in many different contexts. The audit revealed that the Norwegian Pollution Control Authority has devoted significant resources to developing an overview of relevant emissions and discharges, and has a lot of information on the use of hazardous chemicals. However, great uncertainty is attached to the release figures that the Norwegian Pollution Control Authority presents.

While the Norwegian Pollution Control Authority carefully monitors industrial discharges of the chemicals in question, it has a limited overview of the use of substances that are chiefly components of finished products. Brominated flame retardants are an example of a category of substances suspected of having adverse health and environmental properties. For instance, they are found in computers, TV sets and many other widely used electrical devices. The Norwegian Pollution Control Authority stated that it does not have the necessary data to estimate trends in emissions of brominated flame retardants in the period from 1995 to 2000. The audit revealed that uncertainty regarding release level is considerable for the seven substance groups the Office of the Auditor General reviewed in particular.



Pesticides are a group of chemicals used in agriculture that are intended to protect plants such as cereals, fruits and vegetables against weeds and other pests. Agricultural authorities have set a target for reducing the risk connected with the use of pesticides by 25% before the end of 2002.

A risk index has been developed to indicate the risk to human health or the environment the use of pesticides poses in the aggregate, and how this changes over time. Fluctuations in the sales of pesticides have so far meant that it is too early to determine how the risk has changed in recent years. Measurements of pesticide residues in foods produced in Norway and in rivers and streams in selected agricultural areas so far show no clear reduction in the impact from the use of pesticides.

The Norwegian Labour Inspection Authority stated that every year approximately 1300 deaths and a large number of hospitalisations and National Insurance cases can be related to the use of chemicals in the workplace. Therefore, according to the Ministry of Labour and Government Administration, reducing chemical health risks is a priority task for the Norwegian Labour Inspection Authority.

However, the audit revealed that the clear performance targets were rarely formulated for how the Norwegian Labour Inspection Authority specifically is to help to reduce chemical health risks. Although internally in the Directorate of Labour Inspection a draft plan of action has been prepared for reducing chemical health risks and several measures have been outlined, the status of these documents is unclear.

The Ministry of Labour and Government Administration stated that setting its own targets for reducing chemical use, which is an occupational health problem, would not be practical. To reach the main objectives of the activities of the Norwegian Labour Inspection Authority, the Ministry pointed out that the agency focused on workers being protected against all health hazards.

## ***2.2 Targeting of compliance monitoring activities***

The regulatory agencies under investigation administer regulations governing the use of chemicals in vital areas of society. Since many enterprises are covered by the regulations in question, it would be an impossible task to regularly monitor them all. It is therefore a challenge for the regulatory agencies to identify the enterprises and products comprising the greatest risk, and in that way target their monitoring on the areas in society where it is most effective. For some time, the Norwegian Labour Inspection Authority and Norwegian Pollution Control Authority have worked to make inspection risk-based and have developed new methods and routines to orient compliance monitoring activities towards assessments of chemical health or environmental risk. Although the Norwegian

Agricultural Inspection Service did not base its compliance monitoring on systematic risk assessments in the period 1998-2000, in 2001 it implemented new inspection measures aimed at some high-risk enterprises.

The audit revealed that Norwegian Pollution Control Authority has documented routines for risk-based compliance monitoring of enterprises with discharge permits. This involves approx. 1000 enterprises, which are evaluated on an ongoing basis on the basis of information on relevant risks. On the basis of these assessments the enterprises are divided into various risk classes, which in turn determine how often the enterprises are to be inspected.

With regard to enterprises without discharge permits, the Norwegian Pollution Control Authority stated that the number of such enterprises is so large and the enterprises are so different that it is not practical to establish comparable documented systems. In this connection, the Norwegian Pollution Control Authority pointed out that a list has been prepared of relevant chemicals that present special challenges (the “observation list”). The “observation list” indicates the industries and product types in which the chemicals are used a great deal, and the choice of monitoring measures is based on this list, among other things. A comprehensive process internally at the Norwegian Pollution Control Authority, in which the relevant departments provide input suggesting relevant monitoring measures that are then evaluated against one another on a scientific basis, guarantees, according to the Norwegian Pollution Control Authority, that compliance monitoring will be risk-based and targeted.

There are a large number of agricultural enterprises that regularly use pesticides. In many enterprises, pesticide use does not represent an appreciable risk of harm to human health or the environment. However, in certain types of production, pesticides are used relatively intensively. The Office of the Auditor General’s investigation revealed that the Norwegian Agricultural Inspection Service has not systematically charted enterprises that can pose a particular risk and up until 2001 no monitoring of the users of pesticides has been done. This raises the question of whether the Norwegian Agricultural Inspection Service’s monitoring of compliance with the regulations is appropriately oriented.

In a previous investigation of the Norwegian Labour Inspection Authority, the Office of the Auditor General pointed out that the work to implement appropriate tools to bring about a higher degree of risk-based compliance monitoring has taken a long time.<sup>1</sup> The model in question for risk-based compliance monitoring involves the agency’s relevant departments and district or regional offices making recommendations for the risk classification of various industries and types of impacts. This

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<sup>1</sup> Document no. 3:9 (1999-2000) *The Office of the Auditor General’s investigation into performance attainment at the Norwegian Labour Inspection Authority.*

includes impacts related to chemical health risks being evaluated in a systematic and uniform manner. The audit revealed that there are big differences among the various regions of the Norwegian Labour Inspection Authority in respect of the use of risk assessments as the basis of orienting its compliance monitoring activities.

The Norwegian Labour Inspection Authority has few routines and systems that make it possible to assess the extent and quality of compliance monitoring activities aimed at chemical health risks. For example, the Norwegian Labour Inspection Authority does not have a system that in a simple manner enables them to see the topic or regulations emphasised in an individual inspection. This raises the question of whether the ministry and regulatory agency has had a sufficient basis for evaluating whether there has been a satisfactory regard for chemical health risks.

### ***2.3 Reactions when compliance monitoring uncovers breaches of the regulations***

The audit revealed that the regulatory agencies had uncovered breaches of the regulations for chemicals. Nevertheless this only rarely led to criminal charges for enterprises in violation. This raises the question of whether the government regulatory agencies use criminal charges as a policy instrument to ensure compliance with applicable laws and regulations. Figures from the regulatory agencies showed that the number of noncompliances uncovered through inspections has remained stable at a high level for several years.

At a meeting with the Office of the Auditor General, the Norwegian Pollution Control Authority itself indicated that the deterrent effects of its compliance monitoring have not been satisfactory. The agency claimed that the pursuit of serious breaches in collaboration with the police intensified in 2001, and that the use criminal charges increased. It is expected that in its efforts in the future, the Norwegian Pollution Control Authority will emphasise pursuing breaches of the regulations to reinforce the regulations' deterrent effect.

The Norwegian Agricultural Inspection Service has not established routines for characterising noncompliances by the seriousness of the circumstances uncovered by its monitoring activity. Since the agency did not have criteria for what should be considered serious, it was difficult to decide whether cases should be pursued more closely. As a rule, the Norwegian Agricultural Inspection Service has reacted by writing to the manufacturer or importer and requesting it to account for the circumstances in question.

For some time, greater use of criminal charges for serious environmental crime has been an objective of the Norwegian Labour Inspection

Authority. The need for prosecutorial follow-up in cases where employees have suffered long-term exposure to hazardous substances in the working environment has been stressed.

The Office of the Auditor General's investigation revealed that violations of regulations dealing with chemical health risks in the workplace were seldom reported to the police. The Directorate of Labour Inspection and several of the agency's district offices stated that the deterrent effect of the regulatory agency's work is limited because the threshold for criminal charges is high. This weakens the importance of the regulations in efforts to reduce the risk of harm to health posed by the use of chemicals in the workplace.

## 3. THE MINISTRIES' COMMENTS

### 3.1 The Ministry of the Environment

In a letter dated 8 May 2002, the Ministry of the Environment issued a statement on the audit report of the Office of the Auditor General.

The Ministry of the Environment pointed out that the Norwegian Pollution Control Authority devotes considerable resources to monitoring the use and release of chemicals in its area of responsibility, but acknowledged, as is the case for authorities in other countries and international organisations, that the knowledge base in the area of chemicals is incomplete. Measures and tools for obtaining information on the use and release of hazardous chemicals have therefore had a high priority among those who regulated chemicals both in Norway and abroad. The EU has recently adopted a new chemicals strategy. The development of systems to obtain improved information on the use and release of hazardous chemicals is one of the pillars of this strategy. Through the duty to report hazardous chemical products to the Product Register, Norwegian authorities, like their counterparts in the other Nordic countries, have a far better overview of the sale and manufacture of dangerous chemicals than other countries. To obtain data as good as Norway's, several other European countries are now considering introducing similar product registers. Nevertheless, obtaining better information and documentation on the large number of chemicals in products has long been a key part of Norwegian chemicals policy, cf. *inter alia* Report No. 58 (1996-1997) and Report No. 24 (2000-2001) to the Storting.

The enormous complexity in this area makes it practically impossible to obtain exact figures for releases into the environment of hazardous chemicals. Chemicals hazardous to human health or the environment are contained in all sorts of products (i.e. fabrics, plastics, treated wood, paper materials, electronic devices, detergents, paints, adhesives, pharmaceuticals, cosmetics etc.). Exact figures for emissions and discharges of hazardous chemicals will therefore initially require a complete overview of all product flows in society. Systems for monitoring all product flows in society will be costly and involve extensive bureaucracy. In addition, a complete overview of emissions and discharges requires advanced models for estimating when the hazardous chemical is actually released into the environment: are the hazardous chemicals in a given bucket of paint actually released when brushes are washed, when the leftover paint is disposed of as household waste, or will discharges be avoided if the leftover paint is disposed of as hazardous waste? This example shows that even with well-developed models, uncertainty linked to consumer behaviour will result in a certain uncertainty in the data.

The Ministry agreed that there is uncertainty in the underlying data for

evaluating release reductions, and attaches great importance to reducing that uncertainty. The Ministry of the Environment reports to the Storting on reaching its goals with regard to the prioritised chemicals through an overall indicator for all the chemicals on the priority list. This indicator is less sensitive to missing data for individual sources.

The Ministry of the Environment is keen on the monitoring and control of chemicals being as effective as possible, which implies the need for risk-based compliance monitoring measures. The Ministry sees that there is a potential for refining the methods for the risk assessment of enterprises without discharge permits, even though the Norwegian Pollution Control Authority has made some progress by identifying important industries and enterprises through the use of its “observation list”. However, the Ministry wants to point out that government administration cannot have as detailed information about all companies that handle chemicals in one form or another (tens of thousands of companies) as it has on companies that are dealt with individually when applying for a discharge permit (about 1000 companies). This makes it far more complicated to orient the monitoring of companies without discharge permits towards risk, even though the Norwegian Pollution Control Authority attaches importance to achieving risk-based compliance monitoring of this segment of its regulatory activities.

The Ministry of the Environment agrees that there has been a need to strengthen the pursuit of violations of regulations governing chemicals, and in this regard pointed to the fact that in 2001 the Norwegian Pollution Control Authority in 2001 strengthened its pursuit of serious violations. At the same time, the Ministry wishes to point out that an important reason that a number of noncompliances do not result in the imposition of coercive fines is that the Norwegian Pollution Control Authority’s orders to correct noncompliances are being followed up by the company.

Furthermore, the Ministry of the Environment agrees that there is a need to improve the co-ordination between responsible ministries and regulatory agencies. This is the background for the implementation of a major inter-ministerial collaboration aimed at attaining a more integrated regulation of chemicals, cf. *inter alia* the Directorate of Public Management’s report, “Good chemistry? The division of responsibility and collaboration between agencies in regulating chemicals” (Directorate of Public Management (Statskonsult) Report 2001:1). As a follow-up to this work, the Ministry of the Environment, the Ministry of Agriculture, the Ministry of Labour and Government Administration and the Ministry of Health agreed to set up a liaison forum for matters involving chemicals, among other things, to develop mutual understanding of one another’s traditions of knowledge and regulations and one another’s risk and benefit analyses. In addition, a close collaboration has evolved over a long period among the regulatory agencies in the health, safety and envi-

ronment area. The regulatory agencies that administer regulations on systematic health, safety and environmental efforts in enterprises, which also include the area of chemicals, work together closely on regulations as well as inspection and monitoring activities.

### ***3.2 The Ministry of Agriculture***

In a letter dated 29 April 2002, the Ministry of Agriculture issued a statement on the audit report of the Office of the Auditor General.

The Ministry refers to the fact that the purpose of the Office of the Auditor General's investigation was to evaluate how compliance monitoring is used as an instrument to achieve key objectives of reducing risk of chemicals hazardous to human health or the environment.

The Ministry of Agriculture believes that this is an incomplete approach to obtaining a picture of what is being done to reduce the risk connected with the use of pesticides. Unlike other chemicals, pesticides are subject to an approval scheme that ensures basically that no agents with unacceptable harmful effects appear on the market. Their sale and use are carefully regulated, including a licensing requirement for dealers and all who use them occupationally, which ensures the necessary knowledge and attitudes. Users of other chemicals are not comparably regulated and trained. With this in mind, monitoring the end user has not had the highest priority as an instrument, given the available budget.

In a plan of action from the Ministry of Agriculture, a goal has been set for the health and environmental risk related to the use of pesticides to be reduced by 25% from 1998 to 2002. A model for calculating risk has been developed by the Norwegian Agricultural Inspection Service. The evaluation in the audit report can be interpreted to the effect that questions are being raised as to whether the model is suited to measuring the changes in risk over time. The Ministry believes that this cannot be determined until the new method of measuring is evaluated at the end of the period covered by the plan of action, which is the end of 2002.

With regard to the issue of whether the Norwegian Agricultural Inspection Service should have considered maintaining a more detailed overview of actual use of those agents with particularly undesirable properties, the Ministry points out that one of the measures in the plan of action for reducing the risk of using pesticides is to compile detailed use statistics for all types of pesticides. In its follow-up to this measure, the Norwegian Agricultural Inspection Service has involved Statistics Norway, which is now in the final phase of this project. This measure will be evaluated at the end of the plan of action period.

The Ministry of Agriculture points out that its monitoring is more comprehensive than that done by the Norwegian Agricultural Inspection

Service. For instance, the Norwegian Food Control Authority's monitoring programme for pesticide residues in food and the Norwegian Agricultural Environmental Monitoring Programme (JOVÅ) for pesticide residues in the environment are both considered a monitoring of the end user. The same applies to monitoring the keeping of a spraying diary. The requirement to show a licence when purchasing pesticides is also a way of verifying that the regulations are being complied with.

The Ministry concurs in the assessment that the Norwegian Agricultural Inspection Service ought to base its compliance monitoring activity to a greater degree on evaluating which enterprises pose the greatest risk to health and the environment. As part of the package of measures under the plan of action involving such risk assessments, in 2001 the Norwegian Agricultural Inspection conducted an extensive inspection of the use of pesticides at market gardens and nurseries.

In respect of the Norwegian Agricultural Inspection Service's practice in pursuing breaches of the regulations, the Ministry agrees that the routines here have been deficient. Recently, however, follow-up procedures for violations have been tightened, and better routines are being put in place. Among other things, this has resulted in more fines and reporting of violators to the police in recent years. In this connection, the Norwegian Agricultural Inspection Service has established a good working relationship with the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim).

The Ministry of Agriculture stated that the results and assessments that the Office of the Auditor General arrives at regarding compliance monitoring as an instrument to achieve key objectives in work on hazardous chemicals will be followed-up and seen in the context of other policy instruments the Ministry has at its disposal in the area of pesticides.

### **3.3 The Ministry of Labour and Government Administration**

In a letter dated 6 May 2002, the Ministry of Labour and Government Administration commented on the Office of the Auditor General's audit report.

The Ministry of Labour and Government Administration points out that Report No. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, which is a key underpinning for the audit, does not deal with the objectives or strategies of working environment authorities, which are to prevent workers from being injured or made ill from the use of chemicals in the workplace. It is correct that several ministries and directorates are responsible for managing these hazardous chemicals. However, the report to the Storting in question maps out the goals and



policy instruments of environmental protection agencies. Therefore, the Ministry believes that it is unreasonable that the activities and strategy of the Norwegian Labour Inspection Authority, which are based on monitoring the use and handling of chemicals *at the workplace*, are being evaluated in the context of the report to the Storting on “environmental policy for a sustainable development”.

The Ministry of Labour and Government Administration refers to the Norwegian Labour Inspection Authority’s strategic plan, where under the prime objective that “the working environment in enterprises is to be fully satisfactory” the following goal has been set especially for chemicals:

- Toxic substances and other substances hazardous to health shall be handled in such a way as to protect employees from accidents, injury and excessive discomfort.

The strategic plan further emphasises that in order to reduce harm to workers’ health, the Norwegian Labour Inspection Authority has attached importance to getting measures introduced to reduce the exposure to hazardous chemicals at the individual worksite by implementing protective measures, from encapsulation via ventilation to personal protective equipment, and that less emphasis has been on how much has been sold of the individual chemical.

It is difficult, and not necessarily most effective, to single out individual chemicals for phasing out in a working environment context, comparable to the “observation list” used by the environmental protection authorities. Society is dependent on the use of many hazardous chemicals in industry, and the risks linked to the *use* of these chemicals will often depend on the manner in which they are used. Dangerous chemicals need not represent a health risk for workers if they are used in a closed system at the workplace and not released into the premises. Otherwise, scientific and technical work to analyse, classify and assess the risks of chemicals is ongoing, primarily at the EU/EEA level.

The other important focus area for the labour environment authorities has been to monitor compliance with the chemical suppliers’ (manufacturers’/importers’) obligation to provide adequate *information* on the chemicals’ health risks for those who use them in the workplace (labelling, health, safety and environment folder) so that safe routines can be established for the use of the chemical at enterprises.

Throughout the 1990s the Norwegian Labour Inspection Authority has had chemical health risks, among other things, as a primary focus area, and its overall efforts are not inconsequential. Its commitment is based on *inter alia* the Norwegian National Plan for Health. The Ministry of Labour and Government Administration points out that the Norwegian National Programme for Prevention, which has been important in setting

priorities for the Norwegian Labour Inspection Authority during the period in question, is not mentioned in the audit report. One reason that the Norwegian Labour Inspection Authority has emphasised isocyanates is that in this programme the Storting has stated that towards 2002 the focus is to be on preventing allergies and hypersensitivity. Therefore, in collaboration with Norwegian National Institute of Occupational Health, the Norwegian Labour Inspection Authority has formulated a plan of action in this area.

And so the Ministry is not at odds with the goals set in the report to the Storting on environmental policy for a sustainable development, but believes that these are goals for the environmental protection authorities to work towards and not for the working environment authorities. This has led to the Norwegian Labour Inspection Authority's efforts not to be seen and evaluated in their proper context.

The Ministry of Labour and Government Administration refers to a meeting between the Office of the Auditor General and the Ministry at which it emerged that the efforts of the working environment authorities are not being measured against the objectives of the environmental protection authorities in the area of chemicals. Nevertheless, the Ministry believes, given the manner in which it has been formulated throughout, that the audit report creates an unmistakable impression that the working environment authorities are not sufficiently contributing to "common" objectives for the use and release of hazardous chemicals. For the Storting to get a more accurate impression of this sector's efforts in the area of chemicals, the Ministry believes that the audit report should be rewritten in key points. Primarily the Ministry believes that this should be done by completely removing the discussion and evaluation of the Norwegian Labour Inspection Authority from the audit report. Or an entirely new draft audit report could be prepared in which the various sectors' objectives in the area of chemicals are given equal weight to start with, and where the agencies' priorities and efforts are evaluated against these objectives. The report to the Storting on environmental policy for a sustainable development cannot be defined as the sole basis for this evaluation, and so in the Ministry's opinion, it would mean that the entire audit report would have to be rewritten, with a basis in a new approach.

The Ministry would also like to note that the working environment authorities face great challenges when it comes to reducing and preventing chemical health risks in the workplace and generally views external assessments of this area as a very useful basis for evaluating its own efforts, priorities and performance. Thus, the Ministry is positive towards the Office of the Auditor General conducting such an administrative review of the area of chemicals. However, this requires, naturally, that efforts and results be evaluated on the basis of the goals set for the sector

in question, and not in general formulations of objectives aimed at the natural environment.

The Ministry of Labour and Government Administration asks the Office of the Auditor General to consider these serious objections to the basis of and approach taken in the audit report, as well as the aforementioned recommendations for setting the matter right.

## 4. THE OFFICE OF THE AUDITOR GENERAL'S OBSERVATIONS

The Office of the Auditor General would like to point out that several central government authorities are responsible for monitoring trends in the use of various substances in society and for seeing to compliance with laws and regulations governing hazardous chemicals. The Ministry of Labour and Government Administration and the Norwegian Labour Inspection Authority administer the Working Environment Act, which regulates *inter alia* the occupational use of hazardous chemicals. Therefore, the Office of the Auditor General investigated, for example, how the Norwegian Labour Inspection Authority's compliance monitoring activities address chemical health risks. To shed light on the Norwegian Labour Inspection Authority's monitoring of hazardous chemicals, relevant objectives and appurtenant reporting of the agency's performance have been evaluated in light of the Working Environment Act and the agency's own goals. Thus, the efforts of working environment authorities have not been measured against environmental protection authorities' objectives in the area of chemicals. Therefore, the Office of the Auditor General is unable to see that there is a basis for the objections contained in the comments of the Ministry of Labour and Government Administration on the audit report.

The Norwegian Pollution Control Authority and the Norwegian Agricultural Inspection Service have devoted considerable resources to following trends in the use of chemicals and pesticides that constitute an appreciable risk. Because of the complexity in this area, the audit nonetheless revealed that there is great uncertainty regarding the use of the substances in question. Through protective measures, the Norwegian Labour Inspection Authority emphasises protecting workers against chemical health risks. This has led to the Norwegian Labour Inspection Authority having less of an overview of the use of chemicals that present chemical health risks in the workplace. The Office of the Auditor General wishes to query whether this practice adequately addresses the intention of the provision of the Working Environment Act regarding the finding of substitutes for chemicals hazardous to health (Section 11).

In its comments on the audit report, the Ministry of the Environment stated that it is nearly impossible to obtain exact figures for releases into the environment of hazardous chemicals. Furthermore, the Ministry referred to an overall indicator for the chemicals on the priority list that will be less sensitive to missing data from individual sources. The Office of the Auditor General's investigation revealed that questions can be raised regarding the scientific basis for this indicator. Since clear performance targets have been set for reducing the use and release of the chemicals on the priority list, the Office of the Auditor General wishes to stress

the importance of adequate methods being found for evaluating the degree of effectiveness.

The audit revealed that the Norwegian Pollution Control Authority has adequate routines for targeting that segment of its compliance monitoring activities aimed enterprises with discharge permits pursuant to the Pollution Control Act. The routines for targeting of the rest of its compliance monitoring activities are based less on systematic risk assessments, and the Office of the Auditor General notes that the Ministry of the Environment sees the potential for refining the methods in this area.

The Norwegian Agricultural Inspection Service has given low priority to monitoring compliance with the regulations governing pesticides. The limited inspections that have been implemented were not risk-based. The Ministry of Agriculture concurred in the judgement of the Office of the Auditor General that it ought to take steps to base its compliance monitoring activity to a greater extent on the assessments of risks to human health and the environment. The Office of the Auditor General wishes to stress the importance of this assessment being followed up with appropriate changes.

For quite some time the Norwegian Labour Inspection Authority has been working on a new concept and new systems in order to base its compliance monitoring activities on risk. The audit revealed that this has taken a long time. There are still major disparities among the Authority's district offices with regard to the use of suitable methods for assessing risk, and a majority of the regions report that they do not have an adequate overview of relevant risk factors. The Office of the Auditor General therefore raises the question of whether chemical health risks are adequately addressed as part of the Authority's compliance monitoring activities.

A common feature of the regulatory agencies' compliance monitoring activities is that, year after year, they have uncovered extensive violations of regulations governing the use of hazardous chemicals. Nevertheless, the audit revealed that very few enterprises in breach of the regulations received any particular follow-up from the authorities, and that they are only occasionally reported to the police. The Office of the Auditor General has noted that the ministries wish to strengthen the pursuit of serious breaches of the regulations.

## 5. THE MINISTRIES' RESPONSES

### 5.1 The Ministry of the Environment

The findings of the audit were submitted to the Ministry of the Environment, which has responded in a letter dated 11 June 2002 as follows:

*“Reference is made to a letter from the Office of the Auditor General dated 23 May 2002, with enclosed document to the Storting regarding the aforementioned matter. My statement on the Office of the Auditor General’s observations follows below.*

*Efforts to prevent the release and use of chemicals from harming health and the environment have a high priority in Norway and internationally. There is a broad consensus that the lack of knowledge is one of the greatest challenges to these efforts. Today there are about 50,000 chemicals on the European market, and these chemicals go into products and production processes of all kinds. For the majority of these chemicals we have little or no knowledge of their effects on human health or the environment, even though it is assumed that an estimated 50 per cent may be harmful. The development of systems for obtaining better knowledge is therefore a key aspect of Norwegian chemicals policy, the EU’s new chemicals policy and of the preparations for the summit on sustainable development in Johannesburg in the autumn of 2002. Through the Product Register and the licensing system pursuant to the Pollution Control Act, Norway has a better overview of the use and release of chemicals than many countries. This is reflected in the Office of the Auditor General’s investigation, which in the main shows that the Norwegian Pollution Control Authority possesses a great deal of information about the release and use of hazardous chemicals. However, as the Office of the Auditor General pointed out, the complexity in this area means uncertainty in the data for the extent of the use of an individual chemical.*

*The Office of the Auditor General believes that questions can be raised about the scientific basis for the overall indicator for chemicals on the priority list. Although I agree that the indicator has shortcomings, I believe that nevertheless it is useful in evaluating effectiveness. The priority list comprises a score of individual substances, and the indicator has been developed to provide an indication of trends in the aggregate in the release of these substances. The index is calculated each year by multiplying estimates of emissions and discharges from known sources by a factor indicating how hazardous the substance is. In this manner, a small reduction in emissions of a very hazardous substance has a greater impact on the indicator than an equivalent reduction in the emissions of a*

*less dangerous substance. The index is uncertain both because the release data are uncertain and because there is no unambiguous yardstick for measuring health and environmental risks, so that the factor indicating how hazardous the substance is can be somewhat imprecise. The uncertainty in the release data is due to the fact that each substance is used in a vast number of products and that it is very difficult to have detailed information on all sources. However, the indicator does not contain any systematic sources of error and provides a relatively trustworthy picture of emissions and discharges in the aggregate over time. I assume that ongoing work on improving our knowledge base in the area of chemicals will gradually reduce the uncertainty connected with the overall indicator. I am also preparing to give the Storting an overview of the emissions of each individual substance on the priority list in the next report to the Storting on the Government's environmental policies and the environmental state of the nation, which will probably be presented in the autumn of 2002.*

*Monitoring compliance with regulations is a key policy instrument in the area of chemicals. I view it as important that the Norwegian Pollution Control Authority's monitoring activities are risk-oriented, so that the probability of uncovering the most serious violations of the law is as high as possible. This is crucial, both to obtain satisfactory environmental improvements and to guarantee an efficient use of the central government's resources. It is therefore positive that the audit revealed that the Norwegian Pollution Control Authority has proper routines for the targeting of its inspections of enterprises with discharge permits. Even though it is far more challenging to undertake risk assessments of enterprises without discharge permits, I assume that compliance monitoring activities of such enterprises will also be risk-oriented. I therefore view it as important that methods for assessing the risk for such enterprises be developed further, even though the audit shows that already today the Norwegian Pollution Control Authority focuses on enterprises that handle chemicals that pose particular health or environmental problems.*

*In my view it is vital for enterprises that commit serious infractions of the regulations to receive special follow-up and for criminal charges to be considered. The deterrent effect of such reactions can contribute significantly to reducing the impact on health and the environment from the illegal release and use of dangerous chemicals. I therefore view positively the fact that in 2001 the Norwegian Pollution Control Authority has improved its pursuit of serious breaches of the regulations relative to the level described the Office of the Auditor General's investigation, and I will see to it that the Norwegian Pollution Control Authority maintains a strict practice for reporting breaches to the police from now on."*

## **5.2 The Ministry of Agriculture**

The findings of the audit were submitted to The Ministry of Agriculture, which responded in a letter dated 5 June 2002 as follows:

*“Reference is made to the letter of the Office of the Auditor General dated 23 May 2002 regarding the Office of the Auditor General’s investigation of the authorities’ monitoring and control of hazardous chemicals.*

*Reference is also made to the Ministry of Agriculture’s comments on the audit given in a letter dated 29 April 2002, which in all essentials is reflected in Document no. 3 to the Storting.*

*The conclusions and judgements that the Office of the Auditor General has reached regarding compliance monitoring as a policy instrument for attaining key objectives in work on hazardous chemicals will be followed up and seen in the context of the other instruments the Ministry has at its disposal in the area of pesticides.*

*I concur in the Office of the Auditor General’s assessment that action should be taken to base the Norwegian Agricultural Inspection Service’s monitoring of compliance with pesticide regulations to a greater degree on assessments of health and environmental risks. As part of a package of measures under the ‘Plan of action to reduce the risks connected with the use of pesticides (1998-2002)’, in 2001 the Norwegian Agricultural Inspection Service has carried out a comprehensive inspection of the use of pesticides in market gardens and nurseries. I can moreover inform you that risk-based compliance monitoring will be at the centre of the new food inspection agency.”*

## **5.3 The Ministry of Labour and Government Administration**

The findings of the audit were submitted to the Ministry of Labour and Government Administration, which responded in a letter dated 11 June 2002, as follows:

*“Reference is made to the Office of the Auditor General’s letter dated 23 May of this year and the attached draft of Document no. 3 on the authorities’ monitoring and control of hazardous chemicals. I also refer to the Office of the Auditor General’s dispatch of 22 March of the draft of this audit report as well as the response of the Ministry of Labour and Government Administration, dated 6 May of this year.*

*I note that in its observations the Office of the Auditor General maintains that the relevant objectives and appurtenant reporting on the effectiveness of the Norwegian Labour Inspection Authority have been evaluated in relation to Working Environment Act and the agency’s own goals, and that it did not consider there to be any basis for the objections appearing in the Ministry of Labour and Government Administration’s*



*comments on the draft audit report. I assume that this means that the Ministry's recommendations for changes were disregarded in the final audit report. I have no further objections beyond those outlined in the Ministry's letter of 6 May and will make a note of the Office of the Auditor General's observations and decision to present the audit report in this form.*

*Otherwise, the Office of the Auditor General has made the following comments on the Norwegian Labour Inspection Authority's follow-up activities in the area of chemicals:*

- 1. The Norwegian Labour Inspection Authority has a rather limited overview of the use of chemicals that cause occupational health risks, which raises the question of whether this practice adequately takes into consideration the provision in the Working Environment Act regarding finding substitutes for chemicals hazardous to health.*
- 2. There are great disparities among the Authority's district offices with regard to the use of suitable methods, and a majority of the regions stated that they do not have an adequate overview of relevant risk factors. This therefore raises the question of whether chemical health risks are adequately addressed as part of compliance monitoring activities.*

*The Office of the Auditor General furthermore points out that a common feature of the regulatory agencies' monitoring activities is that very few enterprises in breach of the regulations receive any special follow-up, and that they are only occasionally reported to the police. The Office of the Auditor General has noted that the ministries wish to strengthen the pursuit of serious violations.*

*I view positively and have noted the fact that the Office of the Auditor General has pointed out the technical challenges mentioned in 1 and 2 above. The Ministry has implemented a combined evaluation and development project regarding the Norwegian Labour Inspection Authority's organisation and activities. The project is intended to shed light on how well equipped and armed the Norwegian Labour Inspection Authority is to meet the challenges in the working environment sector in the coming years and what are the important restructuring and development needs, if any, for the sector in the future. A key framework for this project will be the Office of the Auditor General's performance audit of the Norwegian Labour Inspection Authority, cf. Recommendation no. 187 (1999–2000) to the Storting from the Storting's Standing Committee on Scrutiny and Constitutional Affairs, as well as my statement to the Storting on 24 January of this year on modernising, streamlining and simplifying the public sector. The Office of the Auditor General's observations on the Norwegian Labour Inspection Authority's follow-up regarding chemical occupational health hazards will also play a role in these efforts.”*

## 6. THE OFFICE OF THE AUDITOR GENERAL'S STATEMENT

The Office of the Auditor General finds general agreement that there is a great lack of knowledge when it comes to the release and use of chemicals hazardous to human health or the environment. Furthermore, the Ministry of the Environment agrees that the overall indicator for chemicals on the priority list is burdened with certain shortcomings. The Ministry stated that it will provide an overview of release of each substance of the priority list in its next report to the Storting on the Government's environmental policy and the environmental state of the nation. The Office of the Auditor General assumes that this overview will also include a discussion of the uncertainty in the underlying data.

The Ministry of the Environment considers it important for the Norwegian Pollution Control Authority's compliance monitoring activities to be based on risk assessments. The Office of the Auditor General assumes that methods for risk-orienting its monitoring activities will be refined.

According to the Ministry of the Environment it is of great importance that enterprises in serious breach of the regulations receive particular follow-up and that criminal charges should be considered. The Office of the Auditor General has noted that the Ministry of the Environment will see to it that the Norwegian Pollution Control Authority maintains a strict practice of reporting such violations to the police in future.

The Office of the Auditor General assumes that the Ministry of Agriculture will follow up on the findings and assessments that the Office of the Auditor General has reached regarding compliance monitoring as a policy instrument for attaining key objectives in work on chemicals harmful to human health or the environment. The Ministry concurs in the Office of the Auditor General's judgement that action should be taken to base the control of pesticides to a greater degree on assessments of health and environmental risk.

The Ministry of Labour and Government Administration stated that it has initiated an evaluation and development project for the Norwegian Labour Inspection Authority. The Office of the Auditor General assumes that the Norwegian Labour Inspection Authority's technical challenges in the area of chemicals will be adequately addressed in this effort.

This report will be submitted to the Storting.

Approved at the Office of the Auditor General's meeting, 18 June 2002

**Bjarne Mørk-Eidem**

**Eivind Eckbo**

**Tore Haugen**

**Helga Haugen**

**Brit Hoel**

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Therese Johnsen

## APPENDIX

### The authorities' monitoring and control of hazardous chemicals

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## Summary

The authorities have set a strategic objective that the use and release of chemicals hazardous to human health or the environment shall not cause damage to human health or to the productivity of the natural environment and its capacity for regeneration. The risks of chemical use in society are to be reduced, and the use and release of some especially hazardous chemicals are to be halted or substantially reduced.

Reports from the Norwegian Pollution Control Authority, the Norwegian Agricultural Inspection Service and the Norwegian Labour Inspection Authority were analysed, *inter alia* to determine whether reductions in the use of selected chemicals had been attained. Also, these agencies' monitoring of enterprises that are covered by chemicals regulations was investigated to determine whether the agencies' compliance monitoring activities and pursuit of breaches of the regulations are adequately targeted.

There are great disparities in the way the regulatory agencies monitor chemical use, and the authorities have a limited overview over the use and release of chemicals particularly hazardous to human health or the environment. While the Norwegian Pollution Control Authority monitors the sale of many groups of substances, the Norwegian Labour Inspection Authority has established few routines for following trends in the use of chemicals posing a particular occupational health risk. The Norwegian Agricultural Inspection Service has a detailed overview of the sale of pesticides, but has a limited overview of the actual use of these agents.

The regulatory agencies under investigation have to varying degrees emphasised systematic risk assessments as the basis for targeting their compliance monitoring activities. Although the Norwegian Labour Inspection Authority worked for a long time on developing a model for risk-based compliance monitoring, this was not implemented in parts of the agency until 2002. Of the Norwegian Labour Inspection Authority's 13 district offices, eight reported that they do not have an adequate overview of the risks linked to hazardous chemicals in the workplace. The Norwegian Pollution Control Authority claimed that their compliance monitoring was risk-based, while pointing out that the risks among industries at high risk were not compared in a systematic way in advance of prioritising compliance monitoring measures.

Large groups covered by the regulations governing pesticides were not considered for being monitored. At the same time, investigations carried out by the Norwegian Agricultural Inspection Service show that the risk of the use of pesticides in connection with these agricultural activities is considerable. During this period the Norwegian Agricultural Inspection

Service did not base its inspections on risk assessments and reported that monitoring compliance with the regulations were not a priority.

The regulatory agencies uncovered extensive violations of chemicals regulations. Several hundred more or less serious breaches are uncovered each year. Nevertheless, companies were seldom reported to the police. The agencies pointed out that the deterrent effect of regulations has not been satisfactory.

# 1. Introduction

## 1.1 BACKGROUND

Chemicals are important building blocks of a modern society, and are necessary in medicines, food preservatives and cleaning agents, for example. For industry and agriculture, chemicals play a crucial economic role and are important inputs in consumer products and industrial processes. In food production, chemicals are used in pesticides to combat weeds and other plant pests.

However, some chemicals have undesirable properties. Hazardous chemicals are substances that by virtue of their properties constitute a danger to human well-being or the environment. Among these are hazardous substances, which are characterised by the fact that they can produce deleterious effects in minute concentrations. In addition, they break down very slowly and accumulate in the environment. Hazardous substances are chemicals that represent a particular long-term threat to the natural environment and human health.

In Norway, chemicals cause approx. 3000 acute poisonings each year. The incidence of chronic health damage and long-term effects such as cancer, genetic changes and reproductive damage due to hazardous chemicals is difficult to quantify. The causal relationships are complex, and both genetic and environmental factors are assumed to interact. According to analyses done by the Norwegian Labour Inspection Authority, each year, 1300 deaths, 1600 hospitalisations, 1.2 million sick-days and 6850 National Insurance cases are related to chemicals in the workplace.

The authorities have stated that work on chemicals hazardous to human health or the environment must be based on the precautionary principle, referring to their goal that the use and release of hazardous chemicals shall not cause damage to human health or to the productivity of the natural environment and its capacity for regeneration. The concentrations of the most dangerous chemicals in the environment are to be reduced to the background level for naturally occurring substances, and approximately zero for synthetic compounds. The majority of the Storting's Standing Committee on Energy and the Environment has endorsed these objectives for work on hazardous chemicals.<sup>2</sup>

In addition to these national objectives, Norway has international obligations that are particularly tied to the North Sea Declarations, most recently through the Fourth North Sea Conference in Esbjerg, Denmark,

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<sup>2</sup> Recommendation no. 150 (1997-98) to the Storting, cf. Report no. 58 (1996-97) to the Storting, *Environmental policy for a sustainable development*.

in June 1995.<sup>3</sup> Such obligations amplify the demands for development that ensures reducing the use and release of chemicals hazardous to human health and the environment.

By its very nature, the challenge that hazardous chemicals pose cuts across sectors. An efficient use of resources by the authorities presupposes co-ordination of activities. It is a particular challenge for various segments of the government administration to come up with relevant policy instruments, so as to avoid conflicts of objectives and ensure that common regulations are uniformly administered in a targeted manner.

## **1.2 OBJECTIVES AND RESEARCH QUESTIONS**

As part of national environmental policy, goals have been set to reduce the risk from chemicals hazardous to human health or the environment. The release of particular hazardous substances is to be cut substantially. The purpose of this investigation was to assess how the authorities in selected areas have worked to ensure that key objectives are fulfilled. The following problems were analysed:

*To what extent is the goal of substantially reducing emissions and discharges of the most hazardous chemicals being reached?*

In this connection the following specific question was asked:

- *Are relevant results of the work to reduce emissions and discharges of the most hazardous chemicals being reported and has this reporting led to any corrective measures?*

The purpose of this research question was to ascertain the status of objectives for reducing the use and release of selected substances and evaluate the quality of the data on which the authorities have based their assessments of performance. Relevant challenges linked to following up objectives and monitoring the use of hazardous chemicals have been elucidated. For bodies not affiliated with the environmental protection agencies the Office of the Auditor General has investigated how the national goals are followed up in relation to their own activities.

- *Are compliance monitoring activities in the government regulatory agencies being conducted in a sufficiently targeted manner?*

The agencies under investigation administer laws and regulations that are important for the use of chemicals in society. The regulations autho-

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<sup>3</sup> Report no. 58 (1996-97) to the Storting, *Environmental policy for a sustainable development*, p. 64.



rise the authorities to monitor how the substances in question are handled and whether people and the environment are protected against unacceptable risk. Targeted compliance monitoring presupposes that the authorities reach those enterprises that pose the greatest risk. The purpose of this research question was to investigate whether monitoring and inspections were aimed at those enterprises that pose the greatest risk of damage to human health or the environment.

- *To what extent are priority chemicals emphasised in the regulatory agency's pursuit of breaches of the regulations?*

To ensure respect for chemicals regulations it is necessary for the authorities to react to violations of the law. Serious infractions require stronger reactions than less serious breaches. One objective of this investigation is to assess how chemicals with particularly undesirable health or environmental properties are taken into account in connection with the authorities' choice of form of reaction.

### **1.3 DELIMITATIONS**

The environmental protection authorities have published a list of hazardous substances with the highest priority, Priority Lists A, B and an "observation list".<sup>4</sup> On the priority lists are various chemicals categorised by the threat they pose to human health or the environment, which in turn forms the basis for the priority they are given in the authorities' efforts. The criteria for placing substances on the priority lists stem in part from international agreements that Norway has pledged to follow. The investigation focused on the authorities' efforts regarding high priority hazardous chemicals. The authorities' monitoring and control of the use of pesticides were treated in particular. To further delimit the investigation, in consultation with technical expertise, a selection was made of substances on the environmental protection authorities' priority lists.

Government agencies play a key role in limiting the threat of hazardous chemicals. Since many players have tasks in this area, due to resource constraints, it was necessary to make a selection. The players were evaluated on the basis of the compliance monitoring activities in question and the importance of the underlying regulations that the agency administers. The importance of the regulations has been evaluated in light of overarching policy objectives in the area of chemicals. With this in mind, the investigation was limited to the Norwegian Pollution Control

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<sup>4</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, pp. 62-63.

Authority, the Norwegian Labour Inspection Authority and the Norwegian Agricultural Inspection Service.

Traditional compliance monitoring takes the form of on-site inspections to ensure that laws and regulations are complied with. A modern regulatory agency, however, has a multitude of tasks, which to varying degrees can be seen in connection with the actual inspections. This includes developing and maintaining relevant knowledge, the development of new regulations, information and other instruments that fall under the agency's remit. In this audit relevant control activities in selected regulatory agencies were analysed, and the agencies' other duties were not investigated. The purpose of the analysis was to assess how compliance monitoring is used as an instrument for achieving key objectives.

The investigation was limited in time to the period 1998-2000. A key point of departure for the investigation is Report no 58. (1996-97) to the Storting, *Environmental policy for a sustainable development*, in which the Government presented new objectives for work on chemicals hazardous to human health or the environment.

## **2. Method and implementation**

### **2.1 METHODOLOGICAL APPROACH**

Relevant reports from the selected regulatory agencies were analysed. The analysis focused on *performance targets, reports and indicators* of importance for key national objectives. Both the goal of reducing the risk linked to chemical use in society and the goal of reducing the release of particularly hazardous chemicals were noted. The intent was to assess whether the agencies have established appropriate targets and reporting routines to follow up their own activities in relation to the national objectives. The environmental protection authorities' reports of reduced emissions and discharges of chemicals especially hazardous to human health or the environment were analysed in particular. The purpose of this analysis was to evaluate the scientific basis for their reporting.

Furthermore, parts of the compliance monitoring activities of the Norwegian Labour Inspection Authority, the Norwegian Agricultural Inspection Service and the Norwegian Pollution Control Authority were charted and analysed. The agencies' routines for selecting the enterprises to be monitored and routines for pursuing breaches of the regulations were reviewed. The purpose was to assess whether the authorities' monitoring of compliance with the regulations is exercised effectively in light of national objectives.

### **2.2 DOCUMENT ANALYSIS**

Starting documents, Acts of law and regulations, guidelines, plans of action and policy documents were reviewed. The audit criteria were primarily derived from these sources. Instructions, project documents and reports from the ministries in question were reviewed. Documents reviewed in connection with the audit are listed in a separate appendix to the final report.

### **2.3 INTERVIEWS AND CONTACT MEETINGS**

Key aspects of the authorities' monitoring and control of hazardous chemicals were not documented in writing. The agencies' regulatory activities have different premises, both because of differences in the regulations to be enforced and because monitoring activities received different emphases. Interviews and contact meetings were used for gathering necessary information about the area of activity. All together, more than 20 meetings and interviews were conducted with the authorities for environmental protection, agriculture and the working environment.

## 2.4 QUESTIONNAIRE SURVEYS

Questionnaire surveys were conducted of the Norwegian Labour Inspection Authority's 13 district offices and the Norwegian Agricultural Inspection Service's 3 regional offices. The purpose of using questionnaires was to obtain in writing key aspects of the agencies' compliance monitoring in the area of chemicals. Objectives for their inspection and monitoring activities, resource use, expertise and how infractions were responded to were included in the investigation. The questionnaires were prepared on the basis of information gathered at meetings with selected regional or district offices. The response rate was 100 per cent.

## 2.5 SELECTION OF CHEMICALS

In this investigation, chemicals were broadly defined. Hazardous chemicals include all industrial and commercial chemicals, heavy metals and pesticides with properties that constitute a risk of harm to human health or damage to the environment.

To analyse the environmental protection authorities' reports on the release of individual hazardous chemicals, a selection was made of substances or substance groups. Since there are many relevant substances, this was necessary, in order to limit the investigation. The selection was made after information was gathered from seven Nordic research centres with special expertise in the areas of the environment, health and chemistry.<sup>5</sup>

Based on the advice from the experts consulted, seven substances or substance groups were selected. Important selection criteria were:

- that the substance or substance group has been prioritised by the authorities
- that it was suggested by several communities of experts
- that it is subject to mandatory labelling
- that it had a broad area of application, is widespread and a constituent of many products
- that large quantities are in use

The substances chosen were *chromium and chromium compounds, isocyanates, brominated flame retardants, nonylphenol and nonylphenol*

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<sup>5</sup> The project group gathered expert recommendations on selecting chemicals from Professor Jørgen Stenersen of the Department of Biology at the University of Oslo, the Norwegian Institute for Air Research (NILU), the Norwegian Institute for Water Research (NIVA), the Norwegian Institute for Nature Research (NINA) and the Norwegian National Institute for Public Health. There was also contact with the National Chemicals Inspectorate in Sweden and the Danish Environmental Protection Agency.

*ethoxylates, phthalates, mercury and polychlorinated biphenyls (PCBs).*

For a more detailed description of the selection, refer to Box 4.1.

The selection was used to analyse performance reports. The purpose of the analysis was to assess whether the authorities' knowledge of emissions and discharges of the prioritised substances are of a quality that provides a basis for determining whether key policy objectives are being attained. Leiv Sydnes of the Norwegian Institute for Air Research was engaged to assist the Office of the Auditor General in this work.<sup>6</sup>

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<sup>6</sup> Norwegian Institute for Air Research (NILU) report 2001 by Leif K. Sydnes, An assessment of the basis for the authorities' evaluation of the use and release of hazardous chemicals, 5 November 2001.

### 3. Audit criteria

#### 3.1 OBJECTIVES AND FRAMEWORKS FOR THE AREA OF HAZARDOUS CHEMICALS

The overarching policy objectives are presented in Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*. This report also outlined the framework conditions related to coordinating environmental policy across societal sectors.

##### Strategic objectives

In 1997 the following strategic objectives were set for work on hazardous chemicals:<sup>7</sup>

*The release and use of chemicals hazardous to human health or the environment shall not cause damage to human health or to the productivity of the natural environment and its capacity for regeneration. The concentrations of the most dangerous chemicals in the environment are to be reduced to the background level for naturally occurring substances and approximately zero for synthetic compounds.*

The Storting's Standing Committee on Energy and the Environment has endorsed this strategic objective.<sup>8</sup>

##### Performance targets

The aforementioned strategic and long-range objectives cover the entire area of chemicals. To ensure a sufficiently rapid reduction in the release of the most dangerous chemicals, and a reduction in risk for all chemicals, the following performance targets were set:

- A *The release of individual hazardous substances (cf. Priority Lists A and B) shall be halted or reduced substantially by the years 2000, 2005 and 2010.*<sup>9</sup>

Chemicals covered by performance target A cause particular health and environmental problems in Norway. The Ministry of the Environment has stated that the release of the most dangerous substances will be reduced first.<sup>10</sup> Environmental taxes, reductions and bans were to be considered

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<sup>7</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 61.

<sup>8</sup> Recommendation no. 150 (1997–98) to the Storting, p. 9.

<sup>9</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 62.

<sup>10</sup> Proposition no. 1 (1998–99) to the Storting, the Ministry of the Environment, p. 15.

for each of the most harmful chemicals. The Storting's Standing Committee on Energy and the Environment has specified that substantial reduction means 50-90% of the chemicals covered by performance target A. The Committee believed that it would be appropriate to draw up more specific targets for the individual chemicals, based on the substances' harmfulness, availability of known substitutes and the consequences of a rapid phase-out of the chemical.<sup>11</sup>

*B The use and release of chemicals posing a serious threat to human health or the environment shall be continually reduced with the aim of halting discharges and emissions within a generation (25 years, i.e. approx. 2020).*

This performance target reflects Norway's obligations under the North Sea Declarations.<sup>12</sup>

*C The risk of the use and release of chemicals causing damage to human health or to the environment shall be reduced substantially.*

Performance target C was aimed at efforts to prevent damage to human health and the environment from the use of chemicals. This target means that fewer and fewer hazardous chemicals are to be part of production processes, products and waste, and that chemicals are to be used in such a way as to minimise the risk of damage to human health or the environment.<sup>13</sup> The release of hazardous chemicals from products is described as a growing problem. Environmental efforts should be given a stronger product orientation, focusing on getting products to be designed, manufactured and used with a view to the least possible harm and fewest possible drawbacks for people and the environment over the product's entire lifecycle.<sup>14</sup>

### Framework for environmental policy

Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development* states that environmental policy is to be cross-sectoral. Among other things this requires an integrated use of instruments across sectors. Environmental considerations are to be integrated at an early stage in decision processes to prevent environmental problems rather than fix them. The environmental protection authorities have a responsibility to co-ordinate the government's efforts in setting environmental policy goals, nationally and for the various sectors.

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<sup>11</sup> Recommendation no. 150 (1997-98) to the Storting, p. 9.

<sup>12</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 62.

<sup>13</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 62.

<sup>14</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 67.

It states furthermore that the use of policy instruments is to be manageable and cost-effective. The changes in environmental conditions and the effectiveness of overall instrument use must be able to be described and documented for society as a whole. A cross-sectoral system for performance follow-up will therefore be necessary to ensure that an effective, co-ordinated policy is pursued. The system for performance follow-up will provide the basis for evaluating whether the overall effort is satisfactory in relation to objectives and obligations, and whether the distribution between sectors and sources is cost-effective. The system for performance follow-up is to be a tool to adjust objectives and the use of instruments in environmental policy. An important part of the task of the environmental protection authorities will be to co-ordinate the ministries' efforts in these issues. This includes formulating a set of indicators in the environmental policy area.<sup>15</sup>

### Reporting of results

It is expected that actual progress in efforts to reduce the use and release of relevant hazardous chemicals will be reported on the basis of prescribed objectives and performance requirements. This means that there must be agreement between the paramount objectives, performance targets and reported performance, as well as any conclusions about effectiveness being reasonable with regard to the reported results.<sup>16</sup>

The performance and effectiveness indicators that are set in regard to the use and release of hazardous chemicals, including pesticides, ought to be appropriate as a yardstick for the objectives in this area.<sup>17</sup>

## **3.2 OBJECTIVES AND REQUIREMENTS FOR THE MONITORING AND CONTROL OF CHEMICALS**

Targeted exercising of authority with regard to hazardous chemicals requires an overview of dangerous substances and a knowledge of where in society these substances can pose a risk. A key tool for ensuring a targeted use of resources is systematic risk assessments. The following considerations were stressed in the investigation of the authorities' compliance monitoring activities:

- Goals for the monitoring activity should reflect the agency's primary objectives. The agency ought to have the expertise necessary to assess the risks posed by hazardous chemicals, and compliance-monitoring

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<sup>15</sup> Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*, p. 25-27.

<sup>16</sup> Royal Decree of 26 January 1996, Financial management regulation for the central government, Section 11.2.

<sup>17</sup> Directorate of Public Management (Statskonsult) report 19:1999, Experiences with management by objectives and results in the central government administration, p. 36.



- personnel (inspectors) ought to have fundamental competence for integrating a regard for chemicals into ordinary compliance monitoring activities. Relevant technical guidelines should be drawn up for compliance monitoring personnel wherever appropriate.
- In order to ensure targeted compliance monitoring, the agencies, within their own areas of responsibility, ought to have a basic overview of where and how chemicals pose a risk of harm to human health or the environment. This overview should be developed on the basis of systematic risk assessments. The assessments may, for example, include the chemicals' dangerousness (properties for humans and the environment), spread and area of application, as well as where the substance constitutes the greatest risk of harm.
  - The overview of the products and industries constituting the greatest risk of harm to human health or the environment should be the basis for the planning of compliance monitoring measures and choice of enterprises to be monitored. Within the framework set by relevant regulation, monitoring efforts should be aimed at those enterprises posing the greatest risk.

### The Norwegian Pollution Control Authority

The Ministry of the Environment stated that the Norwegian Pollution Control Authority intends to clarify the responsibility of the various sectors of society to meet environmental policy objectives. The Norwegian Pollution Control Authority has an executive responsibility with respect to chemical substances and products and the monitoring of pollution of the air and water.<sup>18</sup>

For its compliance monitoring activities, the Norwegian Pollution Control Authority has set a goal of ensuring that business and industry comply with the regulations, *inter alia* through increased inspections and other monitoring.<sup>19</sup> Furthermore, in a plan to enhance compliance monitoring as an instrument in its chemicals policy, the Norwegian Pollution Control Authority pointed to the importance of inspections and monitoring to ensure actual compliance with the regulations, enhance the credibility of the environmental regulations, ensure equality before the law and therefore a level playing field for business and industry and be able to set correct and verifiable requirements in future regulations.<sup>20</sup>

In annual reports of its inspection activity, the Norwegian Pollution Control Authority has stated that risk-based compliance monitoring is

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<sup>18</sup> Proposition no. 1 (1998–99) to the Storting, the Ministry of the Environment, p. 163.

<sup>19</sup> Norwegian Pollution Control Authority document 98:01, Annual performance plan 1998, p. 23.

<sup>20</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 22 March 1999, "Plan for how to make inspection and monitoring a stronger environmental policy instrument in connection with chemicals", p. 4.

being carried out. According to the Norwegian Pollution Control Authority, this means that the agency monitors and, if necessary, reacts to the enterprises where the likelihood and consequences of breaches of the regulations are greatest.<sup>21</sup>

### The Norwegian Labour Inspection Authority

Subordinated to the Ministry of Labour and Government Administration, the Norwegian Labour Inspection Authority consists of a Directorate of Labour Inspection and 13 districts with subordinate department offices. The Directorate of Labour Inspection administers the agency through overarching strategies, plans and communication with key partners. The district offices provide local guidance and information and conduct inspections of individual enterprises.

The Ministry stated that contributing to a fully satisfactory working environment is a paramount goal of the Norwegian Labour Inspection Authority. The most important task is inspecting and monitoring individual enterprises. The Norwegian Labour Inspection Authority's strategic plan has established that the concept of risk is to be studied and clarified with regard to the working environment, and necessary criteria are to be developed for compliance monitoring activities to be based on risk assessments to the greatest extent possible. Risk assessments are to be used in efforts to clarify how chemical health risks are to be addressed in the districts' plans for inspections.<sup>22</sup>

Toxic substances and other substances hazardous to health are to be handled in such a way as to protect workers from accidents, injury and excessive discomfort.<sup>23</sup> The Norwegian Labour Inspection Authority's knowledge of the consequences of the undesired impact of chemicals is to form the basis for selecting targets for inspection.<sup>24</sup>

### The Norwegian Agricultural Inspection Service

The Norwegian Agricultural Inspection Service is charged with the task of addressing society's demands for a sustainable environment and safe food for consumers. This is to be achieved by focusing on efficient and environmentally-friendly biological production, good plant health as well as safe food.<sup>25</sup> In co-operation with the environmental protection authorities, the agricultural authorities have formulated a plan of action for

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<sup>21</sup> Norwegian Pollution Control Authority report 99:12, The Norwegian Pollution Control Authority's inspections in 1998, p. 6.

<sup>22</sup> Proposition no. 1 (1997-98) to the Storting, Ministry of Local Government and Regional Development, p. 50-51.

<sup>23</sup> Norwegian Labour Inspection Authority, Strategic plan, 1996.

<sup>24</sup> Norwegian Labour Inspection Authority, Inspection manual, revised 20 July 2000.

<sup>25</sup> Proposition no. 1 (2000-2001) to the Storting, the Ministry of Agriculture, p. 44.

reducing the health and environmental risks connected with the use of pesticides. The plan, which covers the period 1998-2002, includes several measures to reduce the risk, including increased monitoring of the use of pesticides. Several institutions have tasks in following up the plan. A target has been set for reducing by 25% the risk of damage to health and the environment posed by pesticide use.<sup>26</sup>

Among other things, the plan of action from 1998 states that the agency intends to monitor the keeping of journals of the use of pesticides.<sup>27</sup> In the annual performance plan for 1999, the Norwegian Agricultural Inspection Service set a goal to co-ordinate the establishment of a database of everyone who has a licence. The agency intended to consider a prescription scheme and increase its monitoring of pesticide use.<sup>28</sup>

### **3.3 PURSUING BREACHES OF THE REGULATIONS**

The regulatory authorities are to pursue the breaches of the regulations uncovered by compliance monitoring, and such action is an independent instrument for fulfilling the agency's objectives. To determine whether the agencies have a uniform and targeted pursuit of violations, the following criteria were employed:

- The regulatory agency ought to ensure that identified noncompliances are registered and classified by their gravity. The registration ought to indicate the regulatory basis for the noncompliance, i.e. in the chemicals regulations. The registration should be systematic and assist the agency in evaluating its own regulatory activities in relation to relative objectives.
- Routines that indicate how noncompliances are to be pursued ought to be established. The routines should include criteria for selecting the form of reaction, deadlines, the use of coercive measures and follow-up inspections. The routines are to ensure that noncompliances are corrected and that similar noncompliances are pursued in the same way. It is expected that the pursuit is evaluated in relation to the gravity of the noncompliance, including following up noncompliances involving particularly dangerous chemicals with a firmer reaction than noncompliances involving less dangerous chemicals.

Criminal charges are the agencies' strongest form of reaction. To ensure that criminal sanctions are considered for serious violations of the law, the agencies ought to have formulated criteria for when a situation should be

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<sup>26</sup> Proposition no. 1 (1998-99) to the Storting, the Ministry of Agriculture, p. 37.

<sup>27</sup> Ministry of Agriculture, Plan of action for reducing the risks connected with the use of pesticides (1998-2002), pp. 6-7.

<sup>28</sup> Norwegian Agricultural Inspection Service, Overall annual performance plan, p. 4.

reported to the police. It can be difficult to assess the seriousness of noncompliances, both with regard to chemistry (toxicological assessments) and legal issues (considerations of criminality, standards of proof, etc.) Together, the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim), the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority have reached a consensus that criminal charges are particularly warranted when<sup>29</sup>

- breaches are connected with chemicals especially hazardous to human health or the environment
- infringements are associated with enterprises that previously received notifications or orders to take corrective action
- infringements have resulted in a specific health or environmental impact
- infringements are grossly negligent or wilful, especially when infringements are economically motivated

It is assumed that the Norwegian Agricultural Inspection Service has corresponding principles incorporated into its own routines.

### The Norwegian Pollution Control Authority

The results of inspections or other monitoring are to matter for the way enterprises are pursued afterwards. After a compliance monitoring action the enterprise is to be characterised according to whether it should be followed up less frequently, given a routine follow-up, given a special follow-up or considered for criminal charges.<sup>30</sup>

Routine follow up is supposed to mean that the Norwegian Pollution Control Authority makes sure by a written confirmation from the enterprise that corrective actions have been taken, or that there is a timetable for implementing such actions. For enterprises that need to given a special follow-up, the Norwegian Pollution Control Authority is to increase the frequency of inspections and monitoring to ensure that corrective actions are taken and that the violation does not recur. Choosing the form of reaction is to be dependent on the seriousness of the findings made during the inspection. A decision can be made on an order to take corrective action that may later be followed up with a coercive fine. If necessary, the Norwegian Pollution Control Authority can order a halt to operations.

Reporting violations to the police with a request to bring criminal charges is to be done after thoroughly assessing enterprises with especial-

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<sup>29</sup> Letter from Økokrim to the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority dated 27 January 2000.

<sup>30</sup> Norwegian Pollution Control Authority's Quality system BKA, Registering and classifying targets of inspections, 28 January 1998.

ly grave noncompliances. As opposed to other reactions, criminal charges are not meant to be used as an instrument to trigger corrective measures. Criminal charges are viewed primarily as a deterrent.<sup>31</sup>

### The Norwegian Agricultural Inspection Service

The Norwegian Agricultural Inspection Service can seize goods in connection with violations of the Act relating to pesticides.<sup>32</sup> For violations of the provisions mandating users of pesticides to keep a journal and for the improper use of pesticides requiring a licence, licences can be revoked.<sup>33</sup> The agency is supposed to respond to the use of pesticides that have not been approved and to use of pesticides outside of the approved area of use. A warning or the revocation of a licence for one year is considered the mildest reaction. Revoking a licence for five years and reporting the circumstances to the police are considered the most rigorous reaction.<sup>34</sup>

Wherever the import or sale of illegal pesticides is uncovered, licences are to be revoked for at least one year. A more rigorous reaction may be considered if the substance poses a risk to human health or the environment. If the enterprise in question is not licensed to sell pesticides, the violation is to be reported to the police.<sup>35</sup>

### The Norwegian Labour Inspection Authority

Along with the Norwegian Pollution Control Authority and other regulatory agencies, common guidelines have been drawn up for enforcing the Internal Control Regulations.<sup>36</sup> Among other things these guidelines set requirements for co-ordination of reactions after inspections or audits and for the way regulatory agencies are to conduct their reactions if violations of the Internal Control Regulations are uncovered.<sup>37</sup>

When conditions are uncovered endangering the life or health of workers, the reaction shall always be an order to take corrective action. According to a separate regulation, the Norwegian Labour Inspection Authority can impose a coercive fine if a deadline to comply with the order is not met.<sup>38</sup> In addition, the Norwegian Labour Inspection

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<sup>31</sup> Norwegian Pollution Control Authority report 1743/2000, The Norwegian Pollution Control Authority's inspections in 1999, p. 21.

<sup>32</sup> Section 19, Act no. 9 of 5 April 1963 relating to pesticides.

<sup>33</sup> Section 31, Regulation of 14 December 2000 relating to pesticides.

<sup>34</sup> Norwegian Agricultural Inspection Service, Internal guidelines on forms of reaction etc., p. 2.

<sup>35</sup> Norwegian Agricultural Inspection Service, Internal guidelines on forms of reaction etc., chap. 5, 6 and 7.

<sup>36</sup> Norwegian Labour Inspection Authority, Governing documents for inspections, Version 2, March 1997.

<sup>37</sup> Norwegian Labour Inspection Authority, Inspection manual, revised 20 July 2000.

<sup>38</sup> Royal Decree of 3 June 1977, Regulation relating to imposing coercive fines pursuant to the Act relating to worker protection and working environment.

Authority has established routines for reporting incidents to the police. If uncovered, conditions that are a serious health hazard are to be reported. If substances that are life-threatening, disabling or can cause permanent health damage are used or stored in a dangerous manner, the enterprise in question is to be reported to the police.<sup>39</sup>

### **3.4 STATUTORY BASIS**

The Product Control Act, the Pollution Control Act, the Working Environment Act and the Act relating to Pesticides are key legislative instruments for regulating circumstances involving hazardous chemicals. The Acts also authorise important special rules enshrined in key regulations. Relevant regulations authorised by this legislation will also be regarded as audit criteria.

It is expected that the Norwegian Pollution Control Authority, the Norwegian Agricultural Inspection Service and the Norwegian Labour Inspection Authority have established targeted compliance monitoring to see to it that the regulations in question are complied with. It is also expected that the authorities have established routines to ensure a systematic follow-up and use of reactions when noncompliances are uncovered.

#### **The Product Control Act (Act no. 79 of 11 June 1976)**

The purpose of the Product Control Act is to prevent products from causing damage to health or environmental disruptions in the form of disturbances in ecosystems, pollution, waste, noise or the like (Section 1). The Act covers the product's entire lifecycle, from raw material to waste (Section 2).

Any person who manufactures, imports, processes, markets, uses or in any other way handles products that may cause such effects as are mentioned in Section 1 shall show due care and take reasonable actions to prevent and limit such effects (Section 3). In addition, any person who manufactures or imports products is obligated to obtain such knowledge about the product as is necessary to evaluate whether it can cause such effects as are mentioned in Section 1.

An enterprise that uses products containing chemical substances that can cause such effects as are mentioned in Section 1 shall evaluate whether there is an alternative involving less risk of such effects (substitution obligation). In such cases the enterprise shall choose that alternative, if it can be done without unreasonable cost or inconvenience (added by Act no. 70 of 20 August 1999, in force 1 January 2000).

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<sup>39</sup> Norwegian Labour Inspection Authority, Inspection manual, section 6.4 on reporting practice etc., p. 5, revised 20 July 2000.

Furthermore, the Act empowers the authorities (Section 4). When deemed necessary to prevent such effects as have been mentioned in Section 1, first paragraph, the authorities may make decisions

- a) concerning the manufacture, import, marketing, labelling, use and other handling of products
- b) concerning return and deposit schemes, recycling and treatment of waste etc. in relation to products
- c) concerning the way in which products shall be designed or composed and maximum limits for noise and the release of polluting substances from products
- d) to the effect that products may not be manufactured, imported or marketed without prior approval
- e) prohibiting the manufacture, import, marketing and use of products

It is the Norwegian Pollution Control Authority that has regulatory authority over products' chemical properties. If particular reasons so warrant, a product may be temporarily banned until sufficient information about its properties has been submitted (Section 6). Products may be ordered recalled or destroyed if there is an unacceptable risk that the product will cause damage to health or an environmental disruption (Section 6a). In the event of violations of conditions, orders or prohibitions laid down pursuant to the act, coercive fines may be imposed (Section 13).

#### The Pollution Control Act (Act no. 6 of 13 March 1981)

The purpose of the Act is to protect the natural environment against pollution, to reduce the quantity of waste and to promote better waste management. It shall ensure that pollution and waste do not result in damage to human health or damage the productivity of the natural environment and its capacity for regeneration (Section 1). The pollution control authority is authorised to issue regulations. It is also authorised to issue permits to an enterprise that may lead to pollution (Section 11).

The pollution control authority shall monitor the general pollution situation, pollution from individual sources and waste management. The pollution control authority shall see to it that the provisions of the Act and decisions pursuant to the Act are followed. The Act authorises the pollution control authority to impose coercive fines (Section 73) and, if necessary, take necessary actions to prevent violations of the prohibition provisions in Sections 7 and 37 (Section 74).

#### The Working Environment Act (Act no. 4 of 4 February 1977)

The purpose of the Act is to secure for employees a safe working environment (Section 1). The Act requires a fully satisfactory working environ-

ment in all enterprises, *inter alia* in regard to factors that may impact health (Section 7). Regulations governing work with certain substances or under special conditions have been laid down pursuant to this provision.

In enterprises where toxic substances and other substances hazardous to health are handled, work shall be fully satisfactory, so that employees are protected against accidents, injury and excessive discomfort. Dangerous substances shall not be used if they can be replaced by substances less hazardous to the employees (Section 11).

The Norwegian Labour Inspection Authority monitors compliance with the provisions contained in, or in regulations issued pursuant to, this Act (Section 74). In connection with its inspections of workplaces, the Norwegian Labour Inspection Authority is authorised to use the necessary means to ensure that the Act or regulations in pursuance thereof are followed. In the event of imminent danger, the Norwegian Labour Inspection Authority shall demand that safety measures be effected at once. When necessary to protect the life or health of employees, the Norwegian Labour Inspection Authority shall order that the enterprise or parts thereof be closed down until satisfactory safety measures have been effected (Section 77). The Norwegian Labour Inspection Authority is authorised to use coercive fines as a means of reaction to ensure that enterprises effect orders to take corrective action (Section 78).

Norwegian Labour Inspection Authority also monitors the manufacturers and importers of chemicals (Section 18). The Norwegian Labour Inspection Authority may prohibit the sale of a substance if the manufacturer or importer fails to provide satisfactory information on how hazardous the substance is.

### The Act relating to Pesticides (Act no. 9 of 5 April 1963)

The Act regulates the manufacture, requirements for approval, sale and use of pesticides. The Act states *inter alia* that any person wishing to import, market or use pesticides must have a licence from a public authority. Licences may be issued according to the criteria laid down in the Act or in regulations issued pursuant thereto (Section 3). The Act authorises the issuance of regulations that are necessary to ensure that pesticides are handled with sufficient care (Section 9). The Norwegian Agricultural Inspection Service monitors compliance with the Act and may revoke issued licences.



## 4. Description of the findings

This chapter is divided according to the research questions forming the basis of the audit. Reported performance concerning the use and release of chemicals will be described first. Here the extent is elucidated to which the agencies within their areas of responsibility have an overview of the use and release of chemicals especially hazardous to human health or the environment. This is followed by a review of the compliance monitoring activities in the regulatory agencies in question. Their use of risk assessments as the basis for orientating their compliance monitoring is then described. Finally, the agencies' pursuit of breaches of chemicals regulations is described.

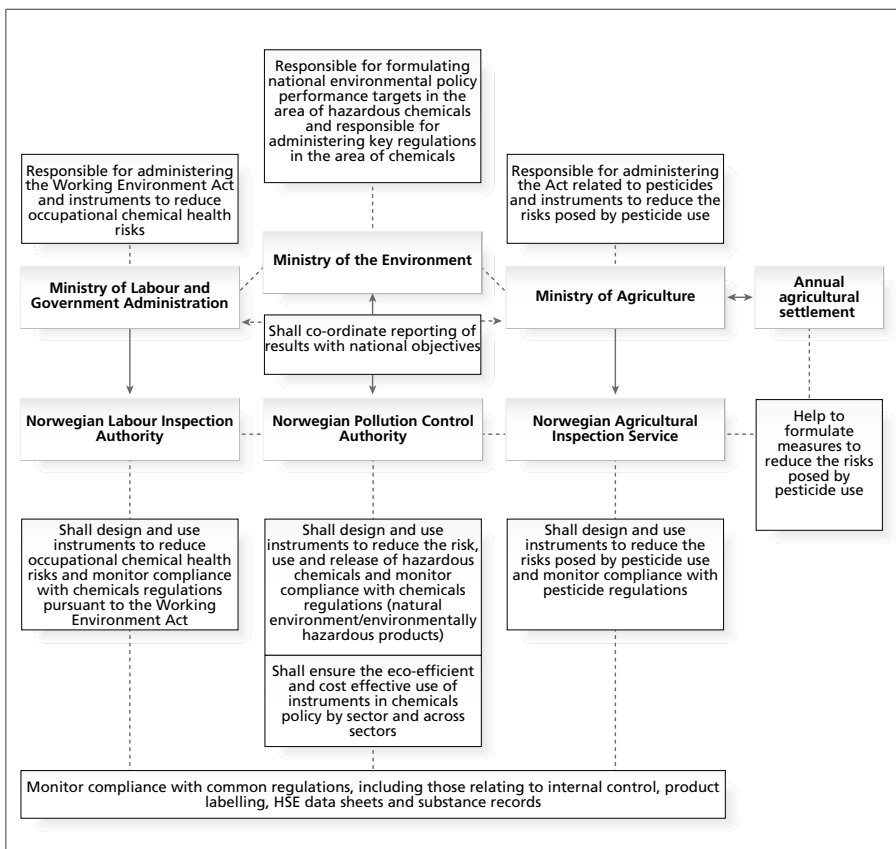


Figure 4.1 The authorities' division of responsibilities and tasks

### *The authorities' division of responsibilities and tasks*

The Ministry of the Environment has the paramount responsibility for the government's efforts to reduce the risks and release of chemicals in respect of the natural environment, and to prevent chemicals in consumer products from representing a health risk for the public.<sup>40</sup> Pesticides are regulated by regulations and schemes administered by the agricultural authorities, and the Ministry of Agriculture is responsible for the government's efforts to reduce the health and environmental impact from pesticides. The working environment authorities have a particular responsibility regarding worker health and chemical health risks in the workplace. The regulation of chemicals is complex and is divided among a number of ministries and directorates. Figure 4.1 shows an outline of the division of responsibility and tasks among the players covered by this audit.<sup>41</sup>

## **4.1 THE USE AND RELEASE OF CHEMICALS**

It is generally difficult to measure the release of chemicals, and there are many different sources for emissions. For some sources, such as point releases from large industrial plants, relatively reliable release figures can be obtained with relatively limited resources. For other sources, such as imported consumer products, it is in practice an impossible task to ascertain all emissions and discharges. It may be difficult to chart the sales of the products in question and estimate how big a share of the sales should be counted as release. Whether the substances are released into water or soil or the air is also of major importance. Generally, recipient conditions will be important for determining the risk to human health or the environment that a release actually represents.<sup>42</sup>

In reports from the pollution control authorities, sales and release are used interchangeably. The Norwegian Pollution Control Authority stated that material flow analyses are done as needed to chart the spread of a substance or substance group, when, for example, there is little information available of relevant sources. A review of a sample of these analyses shows that they provide an overview of the sales of relevant product groups, but to a lesser extent describe actual changes in emissions and discharges over time. The Norwegian Pollution Control Authority pointed out that it would almost be impossible to describe the actual changes in emissions and discharges. The knowledge of chemical use and release from products in Norway must primarily be based on information on the content of products when manufactured or imported and how the products end up as waste.

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<sup>40</sup> The Ministry of Health is responsible for any health or environmental impact from cosmetics and pharmaceuticals.

<sup>41</sup> The figure was prepared on the basis of a survey done as part of this investigation.

<sup>42</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 May 1999, attachment.

Nonylphenols are used in a number of products, including cleaning agents and paint. These compounds are toxic to aquatic organisms. In addition, these substances degrade slowly and can accumulate in organisms. They have a hormone-like effect on fish, which can lead to reduced fertility. This substance group is on the environmental protection authorities' A list

Polychlorinated biphenyls (PCBs) is a collective term for a group of substances that were used in insulation oils in electrical equipment, heating and transmission media and in building materials. These substances were banned in Norway in 1980, and today's emissions are primarily due to products that were put to use before then. PCBs are found in many localities with contaminated soil. PCBs are on the authorities' A list.

Chromium is a naturally occurring metal found in many forms and compounds. Compounds degrade slowly and may be highly toxic to aquatic organisms. Chromium is a constituent of a number of products, including steel alloys and paint. Chromium is on the environmental protection authorities' B list.

Mercury and mercury compounds are toxic and can cause renal or neural damage. Mercury is a part of many organic and inorganic chemical compounds. Mercury compounds are highly toxic to many aquatic organisms. Mercury is on the authorities' B list.

Brominated flame retardants is a collective term for a group of substances that prevent the spread of fire and that contain bromine. Some brominated flame retardants are toxic to aquatic organisms. Certain brominated flame retardants are suspected of having hormone-like effects, and some compounds poorly degrade in the environment. This substance group is on the B list.

Isocyanates are used in paint, for example. Exposure can cause skin and respiratory tract allergies, asthma and serious pulmonary disease. Some of these substances may be carcinogenic. Several compounds in this substance group are on the "observation list", and the use of isocyanates is assumed to be a serious working environment problem.

Phthalates are a substance group with softening properties and are found in fabrics and various plastics. These substances are suspected of being carcinogenic and harming reproductive function. This chemical group is on the "observation list".

#### *Box 4.1 Selected hazardous chemicals*

Source: The Norwegian Pollution Control Authority<sup>43</sup>

<sup>43</sup> <http://www.miljostatus.no/Tema/Kjemikalier/ulike-kjemikalier/ulike-kjemikalier.stm>, 6 February 2002.

There are many hazardous chemicals, and as was mentioned in Section 2.5, due to resource considerations, a selection of substances was made that were investigated further. There is a list of substances that the environmental protection authorities have priorities and for this reason are covered by special performance targets. The priority list, which is divided into a Part A and Part B, was launched in 1997 as part of Report no. 58 (1996–97) to the Storting, *Environmental policy for a sustainable development*.<sup>44</sup> The performance targets for the A and B lists are as follows:

- A-list: *Hazardous substances the releases of which are to be reduced substantially by 2000 and if possible halted by 2005*
- B list: *Hazardous substances the releases of which are to be reduced substantially by 2010*

Such specific performance targets assume in practice that it is possible to measure or estimate the releases of the chemicals in question.

In addition, in 1999 the environmental protection authorities compiled a so-called “observation list”. The Norwegian Pollution Control Authority stated that the “observation list” is a list of substances hazardous to human health or the environment that on the basis of current knowledge may represent special problems. The “observation list” is intended to be a specific aid in identifying substances that should be evaluated in connection with the substitution obligation. Although there are no specific reduction targets for the substances on the “observation list”, the Norwegian Pollution Control Authority stated that trends involving quantities and areas of use will be monitored for the substances on the list.

Box 4.1 provides a brief description of the individual substances and substance groups in the selection used in this investigation.

#### **4.1.1 Details regarding the Norwegian Pollution Control Authority and the release of chemicals**

The Norwegian Pollution Control Authority has the primary responsibility for the authorities’ efforts to reduce the emissions and discharges of chemicals hazardous to human health or the environment. The goal of release reductions has been central, both in the Norwegian Pollution Control Authority’s internal operational management and in the relationship between the Norwegian Pollution Control Authority and the Ministry of the Environment. For the Storting as well, targets for specific release reductions have been put forward.

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<sup>44</sup> There have been some changes since 1997 regarding the substances covered by the A and B lists. Originally, halons and CFC gases were included, but these were later removed. The reason is that measures to reduce ozone-reducing substances have been transferred to a different environmental policy performance area. Chromium was added to the B list.

*Table 4.1 Status for the release of selected chemicals in June 2001*

Nonylphenols	According to the Norwegian Pollution Control Authority, consumption of nonylphenols in 1999 was 215 tonnes and expected consumption in 2000 133 tonnes. In the reference year 1995, consumption is estimated to have been between 615 and 627 tonnes. This is a reduction of 80% from 1995 to 2000, and the Norwegian Pollution Control Authority considers its interim reduction target as met.
PCBs	The total amount of PCBs sold in products up until 1980 is estimated to have been approx. 1185 tonnes. Of this, approx. 450 tonnes is still in use. In addition, there are a number of localities where soil and sediments are contaminated by PCBs. How much PCBs this involves is not known. <sup>45</sup>
Chromium	According to the Norwegian Pollution Control Authority the release of chromium in 1995 totalled 51 tonnes and in 2000 37 tonnes, a reduction of approx. 27 % in the period. The Norwegian Pollution Control Authority points out that its reduction target for land-based releases will presumably be met.
Mercury	According to the Norwegian Pollution Control Authority the release of mercury in 1995 totalled 2376 kg, and in 2000 1597 kg, a reduction of approx. 33 % in the period. The Norwegian Pollution Control Authority points out that its reduction target for land-based releases will presumably be met.
Brominated flame retardants	Because the emissions of brominated flame retardants in 1995 are unknown, the progress over the period 1995-2000 cannot be reported. Emissions for 1999 are reported at between 0.2 and 1.5 tonnes. According to the Norwegian Pollution Control Authority, these release figures are very uncertain. The Norwegian Pollution Control Authority points out that its reduction target for land-based emissions can presumably be met if measures are introduced.
Isocyanates	There are very few release figures for isocyanates. The consumption of isocyanates subject to mandatory declaration has increased from 3400 tonnes in 1998 to approx. 5400 tonnes in 2000. <sup>46</sup> No specific targets have been set for release reduction.
Phthalates	There are no release figures for phthalates. The consumption of phthalates for 1998 is stated by the Norwegian Pollution Control Authority to be between 1000 and 5000 tonnes. <sup>47</sup> No specific emission reduction targets have been set for phthalates.

Source: The Norwegian Pollution Control Authority

<sup>45</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 8 June 2001, Status and further efforts on PCBs. The Ministry emphasises that targets for discharge of chemicals do not include the spread from one place in the environment to another. cf. letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002.

<sup>46</sup> Overview of isocyanates in industries and product groups in the Product Register, p. 5, 12 November 2001.

<sup>47</sup> Norwegian Pollution Control Authority report 1711/2000, Hazardous substances to be especially aware of (the "observation list").

The substances in question are used in many different contexts. Even if one is successful in ascertaining the most important sources, it may be difficult to calculate or estimate the extent of the total discharges and emissions. In the aggregate, these and other factors contribute to uncertainty. Despite the uncertainty, the Norwegian Pollution Control Authority has reported that substantial release reductions have been achieved for several substances. The basis for the Norwegian Pollution Control Authority's reporting is described below. It should be emphasised that the description is based on analyses of reports for a few selected substances. For some substances there may be special factors making it difficult to chart the releases of just those substances. Factors that have been relevant for several substances have been focused on, with challenges specific to an individual substance discussed to a lesser degree.

### Reported figures and uncertainty

In its reporting to the Ministry of the Environment, the Norwegian Pollution Control Authority pointed out that the targets for ten of twelve hazardous substances on the A list have been reached.<sup>48</sup> However, there is great uncertainty attached to the emission data for several of these substances.<sup>49</sup> In addition, significant, known emission and discharge sources have not been calculated for some substances, nor mentioned in the Norwegian Pollution Control Authority's release reporting. A discussion follows of specific factors that contribute to uncertainty regarding the actual level of emissions and discharges.

For some substances, emissions and discharges are estimated in such a way that there is little basis for calculating changes over time. For example, according to the Norwegian Pollution Control Authority, the consumption of nonylphenols has been reduced by 80 % from 1995 to 2000, and the target for this substance is deemed to have been reached. This assessment is based on a determination of estimated consumption in 1999 and expected consumption in 2000.<sup>50</sup> The conclusion that the target was reached for the release of nonylphenols is thus based on sales figures and not release figures.

In the period 1998–2000 important release sources were omitted from the release figures for some priority substances. For example, diffuse sources<sup>51</sup> are a primary source of mercury emissions,<sup>52</sup> representing an

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<sup>48</sup> The Norwegian Pollution Control Authority reports that the targets have not been reached for the substance groups PCBs and some tensides.

<sup>49</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 June 2001, Overview of releases for priority hazardous substances.

<sup>50</sup> National Institute of Technology, Norway, report no. 47639, Investigation of alkylphenols and alkylphenol ethoxylates – quantities and use in 1999 and 2000, October 2000.

<sup>51</sup> Diffuse sources are releases from traffic, vessels, and the heating of buildings.

<sup>52</sup> Statistics Norway report 2001/17, Atmospheric emissions of some hazardous substances in Norway.

estimated 25% of total releases.<sup>53</sup> Some diffuse sources were not included into the emissions accounts for mercury until 2001, and were not mentioned as a release source in the period 1998-2000. The Norwegian Pollution Control Authority stated that in 2001 Statistics Norway performed new calculations of atmospheric emissions from the combustion of coal, oil and wood, and that this caused the figures for combustion to rise. Even though important sources for the release of mercury were thus not mentioned in the Norwegian Pollution Control Authority's reporting in the period in question, the Norwegian Pollution Control Authority concluded in 2000 that its reduction target would probably be met.<sup>54</sup>

More specifically, according to the Norwegian Pollution Control Authority, mercury emissions were reduced by 33% from 1995 to 1999/2000.<sup>55</sup> This is chiefly explained by reduced discharges of amalgam from dental filling material, which comprises 74% of the total reduction in discharges in the period. The Norwegian Pollution Control Authority stated that the reduced discharges of mercury from dental filling material is primarily due to the introduction of regulations governing the handling of amalgam waste from dentists' offices.<sup>56</sup> The discharge estimates assume that all dental clinics have installed amalgam separators, which prevent amalgam from being released into sewer systems. They also assume a degree of separation of at least 95%. The Norwegian Pollution Control Authority stated that the degree of separation is probably lower, without it being possible to give a more accurate estimate.<sup>57</sup> This has significance for the estimated release figures and further adds to the uncertainty surrounding the magnitude of the emissions.

Similarly uncertain assumptions underlie the estimated emissions of brominated flame retardants. According to the analysis of material flows for brominated flame retardants in 1999, each year approx 145,000 tonnes of so-called EE waste are generated in Norway, which is estimated to contain 712 tonnes of flame retardants.<sup>58</sup> The figures for the quantities of EE waste<sup>59</sup> are based on estimated for 1995, but in the analysis of material flows are assumed to be constant until 2000. There are no reliable historical figures for EE waste, but those available point to a certain increase after 1995.

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<sup>53</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 June 2001, Overview of releases for priority hazardous substances, attachment.

<sup>54</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 15 December 2000, Plans for release-reducing measures for priority hazardous substances, attachment.

<sup>55</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 June 2001, Overview of releases for priority hazardous substances.

<sup>56</sup> Regulation of 23 September 1994 relating to waste and waste water containing amalgam from dental clinics and dentists' offices.

<sup>57</sup> Norwegian Pollution Control Authority report TA-1822/2001, Hazardous substances in products, p. 26.

<sup>58</sup> Electrical and electronic waste. Such waste is covered by a return scheme authorised by the Regulation of 16 March 1998 relating to discarded electrical and electronic products.

<sup>59</sup> Hjeltnes COWI, Electrical and electronic waste – sales figures, waste quantities and handling, January 1996.

*Table 4.2 Estimated quantities of electrical and electronic waste (EE waste)*

EE waste 1,000 tonnes. Years in parentheses			
Plastic .....	41 (1993)	45 (1995)	45 (1997)
Glass .....	7 (1993)	7 (1995)	8 (1998)
Metal .....	40 (1992)	41 (1995)	55 (1996)

Source: Natural Resources and the Environment 2001, Statistics Norway

The assumption of a constant amount of EE waste in the period 1995–2000 is therefore uncertain. This adds to the uncertainty regarding the estimate for the release of brominated flame retardants. Another factor contributing to further uncertainty regarding emissions is that brominated flame retardants are part of many finished products not subject to mandatory declaration to the Product Register. It is therefore difficult to have an overview of sales.

In addition, the Norwegian Pollution Control Authority itself pointed out in 1999 that the consumption figures for brominated flame retardants had substantial flaws. The reason was that amounts related to the national use of such flame retardants in production processes were not included. The material flows analysis for brominated flame retardants seldom included such use.<sup>60</sup> Nor does the Norwegian Pollution Control Authority have an overview of the quantity of brominated flame retardants in pure chemical form that are being imported into Norway. The reason for this is that most brominated flame retardants are not classified as dangerous and therefore not subject to mandatory declaration to the Product Register.<sup>61</sup> The release data available for brominated flame retardants are assumed to be so uncertain, that the data can hardly be used for environmentally-related estimates.<sup>62</sup>

A general source of uncertainty is that emissions and discharges from a number of industrial processes vary in the course of a year. This is especially the case for substances where industrial emissions contribute a relatively large percentage of total releases. Measurements of the emissions or discharges of hazardous substances from industrial plants is normally done a few times a year due to technical and economic factors. It is therefore difficult to know for certain whether the emissions measurements

<sup>60</sup> Norwegian Pollution Control Authority, internal memorandum dated 24 November 1999, Quality assurance of data in analyses of measures.

<sup>61</sup> Norwegian Pollution Control Authority internal memorandum dated 2 March 2000, Monitoring brominated flame retardants. The Norwegian Pollution Control Authority stated that the EU is working on risk-assessments of brominated flame retardants, and that these will probably lead to these substances being classified as hazardous.

<sup>62</sup> Norwegian Institute for Air Research (NILU) report, November 2001 by Leif K. Sydnes, An assessment of the basis for the authorities' evaluation of the use and release of hazardous chemicals, p. 4.



provide a representative picture of annual emissions. What this uncertainty means with regard to the release figures mentioned, is not stated.<sup>63</sup>

As the example of nonylphenols shows, release reporting is often based on sales figures. The seepage into the environment of chemicals sold in a given year can take place gradually over several years, which has a significant impact of calculating discharges and emissions. This applies especially to chemicals that are constituents of products with long lifetimes. For such chemicals, the annual amount released cannot be related directly to sales for the year, in that emissions and discharges can take place from a product mass that has been sold over several years.<sup>64</sup> Thus there will be a lot of hazardous substances in products that are in use, under the designation “hazardous substances in ‘accumulated volume’” There are few calculations of hazardous substances in the accumulated volume, which creates problems for calculating discharges and emissions. First, it is in itself a problem that the quantities of various chemicals in circulation are not known. So is the fact that the quantity of chemicals released from the “accumulated volume” is also unknown.

For 1999 7288 tonnes of chromium are estimated to have been sold in products going under the designation “chromium-alloyed steel and castings”.<sup>65</sup> By way of comparison, chromium releases from industry are estimated at 7.8 tonnes for 2000. How much of the 7288 tonnes of chromium in the product category in question will end up released is not estimated, and thus not included in the report for 1999. The entire amount is placed under “accumulated volume”. Products made of chromium-alloyed steel and castings generally have long lifetimes and will end up as waste many years after they are sold. Therefore, according to the Norwegian Pollution Control Authority there is reason to assume that the accumulated volume of chromium is substantial. However, no calculations have been performed of how much chromium there is in the accumulated volume, or how much chromium is actually released from the accumulated volume.<sup>66</sup> However, there is extensive recycling of metals, including chromium-alloyed steel and cast iron<sup>67</sup>, but it is not possible to provide exact figures for the quantities recycled.

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<sup>63</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 June 2001, attachment 2, p. 5.

<sup>64</sup> Norwegian Pollution Control Authority report TA 1822/2001, Hazardous substances in products, p. 1.

<sup>65</sup> Of an estimated amount for total sales for chromium of 7701 tonnes.

<sup>66</sup> Norwegian Pollution Control Authority report TA-1822/2001, Hazardous substances in products 1999, p. 21.

<sup>67</sup> Letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, attachment.

## Self-reporting by industry as the basis from release figures

The annual figures for industrial emissions and discharges of chemicals are primarily based on the companies' self-reporting to the Norwegian Pollution Control Authority.<sup>68</sup> As required by their discharge permits, enterprises subject to licensing are to submit annual reports, reporting any noncompliances and the total annual volume of emissions and discharges and waste. The responsibility for releases being measured correctly and for the reported release figures being correct and representative lies with the enterprises themselves.<sup>69</sup> Consequently, the reliability of the environmental protection agencies' figures for industrial emissions and discharges depends on the quality of the data reported.

Emissions and discharge data from enterprises can be changed many years after the emissions and discharges have been reported. This happens, for example, when new methods are introduced that make more accurate measurements possible. Such changes often lead to new, more correct calculations for releases for earlier years as well. Changes can also come as a result of the Norwegian Pollution Control Authority's compliance monitoring activities uncovering errors in the reported emissions and discharge figures from a company.<sup>70</sup>

The reported release of a substance for a certain year can therefore change over time. To illustrate this, the release figures for chromium can serve as an example. In 1999, industrial releases of chromium for 1995 were estimated to be 31.8 tonnes.<sup>71</sup> In 2000, industrial releases of chromium for 1995 were estimated to be 13.5 tonnes.<sup>72</sup> Thus, the estimated releases of chromium for 1995 were more than halved from 1999 to 2000. The date of this change is not given, nor have any reasons for the change been mentioned in the reports from the Norwegian Pollution Control Authority to the Ministry.

Previously reported release figures from the substances on the priority list have been changed on several occasions. Such changes result in the reports that are valid at any given time being updated. At the same time, such changes suggest uncertainty and indicate that the figures reported at

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<sup>68</sup> Norwegian Pollution Control Authority guideline 1777/2001, Enterprises' self-reporting to the pollution control authorities, p. 4.

<sup>69</sup> Letter from the Norwegian Pollution Control Authority to an Norwegian industrial enterprise in 1997 on the quality control of emissions data subject to reporting requirements.

<sup>70</sup> This type of erroneous reporting from the enterprise is not necessarily deliberate. For example, it may be due to a lack of expertise in the enterprise to do proper emissions and discharge measurements.

<sup>71</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 13 December 1999, "Report on analyses of measures for priority hazardous substances", attachment p. 54.

<sup>72</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 15 December 2000, "Plans for release-reducing measures for priority hazardous substances", attachment p. 16.

a given point in time may be changed.

The Norwegian Pollution Control Authority does not maintain an overview of changes to previously reported release figures. Although changes in release figures for individual enterprises are available from Inkosys<sup>73</sup>, it is not possible to obtain an aggregate overview of changes for an individual substance. Therefore, it is not known how such changes have affected the figures for the total emissions and discharges of individual substances.<sup>74</sup> The Norwegian Pollution Control Authority stated that the lack of an overview is due in part to limitations in the Inkosys database.

In 2000 the Norwegian Pollution Control Authority itself did an evaluation of the company self-reporting scheme.<sup>75</sup> It concluded that the agency had not communicated clearly enough that enterprises are to assess all emissions and discharges from their activities. In the guidelines to company self-reporting there was a requirement for “emissions and discharges of importance” to be reported. According to the Norwegian Pollution Control Authority, this formulation is so imprecise that it was difficult for the enterprises subject to self-reporting to act in accordance with it.<sup>76</sup>

In this evaluation, the Norwegian Pollution Control Authority also pointed out that there are few sanctions available against companies that do not comply with their reporting obligations. The Norwegian Pollution Control Authority can impose pollution fines, since violations of this obligation are punishable.<sup>77</sup> Reporting an enterprise to the police is time-consuming, and according to the Norwegian Pollution Control Authority, a violation of the self-reporting obligation does not by itself qualify for criminal charges.<sup>78</sup> Two enterprises were reported to the police for misleading reporting in the period 1998–2000.<sup>79</sup>

The reporting of enterprises with discharge permits was previously raised by the Office of the Auditor General in a report on Norway’s compliance with the OSPAR Convention.<sup>80</sup> In it the Office of the Auditor

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<sup>73</sup> Inkosys is the Norwegian Pollution Control Authority’s central database for registering *inter alia* discharges and emissions from enterprises subject to licensing requirements.

<sup>74</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002, p. 3.

<sup>75</sup> Norwegian Pollution Control Authority, 22 November 2000, Project to strengthen the exercise of authority, attachment 4.

<sup>76</sup> In the most recent edition of “Guidelines for enterprises self-reporting to the pollution control authorities”, the Norwegian Pollution Control Authority 1777/2001, pollution of significance is defined as “Pollution that causes or can cause harm or nuisance to the environment beyond what is purely trivial”.

<sup>77</sup> Cf. Section 78 subsection 1 of the Pollution Control Act.

<sup>78</sup> Norwegian Pollution Control Authority, 22 November 2000, “Project to strengthen the exercise of authority”, attachment 4, p. 6.

<sup>79</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002.

<sup>80</sup> Document no. 3:4 (2000–2001) *The Office of the Auditor General’s investigation of Norway’s compliance with the OSPAR Convention within industry, waste water treatment and agriculture.*

General showed that in company reporting for the period 1995-1998, breaches were reported for 57% of the discharge permits.

### The Product Register as the basis for emissions and discharge figures

The annual figures for emissions and discharges from products are primarily based on information from the Product Register. All products of which 100 kg or more are sold per year and which are to be labelled according to the “labelling regulations”<sup>81</sup> have to be declared to the Product Register. Finished products do not have to be declared. The responsibility for all products subject to mandatory declaration being reported to the Product Register in the correct quantities rests with the enterprises themselves. Consequently, the reliability of the environmental protection authorities’ figures for emissions and discharges from products depends on how reliable the data reported to the Product Register is. There are also fees charged for initial registration with the Product Register substances and mixtures of substances subject to mandatory declaration, and for advance notifications of new chemical substances.<sup>82</sup>

The Product Register is organised in a manner that makes double registrations possible.<sup>83</sup> The reason is that a chemical can be subject to mandatory declaration both when its manufactured or imported, and when it is sold further under a new name/by a new company, or is included as an ingredient in a new product subject to declaration. The same quantity of a given chemical can thus be registered twice, if the importer and consumer are two different companies, which burdens the figures from the Product Register of the total quantities sold with some uncertainty.

### The environmental protection authorities’ overall release index

Commissioned by the Ministry of the Environment, the Norwegian Pollution Control Authority has developed a system for “Weighted releases of heavy metals and hazardous substances on the priority list (weighted according to hazardousness)”.<sup>84</sup> This system is meant to be a tool for measuring trends in overall environmental impacts by weighting the emissions and discharges of various chemicals according to their hazardousness.<sup>85</sup> The various weighted releases are then summed up in an overall index.

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<sup>81</sup> Regulation of 21 August 1997 relating to the classification and labelling etc., of dangerous chemicals.

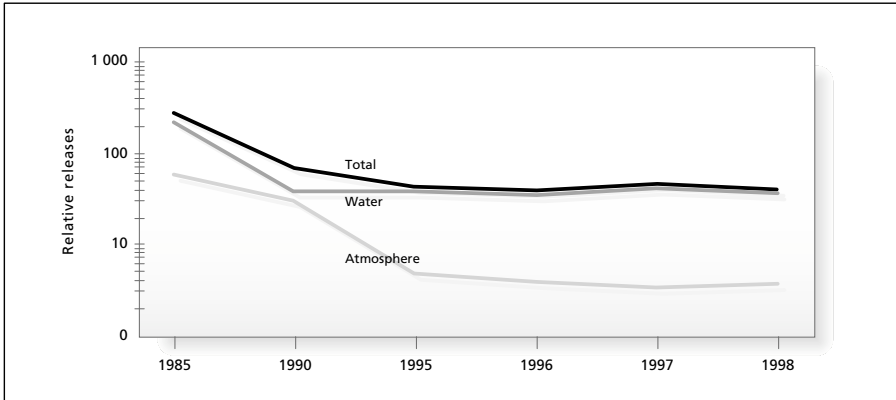
<sup>82</sup> Regulation of 27 December 1997 relating to the stipulation and collection of fees for the authorities’ control of chemical substances and mixtures of substances, and the Regulation of 19 December 1997 relating to fees for processing advance notification of new chemical substances.

<sup>83</sup> Statistics Norway memorandum 2000/4, Chemicals in Environmental Pressure Information Systems (EPIS).

<sup>84</sup> Norwegian Pollution Control Authority internal memorandum dated 3 May 1999.

<sup>85</sup> The weighting is intended to highlight the fact that environmental gains are greater from a substantial reduction of a very hazardous substance than from a substantially larger reduction of a less hazardous substance.

In this way, the Norwegian Pollution Control Authority has devised an “index for the releases of chemicals on the priority list weighted by hazardousness.” This index shows changes over time with regard to the overall release into the atmosphere and water of the chemicals on the priority list, and is reproduced below:



*Figure 4.2 Changes in the index for releases of chemicals on the priority list weighted according to hazardousness*

Source: The Ministry of the Environment, Report no. 24 (2000–2001) to the Storting, p. 62.

The scientific basis for the weighting system and the index has been the subject of discussion internally at the Norwegian Pollution Control Authority, and the discussion of its scientificness has been communicated to the Ministry of the Environment.<sup>86</sup> For instance, it is difficult to say anything about chemicals’ hazardousness if both human health and environmental aspects are to be included in the weighting of the chemicals. The reason is that some chemicals are very dangerous to the environment, but less harmful to humans. To quantify an overall environmental impact from hazardous substances has limited value if considerations of the surroundings are omitted. For example, it will matter if the release takes place in an environment where there are hardly any people or animals, or in densely populated areas.

In addition, not all the chemicals on the priority list are included in the index.<sup>87</sup> For example, brominated flame retardants are not included because there are not reliable enough emissions figures for these substances. The partial index for releases into water does not distinguish

<sup>86</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 May 1999, attachment.

<sup>87</sup> These are brominated flame retardants, some tensides, chlorinated alkyl benzenes, musk xylenes and trichlorobenzene.

between discharges into fresh water, fjords and the open sea. The Norwegian Pollution Control Authority points out that this is a problem, since it will strongly affect their hazardousness, which in turn is of significance for the weighting.<sup>88</sup>

The Norwegian Pollution Control Authority has stated that the element of “guesstimating” connected with this index is considerable. However, in connection with the presentation in Report no. 24 (2000-2001) to the Storting, there was no disclaimer regarding the quality of the basis for the index. Thus, the figure can give the impression of being better supported than is warranted from a scientific standpoint.<sup>89</sup>

#### **4.1.2 Details regarding the Norwegian Agricultural Inspection Service and the use of pesticides**

Sales of pesticides increased in 1998 by approx. 199 tonnes over the previous year, corresponding to approx. 26%. Total sales of pesticides also show that the amount sold from importers to dealers fell by half from 1999 to 2000. The primary reason for the changes in this period is the introduction of a new tax system from 1 March 1999 and a tax increase from January 2000. The new tax system and the tax increase led to the high sales volume in 1998 and 1999.

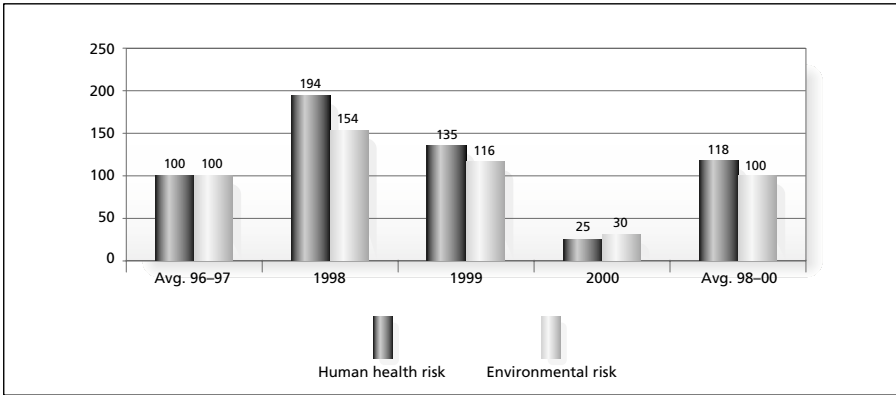
#### **Changes in health and environmental risks**

The Norwegian Agricultural Inspection Service has compiled an overview of changes in the risks to health and the environment in the period 1998-2000, with an average for the period 1996-1997 as a reference. The risk estimates are based on the pesticides’ inherent risk. A distinction is made between human health and environmental risk factors, and weighting given to substances in calculating the index was based on complex scientific assessments. The health risks are primarily determined on the basis of the pesticides’ acute toxicity and long-acting effects on humans. The assessment of environmental risk is based on knowledge of how the substances affect various biological indicators. The risk index is a function of the pesticides’ inherent properties and the quantity sold. In this function, pesticides with a high risk to human health or the environment are given a higher weight than substances with a lower risk.

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<sup>88</sup> Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 May 1999, attachment, p. 3.

<sup>89</sup> Norwegian Institute for Air Research (NILU) report, November 2001 by Leif K. Sydnes, An assessment of the basis for the authorities’ evaluation of the use and release of hazardous chemicals, p. 5.



*Figure 4.3 Changes in the risk index for pesticides*

Source: The Norwegian Agricultural Inspection Authority

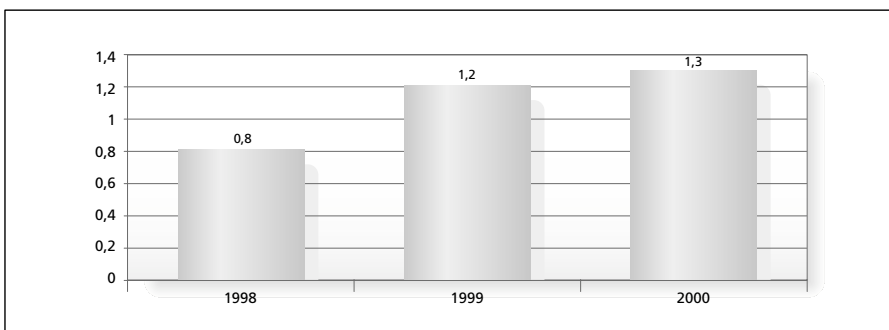
It is difficult to draw any conclusions from the changes in human health and environmental risks for such a brief time span, among other reasons because the risk indicators derive from sales statistics, which have shown great oscillations in the period. These oscillations are primarily due to hoarding and extraordinarily high sales in 1998 and 1999 resulting from the announced tax changes and tax increases. After the taxes were raised, sales plummeted in 2000. Based on the new measuring methods, one may expect to be able to register a measurable risk trend over time at the end of the plan of action period at the end of 2002.

### Pesticide residues in food

The Norwegian Agricultural Inspection Service follows the results of the Norwegian Food Control Authority's monitoring of pesticide residues in food. The Norwegian Food Control Authority tests samples of fruits, potatoes and other vegetables grown in Norway. In the period 1998-2000, over 1100 such samples were tested each year, primarily at the wholesale and retail level. The sampling was concentrated in geographical areas with significant local production or sales.<sup>90</sup> In addition, samples were taken of imported produce, such as fruits and vegetables.

In the period there was an increase in the number of substances tested for, while at the same time there was a slight decline in the number of samples that were analysed. The percentage of samples exceeding the thresholds for pesticide residues is shown in Figure 4.4:

<sup>90</sup> Norwegian Food Control Authority report 3-2001, Pesticide residues in vegetable foodstuffs 2000.



*Figure 4.4 Percentage of the number of samples exceeding the thresholds for pesticide residues in Norwegian foodstuffs*

Source: The Norwegian Agricultural Inspection Service

Although the number of samples exceeding the thresholds was low, there was a relative increase. The Ministry of Agriculture says this increase can largely be attributed to “technical excesses” as a result of the thresholds being set at the detection limits or the lowest analysable limit, when specific threshold levels are lacking.

#### **Pesticides in the environment (the Norwegian Agricultural Environmental Monitoring Programme)**

The Ministry of Agriculture and the Norwegian Pollution Control Authority have jointly financed a programme to monitor pesticides in surface water. The programme is being implemented by the Norwegian Centre for Soil and Environmental Research (Jordforsk) and includes tests of streams and small rivers in agricultural areas nationwide. Besides monitoring pesticides in six catchments, the program does spot tests to analyse pesticides in streams and rivers affected by agriculture.

The localities studied do not represent a statistical cross-section of Norwegian agricultural production, but are representative for ordinary forms of operation. The Norwegian Agricultural Environmental Monitoring Programme (JOVÅ) has gradually increased the range of its study, and in 1999 analyses covered 52 different substances. Along with an increase in the number of samples, improvements in the timing of when samples are taken and variations in weather conditions, this makes it difficult to compare the results from one year to another.

In the period 1995–1999, 13 different pesticides exceeded the toxicity threshold for aquatic organisms.<sup>91</sup> In all, 16 different pesticides were

<sup>91</sup> All together there were 156 instances of the toxicity threshold being exceeded. Metribuzine (H), linuron (H), propiconazole (F) and chlorfenvinphos (I) are the substances that have most often exceeded toxicity thresholds.



found over this toxicity threshold in surface water.<sup>92</sup> The figures for 1998 did not differ in particular from previous years with regard to discoveries in rivers and streams, but the concentrations were still rather high, and in some cases there might have been a risk of environmental damage for brief periods immediately after spraying.

In the Norwegian Agricultural Inspection Service's performance report it was pointed out that although it was not possible to say anything conclusive about trends regarding groundwater, for streams it varied whether there was an increased or reduced impact. No overall assessment of the impact was made in the report.<sup>93</sup>

#### **4.1.3 Details regarding the Norwegian Labour Inspection Authority and hazardous chemicals**

In its strategy dialogue with the Norwegian Labour Inspection Authority, the Ministry of Local Government and Regional Development pointed out that the reduction of chemical risk factors is to be an area of high priority. Among other things, the practical use of the Product Register as a tool should be evaluated.<sup>94</sup> The development of specific strategies for the agency's work on chemical health risks was emphasised in particular.

The Section of Chemical Affairs of the Directorate of Labour Inspection drew up a strategy document for its monitoring and control of the chemical working environment. The document emphasises that less hazardous substitutes must be sought for the most dangerous chemicals.<sup>95</sup> This is also in keeping with the provisions of the Working Environment Act relating to an employer's substitution obligation (Section 11 of the Working Environment Act). A draft plan of action points out that in order to encourage the use of alternatives to neurotoxic substances, the Norwegian Labour Inspection Authority needs to increase its knowledge of the field.<sup>96</sup>

Finding substitutes and reducing the use of particularly hazardous substances are also pointed to in the Authority's internal documents. Nevertheless, in the period 1998-2000 the Norwegian Labour Inspection Authority did not maintain a systematic overview of the extent of the use of particularly hazardous chemicals in the workplace, even though such information is available in part in the Product Register, for instance.

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<sup>92</sup> Norwegian Centre for Soil and Environmental Research report no. 22/01, Agricultural environmental monitoring in Norway, pesticides 1999, p. 4.

<sup>93</sup> The Norwegian Agricultural Inspection Service, Performance report 2000, p. 27.

<sup>94</sup> The letter of allocation from the Ministry of Local Government and Regional Development to the Norwegian Labour Inspection Authority for 1998, p. 7.

<sup>95</sup> Norwegian Labour Inspection Authority, The chemical working environment – the Labour Inspection Authority's strategy, June 1998, p. 22.

<sup>96</sup> The Norwegian Labour Inspection Authority, Plan of action HMS-K, 20 October 1999, p. 19.

Reports tied to the Ministry's letters of allotment do not discuss the use of hazardous chemicals. The Authority also stated that reduced use of hazardous chemicals was not considered a relevant objective. At a meeting with the Office of the Auditor General, it was stated that reducing the sale of chemicals is not a suitable objective, since sales do not present a reliable picture of the risk to employees at relevant enterprises.

### Lack of information on performance

At a meeting with the Office of the Auditor General, the Norwegian Labour Inspection Authority stated that it had not reached its own objectives for developing indicators for the chemical working environment. The Norwegian Labour Inspection Authority was charged with the task of assessing the information on performance that should go into its reporting to the Ministry of Local Government and Regional Development, in this case with particular emphasis on identifying indicators describing attainment of objectives, productivity, quality and the like.<sup>97</sup> In this connection the Ministry did not specifically point to the need for information regarding chemical health risks. The Authority indicated that it is a daunting, resource-intensive task to formulate indicators that shed light on factors of significance for chemical health risks. The Directorate of Labour Inspection informed the Office of the Auditor General that there was pressure to improve the quality of its reporting of results, and that this was a priority in a new strategic plan.

The Directorate of Labour Inspection is compiling statistics of occupational illnesses of which chemical substances are one of several possible causes. It pointed out the difficulty of using illness figures at the basis for prioritising and orienting compliance monitoring activities. One reason for this is that an accidental exposure to some types of chemicals can cause illnesses several decades in the future. Because of this, illnesses can be due to exposure problems that are no longer relevant. However, for some chemicals the time lag between exposure and the outbreak of illness is short. According to the Norwegian Labour Inspection Authority, the statistics for these illnesses are also of limited usefulness, since there is alleged to be considerable underreporting. The illness statistics are therefore only in a limited way a suitable basis for prioritising measures.

Since the agency has highlighted the use of isocyanates as a particular working environment problem, the Office of the Auditor General requested an overview of the extent of the use of these substances. The Norwegian Labour Inspection Authority had not prepared such an overview, even though there is a plan of action for the working environment authorities' work on isocyanates. In November 2001, on behalf of

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<sup>97</sup> Letter of allocation from the Ministry of Local Government and Regional Development to the Norwegian Labour Inspection Authority for 1999, p. 11.

the Norwegian Labour Inspection Authority, the Product Register produced an overview of the sales and use of isocyanates in various industries.<sup>98</sup>

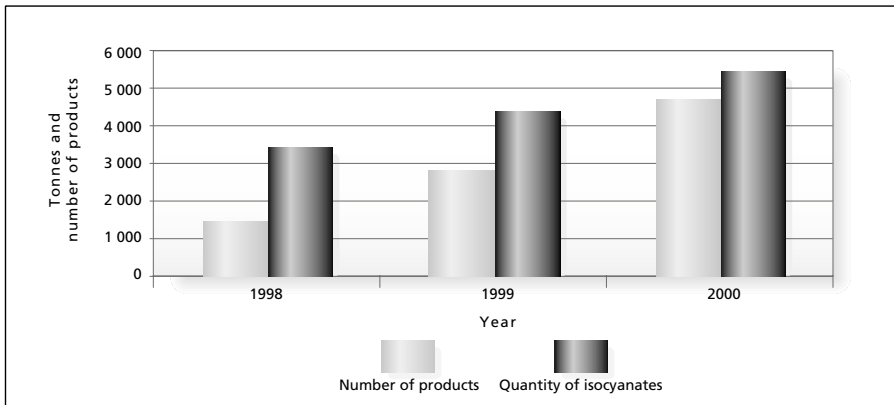


Figure 4.5 Isocyanates – quantity sold and number of products

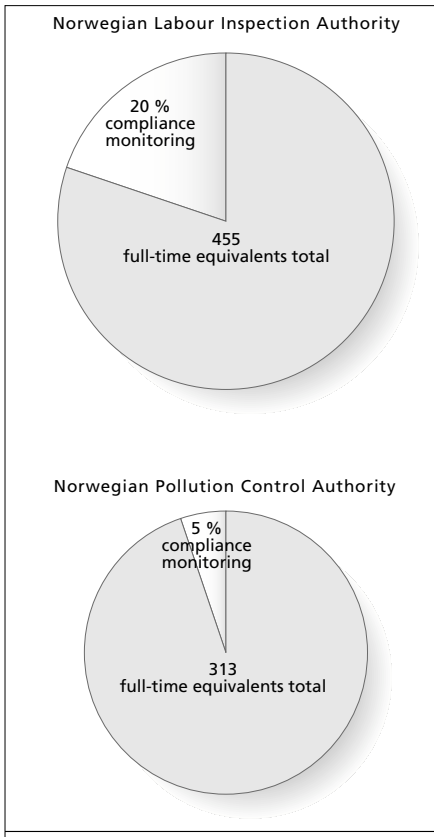
Source: The Product Register

The figure above shows that the use of isocyanates has increased, which seen in isolation may have resulted in an increased chemical health risk. The presence of the substances is a precondition for a risk arising, and a knowledge of hazardous substances in various products will be important for assessing chemical health risks in the workplace and where risk-reducing measures can be most effective.

## 4.2 MONITORING AND CONTROLLING HAZARDOUS CHEMICALS

The regulatory agencies have different priorities in monitoring compliance with the regulations. The agencies have different objectives for their activities and have several other tasks in addition to monitoring compliance with the regulations. Active compliance monitoring refers to those parts of the regulatory agencies external activities that consist in seeing to it that relevant regulations are complied with. Considered part of active compliance monitoring are the specific planning, implementation and follow-up of inspections and monitoring of enterprises covered by the regulations that the agencies administer. The development of new regulations, information aimed at the general public and internal administration are not considered part of active compliance monitoring.

<sup>98</sup> Overview of isocyanates in industries and product groups in the Product Register, p. 5, 12 November 2001.



*Figure 4.6 Share of resources for active compliance monitoring—annual average 1998-2000*

Source: The Norwegian Labour Inspection Authority and the Norwegian Pollution Control Authority.

Parts of the chemicals regulations are particular to the individual agency and mean that the agencies have characteristically different challenges. In key areas the agencies also administer a common set of regulations. All the agencies monitor enterprises' internal control,<sup>99</sup> and monitor compliance with the regulations relating to the use of chemicals. Figure 4.6 shows the place occupied by active monitoring of compliance with regulations at the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority.<sup>100</sup>

For the Norwegian Labour Inspection Authority and the Norwegian Pollution Control Authority, Figure 4.6 shows how big a share of the agencies' available full-time equivalents has been devoted to active compliance monitoring.<sup>101</sup> The calculation is based on information from the agencies' own performance reports in the period. The overview applies to all compliance monitoring activities in all industries.<sup>102</sup> For the Norwegian Agricultural Inspection Service's part, a questionnaire survey sent to the

<sup>99</sup> Provisions relating to internal control have been incorporated into the pesticide regulations effective in 2000.

<sup>100</sup> The Norwegian Agricultural Inspection Service's performance reports for the period 1998–2000 do not indicate how big a share of the resources have been devoted to active compliance monitoring.

<sup>101</sup> It should be stressed that the figures for time resources that the agencies gave do not include time spent on internal administration, strategy development, skills development etc. There may also be differences in the agencies' practices for registering activities under the designation "active compliance monitoring" that are not reflected in this presentation.

<sup>102</sup> The performance reports from the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority do not state the magnitude of resources devoted especially to monitoring compliance with chemicals regulations. The Norwegian Pollution Control Authority stated the number of inspections for which chemicals were the main topic, whereas the Norwegian Labour Inspection Authority did not have such an overview, either for topic, number of inspections or resource use.

regional offices revealed that from 1998-2000 the agency used on average less than one full-time equivalent on active compliance monitoring for pesticides.<sup>103</sup>

#### **4.2.1 Chemical monitoring activities at the Norwegian Pollution Control Authority**

The Norwegian Pollution Control Authority has at its disposal approx. 300 full-time equivalents. Its head office is in Oslo, but the agency also has offices in Skien, Horten, Bergen and Tromsø. Its chemical monitoring takes place primarily from the head office, and it is here that most of its inspectors are based. A voluntary control programme has been established with some of the larger industrial enterprises in Grenland, and some inspection personnel work from the office in Skien.

The Norwegian Pollution Control Authority is responsible for monitoring compliance with the Pollution Control Act and the Product Control Act with appurtenant regulations.<sup>104</sup> The regulations prohibit pollution and mandate that enterprises show due care in connection with the import, manufacture and marketing of products that may cause harm to human health or environmental disturbances. The Norwegian Pollution Control Authority is to monitor compliance with the regulations. The Norwegian Pollution Control Authority's compliance monitoring activities are aimed chiefly at industrial enterprises with discharge permits from the Norwegian Pollution Control Authority, and at producers, importers and marketers of potentially hazardous chemicals or products.<sup>105</sup>

The Norwegian Pollution Control Authority's has formulated few formal objectives for its compliance monitoring activities, justifying this with the fact that compliance monitoring is only one of several instruments that the Norwegian Pollution Control Authority uses to attain its primary objectives.<sup>106</sup> The agency has informed the Office of the Auditor General that these primary objectives govern all the agency's use of instruments, including compliance monitoring activities.

It was assumed in the period 1998 to 2000 that the number of inspections would be maintained. At the same time, it was a goal to redeploy

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<sup>103</sup> In addition, the agency monitors plant health. After a reorganisation and addition of resources to the area of plant health in 2000, the department in question had at its disposal approx. 35 full-time equivalents on average for 1998–2000. It is not stated how big a share of the resources in the area of plant health goes to active compliance monitoring.

<sup>104</sup> With regard to the Product Control Act, the Norwegian Pollution Control Authority shall monitor compliance with provisions regulating the product's noise characteristics and chemical properties.

<sup>105</sup> Norwegian Pollution Control Authority report TA 1815/2001, The Norwegian Pollution Control Authority's inspections in 2000, p. 5.

<sup>106</sup> The primary objectives of the Norwegian Pollution Control Authority are derived from the targets presented in Section 3.1 of this report.

resources from traditional monitoring of discharge permits to special monitoring of prioritised chemicals, for example.<sup>107</sup> The number of full-time equivalents in the section responsible for chemical monitoring activities was raised from approx. seven in 1998 to approx. eleven in 2000. The resources were primarily transferred from the section responsible for industry monitoring, including routine inspections and other monitoring of enterprises with discharge permits.

### The form and scope of compliance monitoring activities<sup>108</sup>

The Norwegian Pollution Control Authority stated that system audits are comprehensive form of compliance monitoring during which an enterprise is reviewed to ensure compliance with statutory and regulatory requirements and the terms of its discharge permit. A review of systems for internal control, i.e. the enterprise's routines, procedures, risk assessments and control systems can be an essential part of this compliance monitoring activity. System audits also involve in-depth analyses of priority areas, such as compliance with chemicals regulations. System audits are co-ordinated with the Norwegian Labour Inspection Authority and the other agencies that enforce regulations relating to systematic health, safety and environmental efforts. Reviews of internal control are performed on all kinds of enterprises, not only as part of system audits.

*Inspections* are brief visits to check whether selected statutory requirements are being complied with. The content of the inspection varies based on the type of the enterprise and industry to be inspected, the topic of the inspection and the legislation on which it is based. Inspections are performed of enterprises of all kinds, both with and without specific permits. Inspections on the basis of chemicals regulations are primarily aimed at the individual enterprises that produce, import or sell chemicals and chemical products.

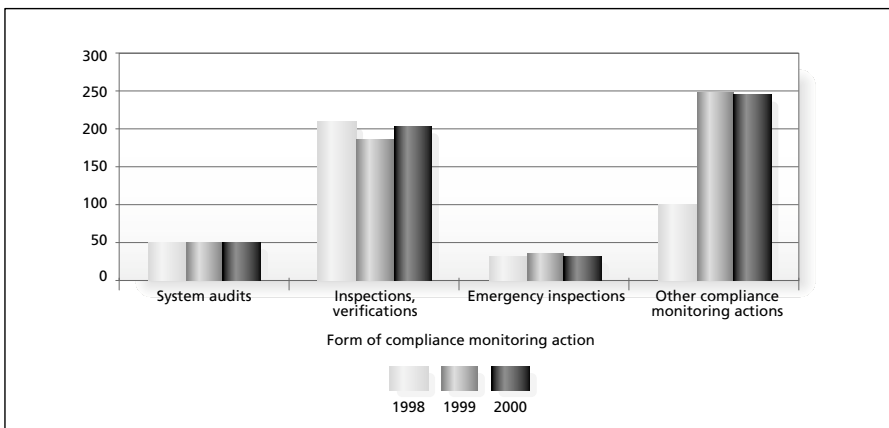
When a violation or suspected violation of the legislation administered by the Norwegian Pollution Control Authority is reported, *emergency inspections* are conducted if there is a need to clarify the cause of or responsibility in a case. These inspections are used to determine the actual circumstances and secure evidence, if the violation can have legal ramifications. Such emergency inspections can also assist the police or fire brigade in emergency situations.

The Norwegian Pollution Control Authority also performs *other compliance monitoring actions*, i.e. site visits, emission tests, spot checks of products, noise monitoring, quality control of emission data, "inspections by mail" and actions aimed at special regulated product types.

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<sup>107</sup> Norwegian Pollution Control Authority, 20 May 1996, Recommendations for the Norwegian Pollution Control Authority's compliance monitoring activities – strategy and resource needs, p. 15.

<sup>108</sup> The Norwegian Pollution Control Authority's website 6 February 2002, <http://www.sft.no/arbeid-somr/kontroll/metodikk/>.



*Figure 4.7 Number of compliance monitoring actions of the Norwegian Pollution Control Authority 1998–2000*

Source: The Norwegian Pollution Control Authority

Figure 4.7 shows that the number of inspections and other compliance monitoring actions in their various forms has been relatively stable in the period.<sup>109</sup> The exception is in the category “other compliance monitoring actions”, where the number registered increased from 1998 to 1999.

Historically the Norwegian Pollution Control Authority’s primary task has been to enforce the provisions of the Pollution Control Act, particularly the scheme related to Section 11 of the Act regarding dispensations from the prohibition against polluting. Enterprises that pollute or that may involve a risk of unintended pollution may apply for a discharge permit from the Norwegian Pollution Control Authority. Its monitoring activities have been primarily aimed at companies with discharge permits, but the Norwegian Pollution Control Authority stated that it has been monitoring compliance with the Product Control Act since 1990.

### **Risk assessments and compliance monitoring of enterprises with discharge permits**

The Norwegian Pollution Control Authority stated that discharge permits are issued on the basis of an evaluation of the company, including the type of environmental risk the enterprise poses. In this context all substantial risk aspects are to be evaluated. The Norwegian Pollution Control Authority gathers extensive information about the company, and most of the time sets specific conditions for the discharge permit.

<sup>109</sup> The figure shows all compliance monitoring actions Norwegian Pollution Control Authority has registered, regardless of topic (e.g. chemicals, noise, waste etc.).

The companies with discharge permits are placed into one of four inspection classes. The placement into inspection classes is based on systematic risk assessments, in which *inter alia* considerations of priority chemicals are central. The criteria for placing licensed enterprises (Section 11 of the Pollution Control Act) into inspection classes are thus crucial for evaluating the orientation of the Norwegian Pollution Control Authority's compliance monitoring resources.

These criteria are given in guidelines from 1999.<sup>110</sup> The guidelines state that the inspection class is determined on the basis of the extent of the emissions or discharges and recipient conditions. For example, all enterprises with substantial discharges of persistent organic compounds, cadmium and mercury are to be placed in the highest inspection class. It is the magnitude of the emissions or discharges before purification, since this process may also be a potential for release. Information is to be collected on the enterprises in connection with the risk assessment, and the information is to be updated regularly through self-reporting. Enterprises at a high risk of releasing hazardous chemicals are to be placed in the high inspection class.

The inspection class determines at the outset how often the enterprise is supposed to be inspected, and the form that the inspection or compliance monitoring action is to take. For example, enterprises in inspection class 1, the highest inspection class, are to be inspected at least every other year. These enterprises also undergo a more comprehensive system audit every four years. The enterprises in inspection class 2 are to undergo system audits every six years and be inspected every three years. Enterprises in inspection class 3 are also to be inspected regularly, normally every three to five years. The enterprises in the lowest inspection class are inspected as needed. The Norwegian Pollution Control Authority estimates that routine monitoring of discharge permits and other basic compliance monitoring activity<sup>111</sup> take up about half of the resources set aside for active compliance monitoring.<sup>112</sup>

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<sup>110</sup> The Norwegian Pollution Control Authority's quality system, Determination of fee and inspection class/change category, 15 July 1999, Appendix 1.

<sup>111</sup> Basic compliance monitoring activity is defined by the Norwegian Pollution Control Authority as the minimum of governmental oversight activity that is necessary to ensure compliance with the various regulations, regardless of priority areas, cf. the Norwegian Pollution Control Authority 20 May 1996, Recommendation for the Norwegian Pollution Control Authority's future compliance monitoring activity – Strategy and resource needs.

<sup>112</sup> The Norwegian Pollution Control Authority's Quality system, Guidelines for the planning process for the B Department's compliance monitoring activity, 25 June 1998, p. 2.



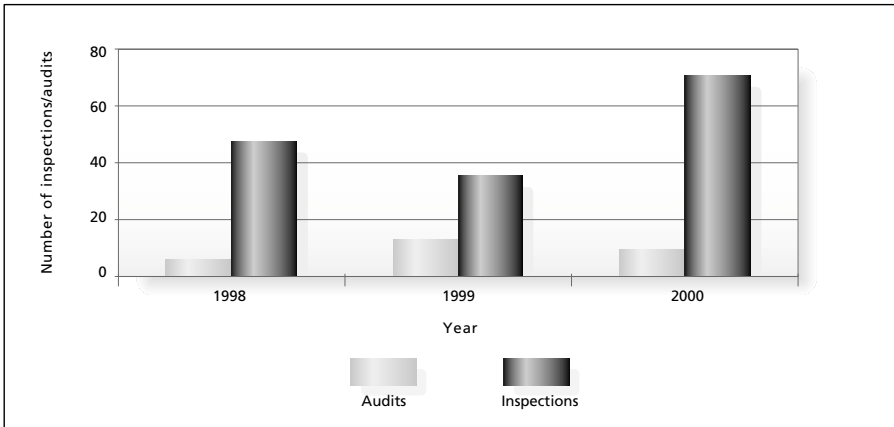


Figure 4.8 Monitoring chemicals at enterprises with discharge permits

Source: The Norwegian Pollution Control Authority

Parts of chemicals monitoring are integrated into the traditional monitoring of compliance with discharge permits. Figure 4.8 shows the extent of the special monitoring aimed at hazardous chemicals in enterprises with discharge permits. The figure shows inspections and audits aimed especially at the objectives of environmental policy performance target 5 *Hazardous chemicals* and that are not part of the routine monitoring of compliance with the terms set by the Norwegian Pollution Control Authority for the company's discharge permit.<sup>113</sup>

All enterprises in inspection classes one and two, as well as most in inspection class three, are to report their emissions and discharges to the Norwegian Pollution Control Authority each year. In 2000, this applied to approx. 400 enterprises. Starting in 2001, this will apply to approx. 200 enterprises, due to the delegating of tasks from the Norwegian Pollution Control Authority to the county governors. The reporting is to include the enterprises' emissions in relation to the terms of their discharge permits, an account of any noncompliances with the applicable requirements and an overview of the enterprise's total annual release of polluting substances.<sup>114</sup> This means that the Norwegian Pollution Control Authority has considerable information about these enterprises, which can be used, for instance, as basis for planning its monitoring of discharge permits. Information from company self-reporting is stored in a central database (Inkosys).

<sup>113</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002, responses to questions from the Office of the Auditor General, attachment p. 8.

<sup>114</sup> Norwegian Pollution Control Authority website, 6 February 2002, <http://www.sft.no/arbeidsomr/kontroll/metodik/>

Monitoring measures for enterprises with discharge permits might be evaluated and targeted on the basis of the company's self-reporting. The results of regular inspections, systematically registered in Inkosys will also be an important basis for determining and analysing the risk among enterprises. The knowledge of risk will then be used as the basis for prioritising compliance monitoring measures.

### Risk assessments and compliance monitoring of enterprises without discharge permits

Compliance monitoring of enterprises without discharge permits is primarily aimed at importers, producers and marketers of chemicals and products. Some compliance monitoring involves doing spot checks of products that may contain hazardous substances. The enterprises that do not have discharge permits from the Norwegian Pollution Control Authority are covered by the Product Control Act with appurtenant regulations in the area of chemicals.<sup>115</sup> The figure below shows the extent of compliance monitoring in enterprises without discharge permits. In addition, the Norwegian Pollution Control Authority has conducted 5-6 system audits annually of enterprises without discharge permits.

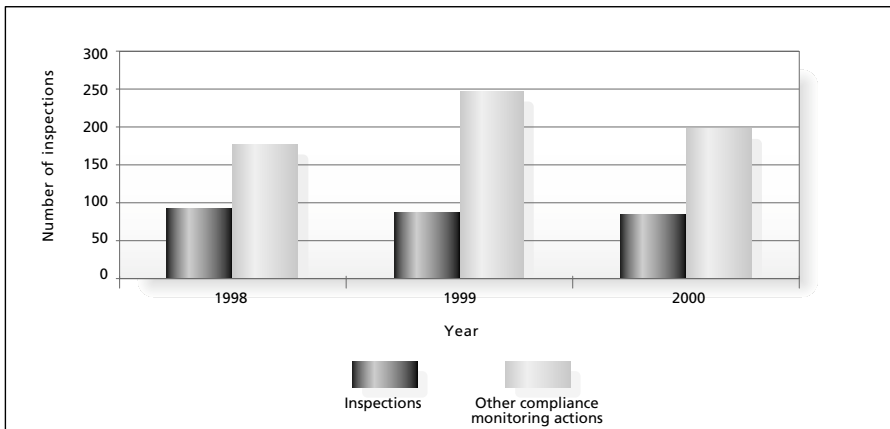


Figure 4.9 Monitoring chemicals at enterprises without discharge permits

Source: The Norwegian Pollution Control Authority

A considerable share of the category *other compliance monitoring actions* in 1999 and 2000 is “inspections by mail” for promoting reporting to the Product Register. The Norwegian Pollution Control Authority has stated that in 1999, 140 enterprises received letters from Norwegian

<sup>115</sup> Norwegian Pollution Control Authority report TA 1815/2001, The Norwegian Pollution Control Authority's inspections in 2000, p. 11.

Pollution Control Authority ordering them to report information to the Product Register.<sup>116</sup> The action in 1999 was followed up in 2000 with letters to 158 enterprises. In the Norwegian Pollution Control Authority's reports on its compliance monitoring activities, these letters are presented as "other compliance monitoring actions". "Inspections by mail" require relatively few resources compared with other forms of compliance monitoring.

### Analyses of measures

Relevant compliance monitoring measures may be based on various internal analyses or processes at the Norwegian Pollution Control Authority. The Ministry of the Environment and the Norwegian Pollution Control Authority have engaged in an ongoing dialogue on analyses of measures aimed especially at priority hazardous chemicals. All priority substances on the A and B lists have been systematically evaluated with relevant measures in mind for reducing emissions and discharges. The analyses of measures state for each substance which products and industries are most relevant for targeting measures on. At a meeting with the Office of the Auditor General the Norwegian Pollution Control Authority stated that the use of compliance monitoring was evaluated in connection with the analyses of measures, and that several compliance monitoring measures were implemented on the basis of the data from them.<sup>117</sup>

### The "observation list"

The Norwegian Pollution Control Authority stated that individual substances are often the basis for planning compliance monitoring measures. The "observation list" is a key tool in this regard. It is documented that particular risks of damage to human health or the environment are linked to these substances. Products containing especially dangerous chemicals have been identified, and relevant industries that handle these products have been surveyed. Along with other sources, the "observation list" provides an overview of exposed industries and products where chemicals can be a particular problem. The Norwegian Pollution Control Authority stated that the list is actively used as a basis for planning compliance monitoring measures, *inter alia* in combination with the Product Register.<sup>118</sup>

However, the "observation list" identifies many high risk industries and product types. These include in turn thousands of products and enterpris-

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<sup>116</sup> Norwegian Pollution Control Authority Memorandum, Evaluation of, and experience from, the "Chemicals in the Product Register" project, p. 2, not dated.

<sup>117</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002, on the planning process at the Norwegian Pollution Control Authority, attachment p. 8.

<sup>118</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002, responses to questions from the Office of the Auditor General, attachment p. 7.

es. It is a considerable challenge to evaluate and compare the risks connected with enterprises in the industries in question as the basis for prioritising compliance monitoring measures. The Norwegian Pollution Control Authority confirms that this is a difficult field. The Norwegian Pollution Control Authority informed the Office of the Auditor General that with regard to hazardous substances in finished products it was especially difficult to select the proper targets for compliance monitoring. There are thousands of such products, many of which are only regulated through the Product Control Act.<sup>119</sup>

### The Product Register

Information from the Product Register is another key aid for monitoring chemicals, and the Norwegian Pollution Control Authority stated that information is gathered and used actively to chart the sales, import and manufacture of chemical substances and products. Set up in 1981, the register has the task of gathering and storing information on chemical products sold in Norway. The information provides an overview of the products subject to mandatory labelling that are on the market, and the companies that manufacture or sell them. Information is stored regarding the products' composition and the amounts of the various substances.

The manner in which information is stored in the Product Register makes possible analyses on the basis of individual substances, product and product types and industries. The register can be used to plan inspections and monitoring, for example, by generating a list of industries that use products with a certain chemical composition. On the basis of such lists, one can assess relevant enterprises where the risk of the release or incorrect use of hazardous chemicals may be high.

The Norwegian Pollution Control Authority stated that the Product Register is used in planning inspections etc., to identify industries and targets for compliance monitoring that are relevant in connection with priority chemicals. However, no studies had been done especially to see how the Register could best be used as part of compliance monitoring activities. Nor had any written routines been prepared for how the Product Register should be used as part of the annual planning of compliance monitoring activities.

### Analyses of material flows

A significant amount of hazardous substances is found as the constituents of finished products. Where such substances occur is less known, since the import, sale and use of dangerous chemicals in finished products are

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<sup>119</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 16 October 2001.

not reported to the Product Register. Thus, the pollution control authorities do not have the same access to information on chemical content for products of this type.

The Norwegian Pollution Control Authority stated that analyses of material flows are done whenever there is an inadequate overview of the use of the substances in question. Such an incomplete picture may be because the substances have not yet been classified or are assumed to occur in finished products. Analyses of material flows are also used to obtain information as the basis for risk assessments or for following up national and international obligations and measures.<sup>120</sup>

In Norway, analyses of material flows have been done for selected substances and substance groups. The purpose of such an analysis is to chart the industries and products in which the substances are found and in what quantities. For example, in 1999, analyses of material flows were performed for brominated flame retardants and short-chain chlorinated paraffins.<sup>121</sup> In the 1990s, analyses of material flows were done for 25 substances on the A, B or “observation” lists. In addition to the analyses of material flows, there are data in a separate series of reports *Hazardous substances in products*. In recent years these reports have been issued annually, and present an aggregate overview of the occurrences of substances on the A and B list in products in Norway. This overview is largely based on data from material flows analyses and builds upon them.<sup>122</sup>

### Comparison of risk and prioritising

The Norwegian Pollution Control Authority stated that the “observation list” provides details on which branch of the chemical industry the various substances are used in, and that this was the basis for prioritising compliance monitoring measures.<sup>123</sup> However no systematic and uniform analysis based on risk had been done to rank industries and enterprises from the “observation list” or other sources.

Since the list includes a large number of enterprises, it is only to a limited degree suitable as a basis for prioritising compliance monitoring measures. On the “observation list” risk is analysed on the basis of individual chemicals. Compliance monitoring activities, however, are to be aimed at enterprises, and knowledge of the risk in individual industries and companies is therefore crucial. As pointed out above, compliance

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<sup>120</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General 17 January 2002, responses to questions from the Office of the Auditor General, pp. 5–6.

<sup>121</sup> Norwegian Pollution Control Authority report 99:23 Brominated flame retardants, and report 99:24 Short-chain chlorinated paraffins.

<sup>122</sup> Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General 17 January 2002, responses to questions from the Office of the Auditor General, pp. 5–6.

<sup>123</sup> Letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, attachment, p. 4.

monitoring aimed at enterprises with discharge permits is based on just such knowledge. A corresponding system for uniform risk assessment of industries and companies without discharge permits has not been established.

The Norwegian Pollution Control Authority acknowledged that it is particularly difficult to identify which enterprises have the greatest risk linked to the many different products and their content of hazardous substances. The Ministry of the Environment stated that the release of hazardous chemicals is a growing problem. For the Norwegian Pollution Control Authority as a regulatory body this is a complex challenge. Limited resources make it particularly important that the use of instruments is targeted at those topics and enterprises that yield the greatest risk reduction.

Through the Product Register, among other things, the Norwegian Pollution Control Authority has extensive information on hazardous chemicals in various types of products. However, many product types are not registered in the Product Register, and in Norway as well as abroad special measures have been taken to chart the occurrence of hazardous chemicals in these product types. But the Norwegian Pollution Control Authority has not done a systematic comparison of the results of these analyses to determine particular risks from these product groups. Such a systematic survey may strengthen the basis for comparing various product groups and identifying and ranking industries and enterprises according to the risk they pose.

In addition to the Product Register and scientific analyses on the basis of individual substances or product groups, there will be other registers and statistics that may contain valuable information. The Norwegian Pollution Control Authority stated that in collaboration with Statistics Norway and customs authorities, for instance, a project has been implemented to examine the possibility of exploiting relevant data sources to obtain a better overview of the import of dangerous chemicals and whether these are being reported to the Product Register.<sup>124</sup>

Basing compliance monitoring on risk requires an adequate supply of information. The Norwegian Pollution Control Authority has adequate information on companies with discharge permits and information on enterprises that handle products subject to mandatory declaration to the Product Register. With regard to enterprises with discharge permits, all targets of compliance monitoring are evaluated according to uniform criteria. Extensive information is gathered on key aspects of risk in advance of the assessments. For industries and enterprises that deal with finished products, the availability of information is limited, even though the

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<sup>124</sup> Letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, attachment, p. 5.

Norwegian Pollution Control Authority did analyses of material flows for several substances.

The fact that the regulatory authorities have different information available on different categories of enterprises may in itself be a challenge. There may be a tendency for compliance monitoring resources to be used in areas where the authorities have the information they themselves believe is necessary in order to prioritise on a scientifically justifiable basis. At the same time, the relevant risk may be substantial in areas about which the authorities have little information. The figures that show changes in the use of compliance monitoring resources confirm that a substantial share of resources are used on the target group that is well known (companies with discharge permits), and that this share has probably increased.<sup>125</sup>

Furthermore, the Norwegian Pollution Control Authority has revenues tied to its compliance monitoring activities, in the form of refunds of monitoring expenses in connection with audits or inspections, for example. The table below shows these revenues for 1998-2000:

*Table 4.3 The Norwegian Pollution Control Authority's revenues from compliance monitoring at enterprises with discharge permits, figures stated in NOK 1000*

Year .....	1998	1999	2000
Compliance monitoring activity:			
Inspections .....	1904	1471	1291
Audits .....	4190	2307	3492
Total .....	6094	3778	4783

Source: The Norwegian Pollution Control Authority

The revenues from inspections and audits depend on the active monitoring of compliance at enterprises with discharge permits. General compliance monitoring in the chemicals area at enterprises without discharge permits does not produce the same kind of revenues.<sup>126</sup> The Norwegian Pollution Control Authority stated at a meeting with the Office of the Auditor General that the Ministry of Finance had set requirements for the earnings tied to the Norwegian Pollution Control Authority's compliance monitoring activities. At the same time it was claimed that today the earn-

<sup>125</sup> This division of resources may also reflect the fact that the risk is greatest in enterprises with discharge permits, or that compliance monitoring is considered an especially appropriate instrument for this group of enterprises.

<sup>126</sup> Norwegian Pollution Control Authority pointed out that revenues are received from the monitoring of chemicals since enterprises registered in the Product Register have to pay a fee.

ing requirements do not represent a conflict of interest with regard to risk based monitoring and prioritising for the Norwegian Pollution Control Authority.<sup>127</sup>

This requirement, judging from the way it is discussed in documents prepared as part of planning compliance monitoring, gives the impression of being normative. An internal memorandum from 1999 discusses “how available resources for compliance monitoring should be distributed to meet the Norwegian Pollution Control Authority’s earnings requirements...” Additionally “... monitoring activities should be organised so as to meet the Norwegian Pollution Control Authority’s earnings requirements”.<sup>128</sup> The importance of the earnings requirement is also underscored in the Norwegian Pollution Control Authority’s basis of planning for 2001 and 2002. There it is emphasised that compliance monitoring should be done in such a way as to meet the Norwegian Pollution Control Authority’s earnings requirements.<sup>129</sup>

At a meeting with the Office of the Auditor General, the Ministry of the Environment denied that the revenues from compliance monitoring activities are a form of an earnings requirement. It was stated that when the Norwegian Pollution Control Authority actually has revenues from its compliance monitoring activities, the central government budget has to have a revenue item for these revenues, and the item must have a budgeted amount. The Ministry stated that there was no formal requirement for the revenues to be of a certain magnitude.

#### **4.2.2 The control of pesticides at the Norwegian Agricultural Inspection Service**

The Norwegian Agricultural Inspection Service administers the regulations relating to pesticides in Norway and has several important tasks enshrined in the Act relating to Pesticides with appurtenant regulations. A substantial portion of the resources the agency uses in this area goes to processing applications for approval of pesticides. The approval scheme is outlined briefly in Box 4.2.

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<sup>127</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 25 June 2001.

<sup>128</sup> Norwegian Pollution Control Authority internal memorandum dated 25 November 1999, Inspections in 2000. Request for support of principles and assumptions as the basis for meeting the earnings requirement while at the same time sufficient compliance monitoring capacity is allocated to project-oriented inspections.

<sup>129</sup> Norwegian Pollution Control Authority internal memorandum dated 2 July 2000, Basis for planning for 2001.



Pesticides sold in Norway must be approved by the Norwegian Agricultural Inspection Service, and the approval is granted for five years at a time. Approval requires documentation of the agents' risks to human health and the environment. Through its use of the substitution principle, the scheme is intended to ensure that approval is granted only to products that, after an overall assessment, are found to be as effective as, or to have advantages over, products already approved or other methods for the same purpose.

An overall assessment is to be done, weighing the benefits against any undesirable effects on human health or the environment that the use of a pesticide might have. In instances where the benefits are judged to be small relative to the adverse effects, the product is not to be approved. A broadly constituted Pesticides Council evaluates individual applications and gives its recommendations to the Norwegian Agricultural Inspection Service, which makes the final decision. It is the Norwegian Agricultural Inspection Service that provides the council with technical data and gathers the necessary background information about the product and its effects.

*Box 4.2 Approval scheme for the sale of pesticides in Norway*

The Norwegian Agricultural Inspection Service has two levels of authority. The central administration is located in Ås outside of Oslo and has approx. 125 employees. In addition, the Norwegian Agricultural Inspection Service has three regions, with seven district offices in Oslo, Tønsberg, Kristiansand, Stavanger, Bergen, Stjørdal and Bodø. The agency also has agreements for performing various regulatory tasks with the County Governors' Departments of Agriculture in the two northernmost counties. There are approx. 45 employees in the regional offices.<sup>130</sup> It is primarily the regions that conduct active monitoring of compliance with the regulations that the agency administers. At a meeting with the Office of the Auditor General, the Norwegian Agricultural Inspection Service stated that the regional offices' primary inspection task was to monitor plant health and plant imports, and that 80-85% of compliance monitoring resources were used on this.<sup>131</sup>

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<sup>130</sup> Ministry of Agriculture, 8 March 2002,

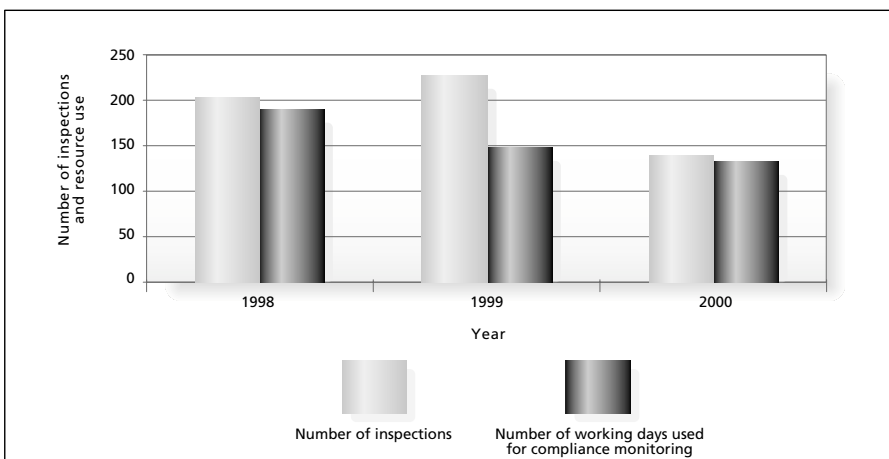
<http://www.odin.dep.no/ld/norsk/Ansvarsomraader/020071-990019/>

<sup>131</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

## Background

There are approx. 900 dealers and approx. 20 importers of pesticides in Norway. The regional offices actively monitor the dealers and importers of pesticides and process applications for licences to sell these products. The central administration is responsible for approving importers. The inspection of the importers' warehouses has primarily been done by the district offices as part of its dealer monitoring.

The extent of compliance monitoring has varied during the period 1998-2000. Traditionally the Norwegian Agricultural Inspection Service has done spot checks at 200-250 dealers each year. At the district offices there were all together approx. ten persons involved in dealer monitoring. Figure 4.10 shows inspections conducted and does not distinguish between dealers and importers.<sup>132</sup>



*Figure 4.10 Number of inspections and resource use for monitoring dealers and importers of pesticides*

Source: The Norwegian Agricultural Inspection Authority

The audit revealed a fall in the number of inspections done in 2000. The resource use tied to compliance monitoring activities was also reduced. Parallel with this development is that the number of licensed dealers fell from approx. 1200 to 900. The agency stated that the reduction in the number of licences was chiefly due to changes in the regulations with new requirements for dealers. The changes resulted in a need to restructure and adapt compliance monitoring activities to the new regula-

<sup>132</sup> In 1998 and 1999 the Norwegian Agricultural Inspection Service's central administration did not conduct inspections of importers, but in 2000 conducted audits of pesticide importers. These audits are in addition to the overview in the figure.

tions. According to the Norwegian Agricultural Inspection Service, this restructuring was resource-intensive.<sup>133</sup>

The Norwegian Agricultural Inspection Service stated that it had a goal of inspecting the largest dealers every year and the other dealers every other or every third year. For 2000, the Agricultural Inspection also had a goal of monitoring the use of pesticides on ornamental plants in market gardens and nurseries.<sup>134</sup> This inspection was carried out in 2001.

Before the changes in the regulations at the end of the 1990s, pesticides were divided into four different hazard classes. Depending on the hazard class there were differing requirements linked to sale and use. For agents in the highest hazard class, a use permit had to be applied for from the authorities. In addition, the users of all agents in the two highest hazard classes had to undergo training. The dealers of pesticides were ordered to closely monitor the sale of these agents, including keeping a register of those whom the agents were sold to. The instructions for the Norwegian Agricultural Inspection Service's dealer inspections emphasised this requirement.<sup>135</sup>

From 1 July 1997, the provisions relating to licences for the sale and use of pesticides were expanded and tightened. Henceforth, all enterprises that wished to sell pesticides and all professional users had to undergo training and pass a written test before being issued a licence.<sup>136</sup> Among other things, this has resulted in farmers and dealers that previously had little knowledge about pesticides undergoing training and being licensed to use any type of agent.

Part of the background for the changes in the regulations in the 1990s was the need to harmonise labelling of pesticides with that of other chemicals. A consequence of this is that the scheme of dividing pesticides into hazard classes was abolished. Since different rules were associated with this division, the new regulations did less to distinguish the agents by hazardousness. Anyone now holding a licence may use any kind of agent, and dealers no longer keep a register of those who purchase the most hazardous products.

A new regulation that came into force in 1999 requires that agricultural enterprises keep a journal of the use of pesticides. As a consequence of this, the municipal agricultural authorities were assigned by the Norwegian Agricultural Inspection Service the task of inspecting these journals. For reasons of efficiency, these inspections were tied to existing

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<sup>133</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

<sup>134</sup> Norwegian Agricultural Inspection Service, Overall annual performance plan for 2000, p. 4.

<sup>135</sup> Norwegian Agricultural Inspection Service, Instruction for the Norwegian Plant Inspection Service for the control of pesticides etc., 5 November 1986.

<sup>136</sup> Letter from Norwegian Agricultural Inspection Service to holders of licences to sell pesticides dated 4 February 1997.

monitoring of agricultural subsidy schemes, where the target is that 5% of the enterprises that receive subsidies will be inspected annually.

In connection with their introduction in 1999, the results of these inspections were to be reported to the Norwegian Agricultural Authority. However, in 2001 the Norwegian Agricultural Inspection Service gathered reports from the municipal agricultural authorities to determine compliance with the new regulation requiring the keeping of spraying journals. The results so far show that relatively few noncompliances with the obligation to keep a journal of pesticide use were reported.<sup>137</sup> Since this is a relatively new topic for agriculture and the inspectors alike, it is so far too early to conclude that the requirement to keep a spraying journal is being satisfactorily complied with.

### Regulated groups for which little monitoring is done

In the period 1998-2000 the Norwegian Agricultural Inspection Service has done little monitoring of pesticide users. Pursuant to the Act relating to Pesticides and appurtenant regulations, users of pesticides are required to handle, store and deliver agents properly and in accordance with the labelling. Neither agricultural enterprises nor other users of pesticides were inspected by the Norwegian Agricultural Inspection Service in the period in question.<sup>138</sup>

There are more than 70,000 agricultural enterprises in Norway. About half use pesticides in connection with their production. The consumption of pesticides varies depending on the size of the enterprise and on what is being raised. Whereas approx. 25% of animal feed producers use pesticides, more than 90% of the producers of cereals and oil producing plants use such agents.<sup>139</sup> Thus, the risk to human health or the environment connected with pesticide use will vary. In larger enterprises with crops requiring intensive spraying, there may be a considerable risk of harm to people and the natural environment if the agents are used incorrectly.

There is extensive regulation of pesticide use. As Box 4.3 shows (p. 84), the limitations can apply to various factors. The crops for which the agent is permitted, dosages and conditions for use are indicated for all products. There are also rules for how the agents are to be sprayed as well as for protective equipment. Some permitted products are highly toxic, and incorrect use can have serious consequences.

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<sup>137</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

<sup>138</sup> The Norwegian Agricultural Inspection Service considers the Food Control Authority's monitoring of pesticide residues in vegetables as a monitoring of users, and initiates a reaction in light of the violations uncovered. The same applies to inspections of spraying journals, which are performed by the municipal agricultural authority. The requirement to show a licence when purchasing pesticides is also a way of verifying that the regulations are being followed.

<sup>139</sup> Prosjektforum AS, Questionnaire survey on the use of pesticides – summary, pp. 4-5, 10 March 2000.

Basudin 600 EW contains the active ingredient diazinon, which is an important insecticide for use against pests in vegetables, fruits and berries. As a result of changes in the EU, the maximum value for residues of diazinon were reduced last year. The Norwegian Agricultural Inspection Service therefore decided to remove the crops this reduction applied to, which resulted in the area of use outdoors being limited to carrots, swedes, turnips and turnip-rooted celery. Spraying strawberries is no longer permitted.

Diazinon is part of the Norwegian Food Control Authority's programme to monitor pesticide residues in vegetables. As a result of the discovery of residues in carrots in 2000, the conditions for use in carrots and turnip-rooted celery were changed. The maximum dosage has been reduced and drenching is no longer permitted.

Diazinon affects the nervous system. It increases the transmission of signals from the nerves to many organs and in the brain, leading among other things to nausea, stomach cramps and diarrhoea. If ingested in small doses over a long period, diazinon inhibits an enzyme in the blood. If used according to the approved label, Basudin 600 EW will not cause an unacceptable risk to human health, either with respect to the ingestion of residues in food or with respect to exposure in connection with the use of the product.

The risk of leaching into groundwater is considered to be small, except when heavy rains fall a short time after spraying onto soil types with low organic content. Diazinon is highly toxic to insects, birds and aquatic organisms. To avoid undesirable environmental effects, there are limitations on the way in which it is used.

#### *Box 4.3 Facts about the pesticide Basudin 600 EW*

Source: The Norwegian Agricultural Inspection Service

Of 220 approved products, 38 are considered to involve a high risk to both human health and the environment. In the period 1996 to 2000, an average of 358 tonnes were sold each year of these products posing an especially high risk. Total annual sales of all types of products in the same period averaged 1900 tonnes.<sup>140</sup>

In 1999 the Norwegian Agricultural Inspection Service conducted a questionnaire survey to determine farmers' attitudes and behaviour regarding the handling of pesticides. The Norwegian Agricultural Inspection Service evaluated the results and concluded that they were not satisfactory in the areas of storage before and after use, delivery, journal

<sup>140</sup> Letter from the Ministry of Agriculture to the Office of the Auditor General dated 29 April 2002.

keeping, easy-to-understand labelling, use of protective equipment, accidents and injuries.<sup>141</sup> For instance, the survey showed that approx. 30% of the farmers did not perceive the labelling of the products as easy to understand, and that only about 10% of the farmers had delivered pesticides or the leftovers of such agents to an approved hazardous waste facility.<sup>142</sup> One of the Norwegian Agricultural Inspection Service's regional offices stated that the findings made among dealers and importers were largely of a less serious nature. This regional office also pointed out that if one is keen to reduce the risk of damage to human health or the environment linked to pesticide use, efforts aimed at users would probably be most effective.

At a meeting with the Office of the Auditor General the Norwegian Agricultural Inspection Service stated that they fear the illegal private import of pesticides.<sup>143</sup> The Norwegian approval scheme means that agents sold in neighbouring countries are illegal in Norway. The restructuring of the tax system in 1999, along with the increase in the level of tax, resulted in most dangerous agents, seen in isolation, becoming more expensive in Norway than in neighbouring countries. Taken together this may contribute to an increased risk of pesticides being imported illegally. The Norwegian Agricultural Inspection Service posted a list of approved importers and approved pesticides on the Internet and wrote letters to the customs authorities about this. However, the Norwegian Agricultural Inspection Service and the customs authorities have not had a dialogue to clarify whether the customs authorities had the necessary and sufficient information in this area, or whether the Norwegian Agricultural Inspection Service could help in other ways to prevent illegal imports.

## Expertise

The Norwegian Agricultural Inspection Service sets no formal requirements for knowledge of hazardous pesticides for its dealer inspectors. The agency stated that most inspectors at the regional and district offices have degrees in agricultural subjects from the Agricultural University of Norway (cand.agric.) or the equivalent. Two regional offices stated that they had inspectors with special expertise in pesticides and their chemical composition.

Courses are offered to inspectors in how to conduct inspections according to the Internal Control Regulations. The course lasts two days, and the Norwegian Agricultural Inspection Service stated that inspecting pesticide dealers is a key part of it. In addition, new inspectors are trained by accompanying experienced colleagues on inspection visits. According to

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<sup>141</sup> Internal memorandum by Kai-Uwe Bracklo, March 2000, Norwegian Agricultural Inspection Service.

<sup>142</sup> Prosjektforum AS, Questionnaire survey on the use of pesticides – summary, 10 March 2000.

<sup>143</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

the Norwegian Agricultural Inspection Service, the inspector's qualifications regarding pesticides and their use are sufficient to conduct the mandatory inspections.

With regard to the risks to human health and the environment connected with the use of pesticides, the agency has in recent years amassed considerable expertise. As part of its procedure for approving pesticides the agency does extensive assessments of key aspects of risk. Both ecotoxicological and human toxicological assessments are included in the approval process. This expertise is situated with the Pesticide Section of the Norwegian Agricultural Inspection Service's central administration and is not much used in connection with compliance monitoring activities directed by the regional offices. As inspections have been targeted on dealers and importers, this has not been a relevant issue.

The Norwegian Agricultural Inspection Service has established guidelines for inspections of dealers and importers. An instruction from 1986 contains a detailed description of tasks to be implemented in accordance with current regulations.<sup>144</sup> Changes in the regulations during the 1990s have created the need for new guidelines for inspections, but these were not established in October 2001. The Norwegian Agricultural Inspection Service stated that formulating new guidelines is a goal.

### Targeting and the use of risk assessments

The inspector's professional judgement is key in selecting enterprises for inspection. Factors that are emphasised are the dealer's size, experiences from previous inspections and information from the public. Some regions stated that new dealers were routinely visited to establish contact and lay the groundwork for further dialogue. No common criteria have been set for the factors that go into selecting enterprises to be inspected. No documented risk assessments are done in connection with the selection of targets for inspection. This also seems reasonable in light of the limited number of these inspections.

Compliance monitoring was expanded in 2001, and in the plan of action, inspections of market gardens and nurseries were presented as a measure. The Norwegian Agricultural Inspection Service stated that the risk to health and the environment is high for these groups, among other reasons because high-risk agents are used to a considerable extent in this segment of agriculture. Another consideration is that a substantial portion of production takes place in closed greenhouses, where the risk of harmful exposure to pesticides would be greater than outdoors. A centrally managed monitoring action aimed at selected enterprises was set in motion in 2001. The Norwegian Agricultural Inspection Service's central

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<sup>144</sup> Norwegian Agricultural Inspection Service, Instruction for the Norwegian Plant Inspection Service for the control of pesticides etc., 5 November 1986.

administration set the premises for this action and decided the topics of the inspections and the kind of enterprise to be inspected. The monitoring measures and selection of enterprises to be inspected were done at the regional offices. Guidelines were prepared to assist the regions in implementing this monitoring action, which stressed that enterprises that import and have contact with other countries should have priority.<sup>145</sup>

Even though this action was based on considerations of risk, as part of preparing the plan of action mentioned above, for instance, the Norwegian Agricultural Inspection Service stated that no documented risk assessments were performed as the basis for prioritising monitoring resources. The agency's own investigations revealed that there is a considerable risk linked to the use of pesticides, but no analysis has been done to identify on the basis of common criteria where in agriculture the risk is highest.

### Administering pesticide regulations

Charged by an inter-ministerial steering group, the Directorate of Public Management (Statskonsult) evaluated the organisation of chemicals regulation, Statskonsult pointed out that the Norwegian Agricultural Inspection Service plays a key role in helping to make agriculture profitable, and for that reason it should not also have the responsibility for addressing health or environmental issues connected with the use of pesticides. It therefore recommended transferring the responsibilities for pesticides from the Norwegian Agricultural Inspection Service to the Norwegian Pollution Control Authority. Furthermore, Statskonsult indicated that for a period there may be a need for a forum where administrative issues of principle in the area of chemicals can be discussed.<sup>146</sup>

The inter-ministerial steering group headed by the Ministry of the Environment discussed the recommendations in the report from Statskonsult. The Ministry of Agriculture raised objections to the proposal to transfer responsibility from the Norwegian Agricultural Inspection Service to the Norwegian Pollution Control Authority. The Ministry pointed out that the relationship to food regulation was not considered in the Statskonsult report. Many important evaluations had been made and actions taken in this area after the report was presented.

The Ministry of Agriculture stated that the new model for food regulation is based on an integrated risk-based approach, in which all factors affecting food production are to be included. Both internationally and in Norway, the whole chain approach, "from field to table" is a basic strate-

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<sup>145</sup> The Norwegian Agricultural Inspection Service, Control of pesticides used in ornamental and nursery plants etc. – procedures, instructions and guidelines, March 2001

<sup>146</sup> The Directorate of Public Management (Statskonsult) report 2001/1, Good chemistry? The division of responsibility and co-operation among agencies in chemicals regulation, pp. 89–92, June 2001.



gy for guaranteeing the consumer safe foods. Pesticides are naturally a part of this chain. To ensure the necessary neutrality in the new food inspection authority, an expert committee subordinated to the Ministry of Health will be responsible for risk assessments and determining the level of protection. This applies to all relevant input products in agriculture, animal health and matters pertaining to the processing of foodstuffs. The responsibility for *dealing with risk* in monitoring the factors in question along the entire chain from field to table will be assigned to the new food inspection authority under the Ministry of Agriculture. The Norwegian Agricultural Inspection Service, the Norwegian Animal Health Authority and the Norwegian Food Control Authority are to be part of the new inspection authority, together with the municipal food control authorities, which will be taken over by the central government.<sup>147</sup>

At a meeting with the Office of the Auditor General the Ministry of Agriculture stressed that in today's situation safe food and food regulation are considered more important than considerations of any co-ordination of pesticide regulation with the rest of chemicals regulation.

#### **4.2.3 The Norwegian Labour Inspection Authority's monitoring of chemicals in the workplace**

The Norwegian Labour Inspection Authority has extensive compliance monitoring activities, which employ approx. 350 persons in 13 district offices with 35 subsidiary departments. In addition there are the 150 employees of the Directorate of Labour Inspection. The majority of active compliance monitoring activities takes place in the district offices.

##### **Compliance monitoring activities**

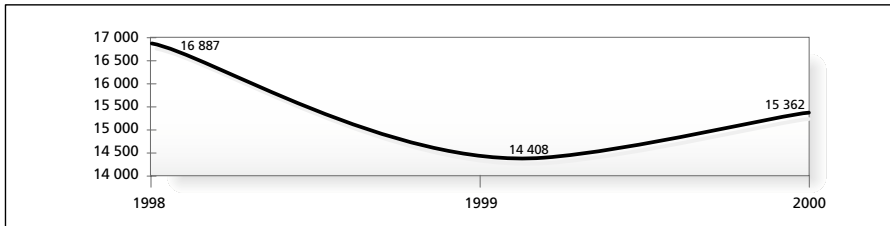
The Directorate of Labour Inspection stated that the agency's compliance monitoring can be divided into three categories: ordinary inspection activities (inspections, audits and verifications), centrally-managed campaigns aimed at selected industries and local campaigns directed by the district offices. Nationwide joint actions aimed at selected industries were also arranged. Such actions extended for shorter periods than the campaigns, and focused on a small number of issues.

Planning letters from the Directorate of Labour Inspection to the district offices in the period 1998-2000 stressed that compliance monitoring in the area of chemical health risks should have priority. The inspection manual listed requirements for planning compliance monitoring activities. The planning letter stated the overarching guidelines for the topics and issues the districts were to emphasise.

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<sup>147</sup> Letter from the Ministry of Agriculture to the Office of the Auditor General dated 29 April 2002.

The Norwegian Labour Inspection Authority conducted around 15,000 inspections, audits and verifications each year, with a variation of approx. 15% in the period 1998-2000 between the years with the highest and lowest compliance monitoring activity.



*Figure 4.11 Total number of inspections, audits and verifications by the Norwegian Labour Inspection Authority's district offices<sup>148</sup>*

Source: The Norwegian Labour Inspection Authority

## Campaigns

Centrally directed inspection campaigns are carried out and to a certain extent managed by the Directorate of Labour Inspection. The Directorate of Labour Inspection's annual reports do not indicate the magnitude of resources the agency as a whole has used for such campaigns. Figures the Office of the Auditor General obtained from three district offices showed that about 20% of compliance monitoring resources in these districts was used in centrally directed campaigns. The Directorate of Labour Inspection stated that there was a goal of increasing this share to 25%. In the period 1998-2000, the largest campaign was aimed at the construction industry, and the Directorate of Labour Inspection stated that the use of chemicals was an important topic of this campaign. In addition, the district offices conduct local campaigns.

The premises of centrally managed campaigns are largely set by the Directorate of Labour Inspection. As part of the construction industry campaign in 1999 and 2000, the Directorate of Labour Inspection prepared technical guidelines regarding chemical hazards in the industry.<sup>149</sup> Checklists were prepared as well as guidelines spelling out which topics would be prioritised and which enterprises would be visited. The Directorate of Labour Inspection does not provide particular advice for local campaigns, but beginning in 2001, guidelines were issued on the industries to be focused on in local campaigns

<sup>148</sup> The figures here represent the total number of inspections, audits and verifications reported in the questionnaire by all the district offices.

<sup>149</sup> The Directorate of Labour Inspection, Chemical health risks in the construction industry, 2000.

On the questionnaire from the Office of the Auditor General, the district offices were asked to report which industries were focused on with particular regard to chemicals. If one disregards the centrally directed campaigns, the responses showed that several districts focused on relatively few industries. A report prepared by SINTEF showed that in 1998, there were 87 different local campaigns divided into 52 different areas or topics.<sup>150</sup> The breadth in what these campaigns focused on indicates that the districts had considerable latitude in orienting their inspection activities.

### History and current objectives

On behalf of the Norwegian Labour Inspection Authority, SINTEF prepared a report on working environment and labour inspection during the 1990s. According to this report, improvements in the chemical working environment were a strategic focus for the Norwegian Labour Inspection Authority in the 1990s. This commitment involved compiling a register and monitoring importers and manufacturers of chemicals. In addition, there was general informational activity of the risks to health posed by chemical substances. The agency also had a programme to get enterprises to measure their air pollution with the aid of occupational health measurements. This included the Norwegian Labour Inspection Authority's district offices ordering the enterprises to do the measurements, which they would ensure were done in a satisfactory manner. In addition, the programme was to help to strengthen the agency's occupational health expertise. The report concludes that the programme was not satisfactorily followed up, even though some districts followed it up better than others.<sup>151</sup>

In the same report it is claimed that the physical-chemical working environment was stable in the 1990s. There are still large groups of Norwegian workers who are exposed to in part severe physical-chemical impacts. A summary done by the National Institute of Occupational Health of the lack of knowledge and need for research recommends a further commitment in the areas of pulmonary and respiratory tract ailments, skin ailments, cancer, fertility problems, and cardiovascular disease, among others. It also underscores the need for better data on exposure and health risks.<sup>152</sup>

The strategic plan of the Norwegian Labour Inspection Authority states that "toxic substances and other substances hazardous to health are to be

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<sup>150</sup> SINTEF report no. STF38 A01020, The working environment and labour inspection during the 1990s, p. 63, January 2001.

<sup>151</sup> SINTEF report no. STF38 A01020, The working environment and labour inspection during the 1990s, p. 69, January 2001.

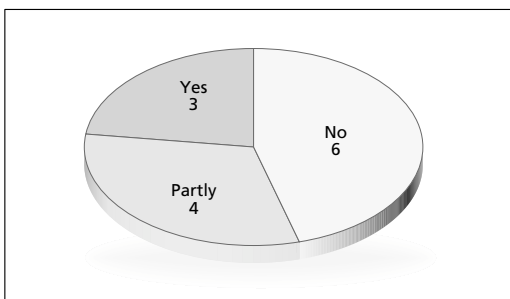
<sup>152</sup> SINTEF report no. STF38 A01020, The working environment and labour inspection during the 1990s, p. 32, January 2001.

handled in such a way as to protect employees from accidents, injury and excessive discomfort. Effective and targeted compliance monitoring is to assist the agency in reaching this overarching objective.”

Beyond what is contained in the letters of allocation and planning letters, general goals were rarely set for how to address chemical health risks by means of active compliance monitoring. Where specific objectives exist, these were usually connected with actions or campaigns targeted at particularly susceptible industries. For example, there were no objectives for how large a share of compliance monitoring activities should have chemical health risks as a topic. Activity reports that form part of the formal communication between the Directorate of Labour Inspection and the Ministry mentioned little in respect of how chemical health risks are to be addressed.

Slightly over half of the district offices reported that the offices had drafted their own goals for their compliance monitoring efforts for what they wanted to achieve with regard to chemicals and chemical health risks. For example, some district offices had the goal of providing information about chemical health risks as part of their inspections, audits or verifications. Those districts that did not report having such goals have primarily linked these concerns to specific inspection actions or industry campaigns. For example, one district set a goal that all visited plastics manufactures are to work systematically on chemical health risks.

The quality of the performance reports the Office of the Auditor General gathered from the district offices varied, from brief overviews of the number of inspections and man-weeks used on an individual campaign to extensive evaluation reports with discussions of procedures, topics, and results from inspection activities. Generally there was little mention of chemical health risks in the districts’ annual reports to the Directorate of Labour Inspection. One district office stated that since specific performances were seldom drawn up in respect of chemical health risks, no detailed reports on performance were issued.<sup>153</sup>



*Figure 4.12 The districts’ responses when asked whether today’s systems and routines for management by objectives and performance at the Norwegian Labour Inspection Authority satisfactorily address chemical health risks*

<sup>153</sup> The Office of the Auditor General’s questionnaire survey of the Norwegian Labour Inspection Authority’s district offices, October 2001.

Almost half of the district offices stated that today's system and routines for management by objectives and performance did not address chemical health risks in a satisfactory manner. Three districts maintained that they were being satisfactorily addressed. One district pointed out that its compliance monitoring activity was oriented according to industry in such a way that the individual topics concerned were subordinated to the industries, and that perhaps this should be reversed to emphasise the topics.

When queried whether the district offices had a system showing which topics had been emphasised as part of an individual compliance monitoring action, five districts responded that they had such a system. Those responding in the affirmative were then asked to state how many of their inspections etc., in the period 1998-2000 focused on enterprises' handling of chemicals. This was seldom done. Some stated that they had figures only for 2000, and for others it may appear as though the figures are registered only for campaigns. Only one district reported figures for all three years. By way of commentary to the figures, the district maintained that it had an adequate overview of project-oriented inspection activities, whereas in respect of ordinary compliance monitoring activities its overview was not as good.

The Norwegian Labour Inspection Authority has stated that a new registration system is being set up. The system is intended among other things to enable the agency to compile better statistics on the number of inspections that address chemical health risks. In 2000 using the system was voluntary, and in 2000 the Directorate of Labour Inspection had registered 3775 compliance monitoring actions in which the area of chemicals was covered.<sup>154</sup>

### Use of guidelines and checklists

The Norwegian Labour Inspection Authority has formulated guidelines for conducting audits and verifications that are included in its inspection manual. Separate guidelines do not exist for compliance monitoring aimed at chemical health risks. The Directorate of Labour Inspection maintained that the need for guidelines was great, and that there have been plans to formulate such guidelines for some time.<sup>155</sup>

The importance of proper tools for inspectors for doing inspections, audits and verifications was also emphasised by the Directorate of Labour Inspection. The Office of the Auditor General therefore asked the district offices whether they had prepared guidelines or checklists to address chemical health risks as an aid to inspectors for doing inspections, for example as part of local campaigns.

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<sup>154</sup> Printout from the Directorate of Labour Inspection's inspection register.

<sup>155</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General 10 October 2001.

Eight district offices reported that checklists and guidelines had been prepared as an aid to inspectors. On the basis of the documentation sent to the Office of the Auditor General from seven of the districts, the checklists appear to have been formulated with specific questions, sometimes referring to relevant provisions in the regulations. The checklists are specifically tailored to a particular industry. Some districts responded that it is up to the individual project group whether to prepare such materials. Some of the districts that responded that guidelines and checklists had been prepared commented that this was only done in connection with campaigns.

### Use of risk assessments

The agency's inspection manual refers to the principles for planning compliance monitoring activities. In the period 1998-2000 the responsibility for selecting enterprises for monitoring primarily rested with the district offices. Routines for addressing chemical health risks were established to a varying degree in this selection process. One district office stated that lists by industry of enterprises were taken from the Register of Business Enterprises in Brønnøysund. The size of the enterprise is a common selection criterion. Little provision is made to address specific "technical considerations" in this selection process. For example, there are no routines for linking the industry register to the Product Register to identify the enterprises that handle especially hazardous substances. The Directorate of Labour Inspection stated that there are variations among the districts in terms of emphasising chemical health risks in their compliance monitoring.<sup>156</sup>

The Norwegian Labour Inspection Authority's goal is for all planned inspections, audits and verifications to be based on risk assessments.<sup>157</sup> This has also been a topic in the letters of allocation to the Norwegian Labour Inspection Authority in the period 1998-2000. Since 1996 the Authority has been working on developing criteria for risk-based compliance monitoring. The model in question involves the agency's departments concerned and district offices proposing risk classifications of various industries and the types of impacts. This included assessing impacts linked to chemical health risks. In this regard the Directorate of Labour Inspection's Section of Chemical Affairs is to gather relevant information on the use of chemicals in the workplace, including from the Product Register and the National Institute of Occupational Health (STAMI).

The Directorate of Labour Inspection stated that its compliance monitoring was based on this model for the first time in 2002. This model was

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<sup>156</sup> "The chemical working environment – the Norwegian Labour Inspection Authority's strategy", June 1998 (working document).

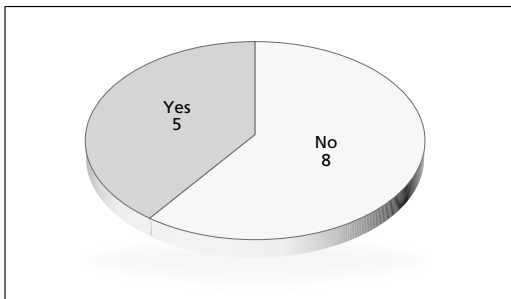
<sup>157</sup> Norwegian Labour Inspection Authority, Strategic plan 1996.

used as the basis for central planning of compliance monitoring and was only applicable to those parts of the agency's compliance monitoring that is co-ordinated by the Directorate of Labour Inspection.

In the period 1998–2000 there are vast differences in the districts in respect of basing their compliance monitoring activities on risk. All except two district offices state that risk assessments were done as the basis for selecting the industries that inspections were to focus on. Most districts that reported doing risk assessments had documented this. In the documentation, chemicals are one of several topics touched upon. Three districts stated that systematic risk assessments were also done of various enterprises within an industry, but none had documented such assessments.

At a meeting with the Office of the Auditor General, one district office stated that the risk assessments on which the selection of industries were based were largely based on professional judgement. The knowledge of the inspection personnel in question, e.g. occupational hygienists in the district office, has been key, whereas specialised studies of the health risks linked to individual substances were rarely done. Some district offices indicated that they had local statistics on occupational illnesses and accidents, for example, and these were used as a basis for their risk assessments.

The district offices were requested to provide information on whether they had compiled a list of substances or chemicals that would be considered especially dangerous. The responses showed that none of the district offices had compiled such a list. Two district offices stated that they monitored certain chemicals in high-risk industries. In this connection reference was made to the fact that the Directorate of Labour Inspection had provided information on susceptible industries regarding the use of isocyanates.



*Figure 4.13 The districts' own evaluation of whether their own overview of the risks posed by hazardous chemicals in the workplace is satisfactory*

Eight of thirteen districts stated that their overview of the risks linked to hazardous chemicals in the workplace was not satisfactory. Those who maintained that their overview was satisfactory justified this on the basis of the local knowledge they possess.

The document *Chemical working environment, the Norwegian Labour Inspection Authority's strategy, 1998* states that the Norwegian Labour Inspection Authority will to the extent possible emphasise the extent and seriousness of adverse effects as part of risk-based inspections. At the same time, the Directorate of Labour Inspection acknowledged that it did not have a satisfactory overview of the risk elements linked to existing chemicals, and that it had a limited focus on individual chemicals in connection with planning inspections, audits etc. No list had been prepared of the chemicals inspection activity should focus on, nor does the Directorate of Labour Inspection have a list of which industries use certain particularly dangerous substances.

None of the district offices had prepared such a list, and some district offices put forward the view that it is the Directorate of Labour Inspection that should compile such a list centrally. More than half of the district offices indicated that a better overview of the risks posed by hazardous chemical would be desirable. For instance, this might help to improve the basis for evaluating industry campaigns. Other district offices maintained that evaluations based on professional judgement were sufficient for the prioritising that was done.<sup>158</sup>

## Expertise

The Directorate of Labour Inspection pointed out that it is a general problem that knowledge of which chemicals cause occupational illnesses is insufficient, both at the Directorate of Labour Inspection centrally and among inspectors in the district offices.<sup>159</sup> In its letter of allotment for 2000 the Ministry of Labour and Government Administration stressed the importance of expertise among compliance monitoring personnel. The Directorate of Labour Inspection has emphasised competence building in the areas of chemical health risks both in its strategic plan and in annual planning letters to the districts. Nevertheless, the district offices also have an independent responsibility for their own expertise.<sup>160</sup>

Occupational hygienists possess expertise that is crucial for enabling inspection activity to address chemical health risks in a satisfactory manner. The agency's occupational hygienists often hold B.Sc. degrees. They are engineers or have graduate-level university training. Qualification requirements for the other inspectors in the chemicals area are covered by the agency's basic training of new employees. The Directorate of Labour

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<sup>158</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.

<sup>159</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 19 June 2001.

<sup>160</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.



Inspection pointed out that it is a challenge to maintain and develop such expertise in a systematic fashion.<sup>161</sup>

The Directorate of Labour Inspection's assessment is that for the Norwegian Labour Inspection Authority to perform its mission, the areas of occupational hygiene and industrial medicine need to be strengthened. In a plan of action for chemical health risks prepared by the Directorate of Labour Inspection in 1999, it is maintained that its expertise was strengthened after the introduction of new regulations towards the end of the 1970s. The districts were assigned 24 occupational hygienists and the Directorate of Labour Inspection hired seven chemists. In 1999 eight additional positions were added in the districts, and six new chemists' positions were established in the Directorate of Labour Inspection. In addition, approx. ten positions were associated with the Norwegian Labour Inspection Authority's laboratories, which subsequently have been closed.

During the 1990s, the agency's special expertise in the area of chemicals was substantially reduced. In 1999 the Directorate of Labour Inspection's chemicals section had seven positions corresponding to approx. five full-time equivalents.<sup>162</sup> The Office of the Auditor General's questionnaire survey revealed that in the period 1998-2000 the district offices on average allocated one full-time equivalent to occupational hygiene. In 1998 three districts had no occupational hygienists. Only two districts had two occupational hygienists during the entire period. Some district offices stated that their occupational hygienists have time-consuming tasks that do not deal with chemical health risks. Several of the district offices have only one position allocated to an occupational hygienist and are therefore vulnerable in the event of dismissals, illness or leaves of absence.

Nine districts maintained that they had the necessary expertise in chemicals. One district indicated that its expertise was small, but satisfactory in light of the priority chemical health risks had had in the agency in recent years. Five of the districts pointed out that one or more employees had qualifications in occupational hygiene, but that they did not work on occupational hygiene issues. At a meeting with the Office of the Auditor General one district office pointed out that more should be done to facilitate the exchange of information and the development of a chemical research community across district offices.<sup>163</sup>

Despite the fact that most district offices maintained that they had sufficient expertise, the Directorate of Labour Inspection pointed out that the

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<sup>161</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.

<sup>162</sup> Directorate of Labour Inspection, Plan of action HMS-K, p. 3, 20 October 1999.

<sup>163</sup> Meeting between the Norwegian Labour Inspection Authority's Seventh District and the Office of the Auditor General, 16 August 2001.

expertise is not satisfactory. As part of a centrally managed campaign in the construction business, chemicals were selected as one of two areas to be focused on. The summary of the results of the campaign showed that this was not followed up as well as was desired. According to the Directorate of Labour Inspection, an important reason for this was that the area of chemicals is expertise-intensive.<sup>164</sup> This is also confirmed by one district office, which pointed out that the chemicals area was often de-emphasised because the inspectors feel insecure.<sup>165</sup>

The Directorate of Labour Inspection offers a basic course to all new inspectors. The course includes chemical health risks, and the agency stated that this is a course that in practice all inspectors have taken. However, very few inspectors have training in the chemicals area beyond this basic course. In light of experience from campaign in the construction sector, the Directorate of Labour Inspection stated that an advanced course was being planned to raise the inspectors' level of expertise in the area of chemicals.<sup>166</sup>

### Substitution

Section 11 subsection 1 of the Working Environment Act mandates enterprises which use hazardous substances to substitute less dangerous substances whenever possible. The enterprises have an independent responsibility to evaluate the possibility of replacing hazardous chemicals with less dangerous ones. The task of the regulatory agency is to monitor whether such evaluations have been done and whether the substances actually have been replaced wherever this was deemed to be possible.

The Directorate of Labour Inspection informed the Office of the Auditor General that enforcing the substitution obligation requires detailed knowledge of the health risks connected with the individual substances, and indicated that this is a technical challenge. Representatives from the Directorate of Labour Inspection stated at a meeting with Office of the Auditor General that enforcing the substitution obligation is a not very suitable instrument for the Norwegian Labour Inspection Authority. The reason given was that it has been difficult to know whether alternative chemicals are better, for example, and that the Norwegian Labour Inspection Authority itself has limited expertise in this area.<sup>167</sup> The Norwegian Labour Inspection Authority's district offices have had little focus on substitution.

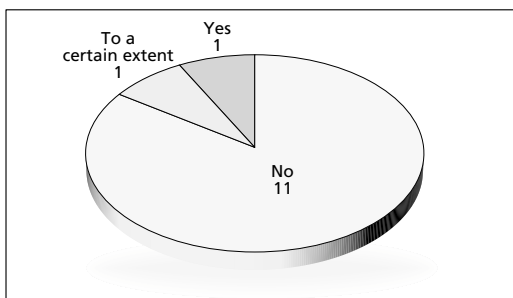
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<sup>164</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.

<sup>165</sup> Meeting between the Norwegian Labour Inspection Authority's Second District and the Office of the Auditor General, 24 August 2001.

<sup>166</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.

<sup>167</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.



*Figure 4.14 Enforcing the substitution obligation through inspection activities*

One district office reported that this is a topic of inspection visits. The same district office had a separate point in the checklist used for inspections. Another district office commented that the Directorate of Labour Inspection had never focused on having inspection activities actively applying the substitution regulations. One district office pointed out that there is a need to collaborate with the Norwegian Pollution Control Authority on chemicals to be phased out and the “observation list”, and that this should be a task for the Directorate of Labour Inspection.<sup>168</sup>

#### Collaboration with the environmental protection authorities

Compiled by the Norwegian Pollution Control Authority, the “observation list” includes substances that for environmental or health considerations should be phased out. Even though the list is intended to address health aspects, the Directorate of Labour Inspection was not much involved in the compilation of the “observation list”. The Norwegian Labour Inspection Authority has not used the list as a basis for its work. The Directorate of Labour Inspection received the list for comments but did not want to be more deeply involved in this effort.<sup>169</sup>

At a meeting with the Office of the Auditor General the Ministry of Labour and Government Administration stated that arenas have been established where the working environment authorities and environmental protection authorities meet. Since 1993 the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority have had a collaboration agreement, and regular meetings are held between the Ministry of the Environment and the Ministry of Labour and Government Administration. In addition, formal collaboration has been established among key regulatory agencies in the health, safety and environment area. Addressing chemicals and special regulations in the area of chemicals can be topics of these meetings. According to the Ministry, a necessary structure for co-ordination is thus in place.

<sup>168</sup> The Office of the Auditor General’s questionnaire survey of the Norwegian Labour Inspection Authority’s district offices, October 2001.

<sup>169</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 19 June 2001.

The transfer of the Product Register from the Ministry of Labour and Government Administration to the Ministry of the Environment is an example of where this collaboration has been constructive. The development of new regulations banning individual substances is an area where collaboration has not been satisfactory. Here the Ministry maintained that there were clear professional differences. Banning the use of a certain substance, on grounds related to release reduction and concerns for the natural environment, may be problematical if the replacement substances in question involved an increased chemical health risk in the workplace. At times there has been professional disagreement between the Norwegian Labour Inspection Authority and the Norwegian Pollution Control Authority, and the ministries have tackled this problem, including sending letters to the agencies in question on how they are to work together in the future in respect of banning individual substances.

The Ministry of Labour and Government Administration stated that its work together with the environmental protection authorities is positive and constructive, but that the forms of collaboration in question may have certain limitations. This applies with regard both to who is to participate in the collaboration and to which topics are to be addressed. Reference is made to the fact that Statkonsult's report "Good chemistry" discusses this, and that the working environment authorities have reacted favourably to considering new and, if necessary, expanded forms of collaboration.<sup>170</sup>

The Ministry of the Environment stated to the Office of the Auditor General that although all the ministries involved agree on the establishment of a collaborative forum for the field of chemicals, not all are necessarily in agreement with the specific proposals in the report from Statskonsult. This collaborative forum is intended for tasks related to developing regulations, for instance.

The Ministry of the Environment also stated that they had expressed a desire for the Norwegian Labour Inspection Authority to give efforts related to hazardous chemicals higher priority. At the same time it acknowledged that the prioritising of efforts regarding the various factors affecting worker health must be up to the labour authorities. Nevertheless, the Ministry of the Environment saw that reducing the use of chemicals to protect the health of workers can yield positive results for the environment simultaneously. It may also be relevant to consider more active use of the Norwegian Labour Inspection Authority's inspection activities in connection with the objectives of reducing the use and release of hazardous chemicals.<sup>171</sup>

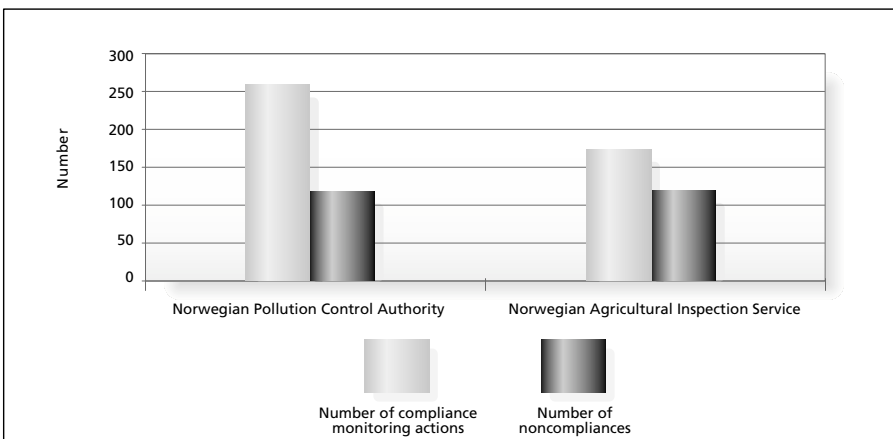
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<sup>170</sup> Meeting between the Ministry of Labour and Government Administration and the Office of the Auditor General, 24 January 2002.

<sup>171</sup> Meeting between the Ministry of the Environment and the Office of the Auditor General, 23 January 2002.

### 4.3 PURSUING BREACHES OF THE REGULATIONS

Inspection activities uncover frequent noncompliances with, and breaches of, chemicals regulations. The agencies register differently the kinds of noncompliances they uncover. The Norwegian Pollution Control Authority and the Norwegian Agricultural Inspection Service have systems where the results of compliance monitoring are registered electronically. The registration indicates, for example, the kind of noncompliance uncovered and in some areas the provision in the regulations that was violated. The Norwegian Labour Inspection Authority does not have comparable routines. The figure below shows the number of chemical compliance monitoring actions and the number of noncompliances stated pursuant to the regulation in question.<sup>172</sup>



*Figure 4.15 Number of chemical compliance monitoring actions and orders to take corrective action issued pursuant to chemicals regulations*

Source: The Norwegian Pollution Control Authority and the Norwegian Agricultural Inspection Service

The figure shows the average number of compliance monitoring actions and orders to take corrective action given in the period 1998-2000. For the Norwegian Pollution Control Authority, most noncompliances involve regulations mandating documentation<sup>173</sup>, declaration, labelling, and data sheets. Noncompliances that the Norwegian

<sup>172</sup> Chemical compliance monitoring actions mean inspections and related actions in which addressing chemicals regulations within the agency's purview was an important part of the compliance monitoring action.

<sup>173</sup> Data on the chemicals' properties relating to health and the environment, the product's chemical contents etc.

Agricultural Inspection Service registers are often due to dealers' keeping pesticides that are no longer approved for sale on the Norwegian market.

Up until 2000 the Norwegian Labour Inspection Authority had neither an overview of the number of inspections etc., for which chemicals were a topic of compliance monitoring or an overview of the regulations that were violated. However, five districts reported such figures for their inspection activity in 2000. On average each of these district offices did 187 chemical inspections and registered 91 noncompliances.

The regulatory agencies are authorised differently to react to breaches of the regulations. Whereas the Norwegian Pollution Control Authority and Norwegian Labour Inspection Authority can impose coercive fines to ensure that the enterprises behave in accordance with the regulations, the Norwegian Agricultural Inspection Service does not have such authority. Since the agencies themselves have limited sanctions at their disposal, criminal charges are crucial for ensuring that regulatory oversight has a deterrent effect. The Office of the Auditor General's investigation revealed, however, that reporting violations is little used by the three regulatory agencies.

#### **4.3.1 The Norwegian Pollution Control Authority and pursuing breaches of the regulations**

The Norwegian Pollution Control Authority established steering documents for pursuing breaches of the regulations uncovered by inspections and other monitoring. For example a reaction document was drawn up which specifies how a noncompliance is to be followed up. If noncompliances are discovered during an inspection, a letter is to be sent to the enterprise pointing out its duty to correct the noncompliances. The same letter may also notify the enterprise of a possible decision to impose a fine. Then the noncompliance is to be followed up, if necessary, with an individual decision and deadline for corrective action. If the noncompliance is not corrected before the expiry of the deadline, the Norwegian Pollution Control Authority is able to react, for example, with a coercive fine. Notice of a coercive fine must be given in advance of any decision to impose one.

The Department of Control and Emergency Response prepared a steering document for registering and classifying compliance monitoring actions. The fact that all such actions performed are registered means that the Norwegian Pollution Control Authority can follow up the topics touched on in the individual compliance monitoring action and the seriousness of the noncompliances that were uncovered. As an attachment to these guidelines, examples are given of noncompliances that are to result in enterprises receiving special follow-up. Unless the noncompliances involve the illegal import of CFCs or illegal use or storage of PCBs, the

guidelines do not mention whether noncompliances involving the substances on the priority list are to result in special follow-ups. Nor do they mention the failure to consider substitutes for hazardous chemicals as deserving of special follow-up.<sup>174</sup>

The Department of Control and Emergency Response prepared instructions with examples of noncompliance that should result in evaluating whether the enterprise should be reported to the police.<sup>175</sup> In 2001 the Norwegian Pollution Control Authority issued new guidelines with criteria for the use of criminal charges.<sup>176</sup> Neither the instructions nor the guidelines mention in particular cases that involve especially dangerous chemicals, but the new guidelines point out that serious breaches of the substitution regulations can be reported to the police.<sup>177</sup>

The use of criminal charges is not mentioned in the Norwegian Pollution Control Authority's "Plan for how to make inspection and monitoring stronger environmental policy instruments in connection with chemicals" from March 1999, nor is it assessed how the Norwegian Pollution Control Authority should react to noncompliances to ensure the greatest possible compliance with the regulations. Nor has the Norwegian Pollution Control Authority issued guidelines to the County Governors' Departments of Environmental Affairs for when criminal charges should be considered. The Norwegian Pollution Control Authority stated that a consequence of this may be differing practices in respect of how noncompliances are pursued in different counties.<sup>178</sup>

### Follow-up of registered noncompliances

The Norwegian Pollution Control Authority publishes annual reports of the agency's inspection activity. From these it appears that the number of breaches of the regulations uncovered by its compliance monitoring is stable. Noncompliances were uncovered at about four out of five enter-

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<sup>174</sup> The Norwegian Pollution Control Authority pointed out that the attachment only mentions examples, and that it would not be appropriate to mention priority chemicals in particular. In respect of the substitution obligation, the Norwegian Pollution Control Authority pointed out that it did not come into force until 2000, and that that same year separate guidelines were drawn up for enforcing this obligation, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 6.

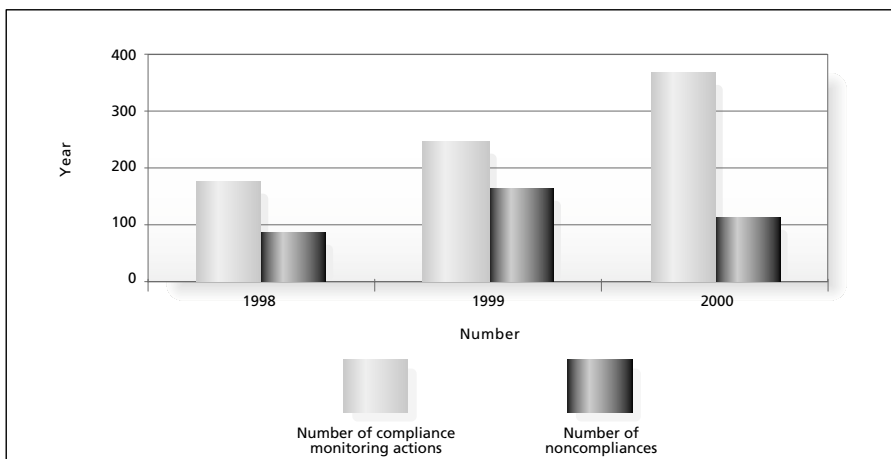
<sup>175</sup> Norwegian Pollution Control Authority quality system, Registration and classification of compliance monitoring actions, Appendix.

<sup>176</sup> Norwegian Pollution Control Authority quality system, Factors in determining whether violations of the Pollution Control Act/Product Control Act are to be reported to the police.

<sup>177</sup> The Norwegian Pollution Control Authority stated that the instructions stress violations in environmental policy focus areas and breaches of international regulations, which often covers cases involving especially dangerous chemicals, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 7.

<sup>178</sup> Meeting between Norwegian Pollution Control Authority and the Office of the Auditor General 16 October 2001.

prises.<sup>179</sup> The noncompliances may be with regard to various regulations, for instances regulations relating to internal control, processing equipment, waste, chemicals and emergency preparedness. Figure 4.16 below shows the number of compliance monitoring actions that the Norwegian Pollution Control Authority registered with chemicals as a topic, as well as the number of registered noncompliances with special regulations for chemicals.<sup>180</sup>



*Figure 4.16 Chemical compliance monitoring actions – registered non-compliances pursuant to the regulations governing chemicals*

Source: The Norwegian Pollution Control Authority

The Norwegian Pollution Control Authority stated that for all types of monitoring actions in 2000 in the aggregate, noncompliances were registered in connection with approx. 400 inspections or other monitoring. Notifications of possible coercive fines were given in 156 cases and decisions to impose them made in 30 cases. Coercive fines were actually collected only in four cases. According to the Norwegian Pollution Control Authority, this showed that coercive fines as a policy instrument are very effective, since so many of the enterprises have followed up on the orders from the Norwegian Pollution Control Authority.<sup>181</sup>

<sup>179</sup> According to the Norwegian Pollution Control Authority, this confirms that the Norwegian Pollution Control Authority's compliance monitoring is risk-based, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 7.

<sup>180</sup> The figure is based on figures from Inkosys and a letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 14 December 2001.

<sup>181</sup> Letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, attachment p. 6.



The Norwegian Pollution Control Authority stated that noncompliances were followed up with a written request to the enterprises to document that the noncompliances have been corrected within a specified deadline. Follow-up verification is normally not done, and the Norwegian Pollution Control Authority stated that this may result in the possibility that enterprises in practice do not correct noncompliances that are uncovered.<sup>182</sup> This may apply in particular to enterprises not subject to regular inspections and in cases where it is difficult to gather sufficient written documentation that the noncompliance has actually been corrected.<sup>183</sup>

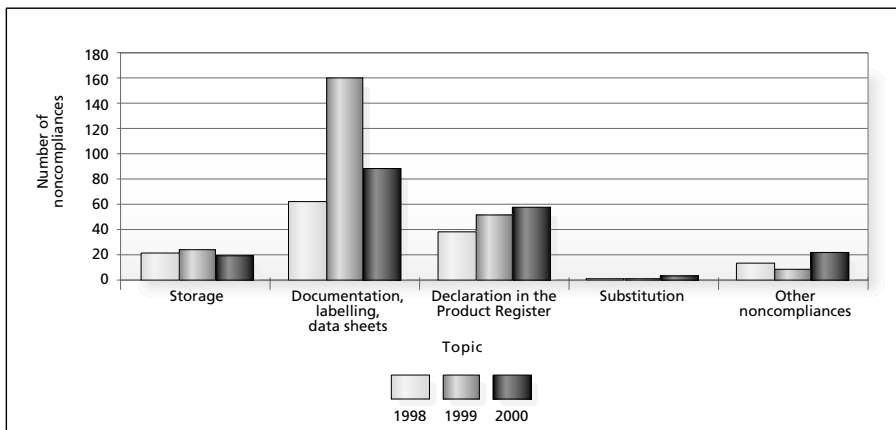


Figure 4.17 Noncompliances in the area of chemicals by topic

Source: The Norwegian Pollution Control Authority

As Figure 4.17 shows, it is circumstances involving documentation where most noncompliances were uncovered. Relatively few of these cases were registered by the Norwegian Pollution Control Authority for special follow-up or for criminal charges to be considered, and there are even fewer cases that actually were reported to the police. Of 361 registered noncompliances in the chemicals area from 1998-2000 a total of seven were evaluated as meriting special follow-up and five cases were

<sup>182</sup> The Norwegian Pollution Control Authority pointed out that routines are established for when enterprises are to receive special follow-up. Resource use and risk will be evaluated if an enterprise is to be followed up with a new inspection, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 7.

<sup>183</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 16 October 2001.

considered for criminal charges.<sup>184</sup> Very few cases were reported to the police pursuant to the Product Control Act.<sup>185</sup>

The Norwegian Pollution Control Authority's instructions for pursuing cases point out that failure to declare a product to the Product Register, failure to properly label chemicals and improper storage of chemicals is to result in enterprises meriting special follow-up. It states further that reporting the noncompliance to the police is to be considered in the event of a tangible risk of harm to the environment due to the violations of the regulations or improper handling of chemicals.<sup>186</sup> From the figure above one can see that in the period there were over 100 cases each year of this type of noncompliance, while only a very few cases received special follow-up or were considered worthy of being reported to the police.<sup>187</sup>

At a meeting with the Office of the Auditor General the Norwegian Pollution Control Authority pointed out that the deterrent effects of the agency's efforts have not been satisfactory. For example, this applied to enforcing the requirement to declare substances to the Product Register. The Norwegian Pollution Control Authority stated that it has been focusing on mandatory declaration for several years, including reporting companies to the police, but that nevertheless many noncompliances were uncovered in this area.<sup>188</sup>

In the judgement of the Norwegian Pollution Control Authority, the reasons that criminal charges have been little used are complex. The procedures involving reporting to the police are extensive and resource-intensive, while cases have been dropped by the police. The result is that the Norwegian Pollution Control Authority has had a relatively high threshold for the cases that are reported. The Norwegian Pollution Control Authority maintained that in recent years the police, including through the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim), have intensified their pursuit of these cases, and that this has contributed to the agency's stronger emphasis on reporting incidents to the police beginning in 2001. A new

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<sup>184</sup> These figures are based on noncompliances where chemicals are the main topic, not noncompliances meriting special follow-up with regard to internal control. The Norwegian Pollution Control Authority stated that defects are often uncovered in connection with chemicals but that are registered as an internal control noncompliance. Therefore the numbers seem too low, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 7.

<sup>185</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 16 October 2001.

<sup>186</sup> The Norwegian Pollution Control Authority's quality system, Registration and classification of compliance monitoring actions, attachment, 28 January 1998.

<sup>187</sup> The Norwegian Pollution Control Authority stated that the reason that the enterprises did not receive special follow-up is probably that they complied with the orders they were issued, cf. attachment to a letter from the Ministry of the Environment to the Office of the Auditor General dated 8 May 2002, p. 8.

<sup>188</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 16 October 2001.

steering document at the Norwegian Pollution Control Authority with criteria for reporting violations to the police is intended to tighten up agency practice and to help to increase the number of reports to the police.<sup>189</sup>

#### **4.3.2 The Norwegian Agricultural Inspection Service and pursuing breaches of the regulations**

The Ministry of Agriculture requested that Norwegian Agricultural Inspection Service tighten its routines in responding to the use of illegal pesticides. This appears in *Strategic plan – Pesticide Section 2000-2003*. The same document states that the Norwegian Agricultural Inspection Service would announce and implement more rigorous reaction routines in connection with breaches of pesticide regulations before the 2000 growing season. This was followed up in the agency's annual performance plan.

An internal routine for compliance monitoring and forms of reaction to violations of regulations was prepared and published in 2000.<sup>190</sup> If the sale or use of unapproved pesticides is uncovered, the dealer's licence shall be revoked for a minimum of one year. Although this routine does not stress the product's dangerousness, the Norwegian Agricultural Inspection Service stated that a more rigorous reaction may be considered depending on whether the product poses a health or environmental risk. The routine deals with criteria for reporting violations to the police, but even the discovery of illegal pesticides in food does not necessarily result in criminal charges.

This routine is to be included in a new quality manual, which was not completed at the end of October 2001. The routine is therefore known only to a limited extent at the regional offices.<sup>191</sup> Therefore, during the period 1998-2000, the regional offices in practice followed the older instruction from 1986, for inspections of dealers and importers.<sup>192</sup> The instruction states that serious infractions that are uncovered are to be reported to the Norwegian Agricultural Inspection Service's central administration, and that inspections should result in orders to take corrective action when this is required.

Nowhere is it stated what is to be considered serious. The instruction mentions nothing about noncompliances involving the most dangerous

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<sup>189</sup> Meeting between the Norwegian Pollution Control Authority and the Office of the Auditor General, 16 October 2001.

<sup>190</sup> Internal document to be included in the quality manual: The import, sale and use of pesticides – control and forms of reaction to violations of the regulations.

<sup>191</sup> Meeting between the Norwegian Agricultural Inspection Service's Regional Office, West, and the Office of the Auditor General, 16 August 2001.

<sup>192</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

agents meriting special focus. Nor have the regions devised more specific criteria, and the pursuit of breaches of the regulations has been left to the individual inspector's judgement.<sup>193</sup> Nor does the instruction contain criteria for reporting violations to the police.

In a letter from the Norwegian Agricultural Inspection Service dated 22 June 1999 the municipal agricultural authorities were requested to see to it that those who receive agricultural production subsidies keep a spraying journal. The same letter did not impose on the municipalities any obligation to report any noncompliances discovered, even though it is the Norwegian Agricultural Inspection Service that has the responsibility and authority to follow up on any noncompliances. The agency stated that so far no reports from the municipal agricultural authorities had been received. The agency requested reports in a letter to the municipal agricultural authorities in July 2001.<sup>194</sup> No noncompliances with the mandate to keep a journal of the use of pesticides were reported.

The Norwegian Food Control Authority reports to the Norwegian Agricultural Inspection Service when illegalities are uncovered relating to pesticides in food produced in Norway. The reports from the Food Control Authority indicate who the grower is, which then provides the Norwegian Agricultural Inspection Service with a basis for pursuing the noncompliances uncovered by the Food Control Authority.

#### Follow-up of registered noncompliances

The table below shows how discoveries made by the Food Control Authority have been followed up.<sup>195</sup>

*Table 4.4 Follow-up of reports of discoveries of illegal residues of pesticides from the Norwegian Food Control Authority*

Follow-up .....	1998	1999	2000
The number of reports of discoveries from the Norwegian Food Control Authority/Pesticide Laboratory .....	15	7	7
Number of licences revoked .....	2	2	0
Number reported to the police .....	1	1	0

Source: The Norwegian Agricultural Inspection Service

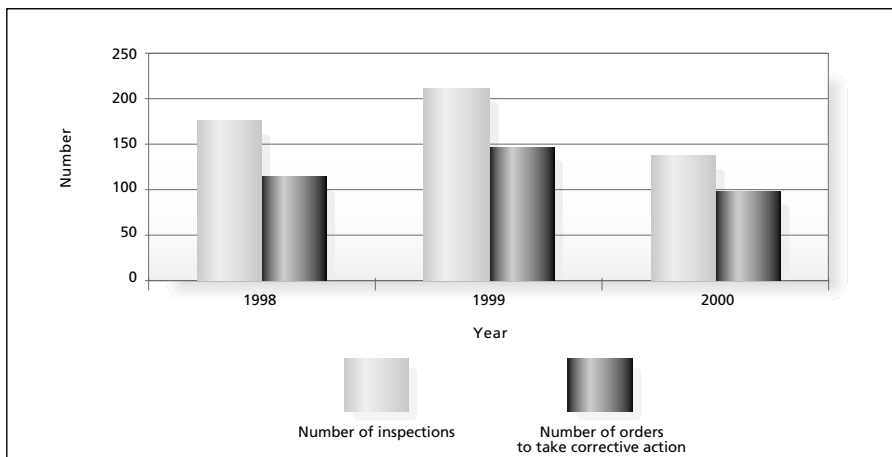
<sup>193</sup> Meeting between Norwegian Agricultural Inspection Service's Regional Office, West, and the Office of the Auditor General, 16 August 2001.

<sup>194</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

<sup>195</sup> Memorandum from the Norwegian Agricultural Inspection Service to the Office of the Auditor General dated 6 November 2001.

The procedure to be followed when too high concentrations of permitted agents are uncovered is that the Norwegian Agricultural Inspection Service requests the grower to submit a copy of the spraying journal with comments. In most cases no obvious illegality has been uncovered. In such cases a written warning is sent to the grower, which closes the case. The agency, however, has concluded that this procedure is not satisfactory. Beginning in 2001, unannounced spot checks have been performed of relevant growers.<sup>196</sup>

Noncompliances uncovered by the regional offices during inspections of dealers and importers of pesticides are, in practice, handled between inspectors and enterprises. Minor matters are pointed out during the inspection, whereas more serious noncompliances are pointed out in a separate letter. If a satisfactory response is not received, in certain cases a warning can be sent stating that the license to sell pesticides may be revoked.<sup>197</sup> According to the figure below, orders to take corrective action are given in approx. 75% of inspections of dealers and importers of pesticides



*Figure 4.18 Norwegian Agricultural Inspection Service, number of inspections and registered orders to take corrective action pursuant to regulations governing the sale of pesticides<sup>198</sup>*

Source: The Norwegian Agricultural Inspection Service

<sup>196</sup> Letter from the Ministry of Agriculture to the Office of the Auditor General dated 29 April 2002.

<sup>197</sup> Meeting between the Office of the Auditor General and the Norwegian Agricultural Inspection Service's regional offices in Stavanger and Tønsberg, August 2001.

<sup>198</sup> The figures are from the Norwegian Agricultural Inspection Service's internal reporting systems, lists of orders to take corrective action 1998, 1999 and 2000 from 1 November 2002, and a list of inspections, pesticide routine inspections from 31 October 2001.

The Regional offices did not report any serious incidents to the central administration, even though in the period, for example, the sale of agents that had been banned for seven years was uncovered.<sup>199</sup> Reporting the dealer to the police or revoking his licence was not considered.

In the period 1998-2000 the Norwegian Agricultural Inspection Service revoked more than 300 licences to sell pesticides. Licence revocation is an instrument the agency may use if breaches of the regulations are uncovered. The Norwegian Agricultural Inspection Service stated that even if many noncompliances had been discovered during inspections, this is not the reason for the revocation of licences. The reasons for the revocations were that enterprises had been closed, had changes of name or ownership or had stopped selling agents requiring a licence.<sup>200</sup>

In practice, criminal charges have been little used. The Norwegian Agricultural Inspection Service justifies this with its experience that cases are dropped.<sup>201</sup> But as a result of a dialogue with the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim), the Norwegian Agricultural Inspection Service stated that future unannounced inspections are planned when illegalities are uncovered.<sup>202</sup>

### **4.3.3 The Norwegian Labour Inspection Authority and pursuing breaches of the regulations**

The Norwegian Labour Inspection Authority's inspection manual has detailed guidelines that include criteria for shutting down an enterprise, orders to take corrective action and coercive fines.<sup>203</sup> The substitution obligation in the Working Environment Act is not mentioned in the guidelines, but noncompliances involving the handling of hazardous substances are. Noncompliances of a certain magnitude are to be followed up with a notification of an order to take corrective action. After the enterprise is given the opportunity to comment on the decision, a order is to be issued with a deadline to correct the noncompliances. If the deadline to rectify the matter is not honoured, normally, the enterprise is to be given a notification of a coercive fine. If the matter is still not rectified, a decision is to

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<sup>199</sup> Printout from the Norwegian Agricultural Inspection Service's database of reports from inspections.

<sup>200</sup> Most often as a result of the fact that the authorities have introduced a requirement that dealers must have a licence

<sup>201</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

<sup>202</sup> Meeting between the Norwegian Agricultural Inspection Service and the Office of the Auditor General, 11 October 2001.

<sup>203</sup> Norwegian Labour Inspection Authority's inspection manual, Section 5.6.1 on guidelines for using orders and coercive fines.

be made to impose a coercive fine. This is in turn to be followed up with coercive fines until the matter is corrected.

The inspection manual has rules for practice related to criminal charges and the handling of cases for the police.<sup>204</sup> The routines for reporting go far in addressing the principles outlined by the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim), even though criteria for responding to repeated breaches and breaches that are economically motivated are not very clear. Noncompliances involving substances that are life-threatening, disabling or can cause permanent health damage should be reported to the police as matter of routine.

The Strategic plan for the Norwegian Labour Inspection Authority from 1996 sets out a consistent and rigorous practice for reporting violations to the police. The Ministry of the Environment refers to Økokrim in the letter of allocation for 2000, and the Directorate of Labour Inspection pointed out in its planning letter for 2000 that it was a goal for all serious violations of the law to be reported to the police, even if no accident occurred.

### Follow-up of registered noncompliances

The Directorate of Labour Inspection's Section of Chemical Affairs is responsible for monitoring importers and manufacturers when incorrect labelling of products or incorrect information in the accompanying data sheets are uncovered. This monitoring is based on feedback and information from the district offices, the Product Register, competing importers or manufacturers and employees.

The table below gives an overview of this segment of inspection activities.<sup>205</sup> The Directorate of Labour Inspection has not formulated clear criteria for when criminal charges should be used in these types of cases, but according to the inspection manual serious breaches and repeated breaches are to result in reporting infractions being considered.

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<sup>204</sup> Norwegian Labour Inspection Authority's inspection manual, Chap. 6 on practice relating to reporting violations to the police and the handling of police cases

<sup>205</sup> E-mail from the Norwegian Labour Inspection Authority to the Office of the Auditor General dated 7 September 2001, Compliance monitoring of HSE data sheets, health hazard labels and declarations to the Product Register, cf. Section 18 of the Working Environment Act.

*Table 4.5 The Directorate of Labour Inspection's follow-up of noncompliances with chemicals regulations reported by the district offices*

Form of reaction .....	1998	1999	2000	Total
Reported cases <sup>206</sup> .....	940	164	121	1224
Notification of a order to take corrective action .....	30	152	113	295
Notification of a coercive fine .....	7	9	5	21
Coercive fine collected .....	2	2	1	5
Infractions reported to the police .....	1	1	1	3

Source: The Norwegian Labour Inspection Authority

As it appears in the table, reporting infractions to the police is not much used as a policy instrument in pursuing cases involving product labelling and HSE data sheets.

The Norwegian Labour Inspection Authority maintains a general overview of the way breaches of the regulations are followed up at the various district offices. All cases are registered according to the section of the regulations that was applied. Since cases are often founded on the Internal Control Regulations, it is difficult to get an accurate picture of noncompliances connected with special regulations in the area of chemicals. The questionnaire survey of the district offices showed that most district offices had no clear picture of the number of orders to take corrective actions and coercive fines in the area of chemicals.

Those district offices of the Norwegian Labour Inspection Authority that reported information on the use of coercive fines in cases involving chemical health risks had registered 443 orders to take corrective action issued in 2000. Of these, 50 cases resulted in a notification of a coercive fine, but fines were collected only from four enterprises.

The new registration system is not set up to follow changes in the number of orders to take corrective action related to hazardous substances such as isocyanates, for example. Since the Norwegian Labour Inspection Authority has goals related to the handling of toxic substances and other substances hazardous to health, it might be interesting to follow changes over time in respect of the handling of particularly life-threatening and disabling substances and substances that can cause permanent health damage. The district offices stated that the substances' dangerousness was stressed in connection with following up inspections etc., that were conducted.<sup>207</sup> This should at the outset make such a registration possible.

<sup>206</sup> Letter from Norwegian Labour Inspection Authority in 1998 to 900 manufacturers and importers on labelling products containing isocyanates.

<sup>207</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.



The Office of the Auditor General's questionnaire survey revealed that in the period 1998-2000, the Norwegian Labour Inspection Authority had reported 11 cases in the area of chemicals to the police.<sup>208</sup> In 1999 and 2000, 5364 reactions were registered pursuant to Section 11 of the Working Environment Act relating to toxic substances and substances hazardous to health.<sup>209</sup>

All except one district office stated that no measures have been effected to ensure that serious infractions with regard to chemical health risks are consistently being reported to the police. There is thus a gap between the instruction for when criminal charges were to be used and agency practice. One district wanted clearer criteria for what should be considered serious breaches in this context.<sup>210</sup>

In a letter to the Ministry of Local Government and Regional Development, the Directorate of Labour Inspection wrote that criminal charges are little used in connection with hazardous jobs involving work in tunnels.<sup>211</sup> Furthermore, the letter states that a quick and consistent reaction with sufficient economic consequences may have the deterrent effect that is necessary to reduce the health risks in the industry. In its reply the Ministry pointed out that inspections and orders to take corrective action over many years had not led to the desired results, and the Ministry supported in such cases an active stance regarding the use of orders, coercive fines and criminal charges.<sup>212</sup>

The Norwegian Labour Inspection Authority stated to the Office of the Auditor General that current reaction routines have a limited deterrent effect. Some of the district offices also pointed out the connection between a weak deterrent effect of its inspection activities and the fact that few cases are reported to the police.<sup>213</sup> The modest number of cases reported to the police is explained *inter alia* by the fact that the level of punishment is too low, that cases are dropped and that work on cases to be reported is resource-intensive. This especially pertains to the area of chemicals. According to the Directorate of Labour Inspection, historically it is part of the culture at the Norwegian Labour Inspection Authority to

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<sup>208</sup> For 2000, two district offices did not have such an overview, for 1999 and 1998 there were three district offices that did not have an overview. The reportings to the police pertain only to the area of chemicals.

<sup>209</sup> The Norwegian Labour Inspection Authority's project for developing the regulations connected with the Working Environment Act from an interim report from the occupational hygiene group, Occupational hygiene conditions detrimental to health in Norwegian working life, p. 8, not dated.

<sup>210</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.

<sup>211</sup> Letter from the Directorate of Labour Inspection to the Ministry of Local Government and Regional Development dated 28 April 2000.

<sup>212</sup> Letter from Ministry of Local Government and Regional Development to the Directorate of Labour Inspection dated 18 August 2000.

<sup>213</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.

be cautious with criminal charges. Even though steering documents and the Ministry have indicated that criminal charges are to be used to a greater extent, it was maintained that such pursuits had been prevented, *inter alia* due to resource considerations.<sup>214</sup>

A review of individual cases showed that serious infractions of current regulations in the area of chemicals were uncovered. In the agency's own assessment these infractions constituted an imminent risk to life and health, without resulting in being reported to the police.<sup>215</sup>

The Office of the Auditor General's questionnaire survey showed that only five district offices had an overview of the number of cases being considered for criminal charges.<sup>216</sup> For those districts that reported that they have such an overview, the number of cases reported to the police and the number of cases evaluated for reporting were nearly identical. According to the Norwegian Labour Inspection Authority's inspection manual, as part of planning industry campaigns and actions the project leader is to see to it that criminal charges are considered. This was not followed up in practice, either for campaigns co-ordinated by the Directorate of Labour Inspection centrally<sup>217</sup> or by the district offices.<sup>218</sup>

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<sup>214</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.

<sup>215</sup> Norwegian Labour Inspection Authority, Second District, 19 October 2001, Order 818 relating to the storage and handling of cyanides.

<sup>216</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.

<sup>217</sup> Meeting between the Directorate of Labour Inspection and the Office of the Auditor General, 10 October 2001.

<sup>218</sup> The Office of the Auditor General's questionnaire survey of the Norwegian Labour Inspection Authority's district offices, October 2001.

## 5. The auditors' judgements

In 1997 the Government set forth the goal of reducing the risk of harm to human health or the environment posed by the use of chemicals in society. The use and release of certain particularly hazardous chemicals were to be reduced substantially before 2000 and phased out completely by 2005. For other substances, emissions and discharges were to be reduced substantially by 2010. The authorities have drawn up lists of substances and substance groups that have particularly undesirable health and environmental properties, indicating the importance of replacing these with chemicals less hazardous.

The audit revealed that the authorities have a disparate overview of the use and release of particularly dangerous hazardous chemicals, and that central government regulatory agencies have differing approaches in their work. Whereas the Norwegian Pollution Control Authority devotes considerable resources in monitoring chemicals within its area of responsibility, the Norwegian Labour Inspection Authority has done little to follow trends in the use of chemicals constituting a particular health risk in the workplace. The Norwegian Agricultural Inspection Service has a detailed overview of the sale of pesticides, but a limited overview of the actual use and release of these agents.

Acts of law and regulations govern the use of hazardous chemicals in various contexts. The three agencies investigated administer regulations governing many enterprises, with provisions intended to ensure that people and the environment are not exposed to unacceptable risks. Seeing to it that these regulations are complied with is a key task for these agencies. The audit revealed that monitoring compliance with the regulations in question is prioritised differently.

The regulatory agencies investigated used risk assessments in varying degrees as the basis for targeting their compliance monitoring activities. The Norwegian Labour Inspection Authority has developed a model for risk-based compliance monitoring, but systematic evaluations of chemical risk factors in the workplace rarely form the basis for this monitoring. The Norwegian Pollution Control Authority maintained that their monitoring was risk-based, but the audit revealed that various industries with high risks had not been systematically evaluated against one another for the purpose of prioritising compliance monitoring measures.

At the Norwegian Agricultural Inspection Service, monitoring compliance with the regulations for pesticides was a low-priority policy instrument. Even though the agricultural authorities implemented important measures to limit the risk posed by pesticide use, the audit revealed that the Norwegian Agricultural Inspection Service's compliance monitoring has serious shortcomings. Its monitoring was limited in scope and was

rarely targeted on the basis of risk assessments. This raises the question of whether today's monitoring of compliance with the regulations is targeted in such a way as to address health and the environment in a satisfactory manner.

Under certain circumstances the Working Environment Act and Product Control Act mandate enterprises to replace especially dangerous chemicals with less dangerous ones. The working environment authorities and environmental protection authorities enforced this substitution obligation differently. While the Norwegian Pollution Control Authority attaches considerable importance to this obligation in connections with its inspection and monitoring, this provision was rarely emphasised by the Norwegian Labour Inspection Authority. This raises the question of whether in light of the overarching objectives in the area of chemicals, the responsible ministries ought to do more to co-ordinate the administration of the regulations in question.

The audit revealed that the regulatory agencies uncovered extensive breaches of the regulations relating to chemicals. Nevertheless this rarely resulted in enterprises in violation of the regulation being reported to the police. This raises the question of whether the central government regulatory agencies under investigation satisfactorily emphasise the pursuit of breaches of the regulations as an instrument to ensure compliance with laws and regulations.

## **5.1 THE NORWEGIAN POLLUTION CONTROL AUTHORITY**

Closely monitoring emissions and discharges of relevant hazardous chemicals is a daunting task. There is a difficult balance between using resources to monitor releases and using resources on release-reducing measures. The chemicals in question are found in many products and are used in many different contexts. The audit revealed that Norwegian Pollution Control Authority used considerable resources on developing an overview of relevant emissions and discharges and had a lot of information on the use of chemicals with the highest priority. However, great uncertainty attaches to the release figures the Norwegian Pollution Control Authority presents.

In June 2001 the Norwegian Pollution Control Authority reported to the Ministry of the Environment that the goal of substantially reduced emissions and discharges of 10 out of 12 chemicals with the highest priority had been reached by the end of 2000. For other priority chemicals with a somewhat longer time horizon for release reductions, the Norwegian Pollution Control Authority stated that the reduction targets for emissions and discharges will in essence be reached, if identified measures are implemented. The audit revealed that there is limited information on the sales and important discharge sources of several priority

substances. Sources that are known but where release figures are missing are little mentioned in relevant reports. In light of the uncertainty attached to the release figures, questions may be raised regarding the Norwegian Pollution Control Authority's reporting of targets being achieved.

### Targeting of compliance monitoring activity

The Norwegian Pollution Control Authority has good routines for targeting compliance monitoring measures aimed at enterprises with discharge permits. The Office of the Auditor General's audit revealed that the Norwegian Pollution Control Authority does not have comparable documented routines for assessing and comparing the risk among enterprises without discharge permits. However, the Norwegian Pollution Control Authority has identified product types that contain the most hazardous chemicals and industries that handle substantial quantities of selected chemicals hazardous to human health or the environment were also charted, for instance as part of the compilation of the "observation list". The Norwegian Pollution Control Authority claimed that an active use of the "observation list", for example, as part of planning compliance monitoring means that the agency's compliance monitoring activities aimed at companies without discharge permits is risk-based.

A large number of enterprises are regulated by the Product Control Act and appurtenant regulations. Those parts of the regulations dealing with products' chemical properties, are administered by the Norwegian Pollution Control Authority. Targeting compliance monitoring measures aimed at enterprises that handle such products is a challenge, and the Norwegian Pollution Control Authority itself stated that this was a difficult area. The need for systematic analysis and comparison of risk among different industries and enterprises as the basis for compliance monitoring measures was underscored. When monitoring resources are limited, it is especially important that the planning process at the Norwegian Pollution Control Authority ensures that its compliance monitoring targets the enterprises with the greatest risk of damage to human health or the environment.

### Pursuit of breaches of the regulations

During the period the Norwegian Pollution Control Authority had guidelines for how to respond to noncompliances uncovered by inspections, audits etc. The guidelines mentioned examples of infractions that were to result in special follow-up, and examples of when noncompliances were to result in criminal charges being considered. The audit revealed that in the period 1998-2000 many noncompliances had been uncovered that could meet relevant criteria in the guidelines, but that only a small number of enterprises were subject to special follow-up or considered for criminal charges.

The Office of the Auditor General previously investigated Norway's compliance with the OSPAR Convention.<sup>219</sup> Here it was pointed out that mild reactions were predominantly used for the industrial sector, most commonly written orders to rectify the matter. The audit revealed that pollution fines and criminal charges were less commonly used, and that there was great variation among the individual years. The fact that the percentage of violations remained relatively stable at a high level led the Office of the Auditor General to query whether harsher forms of sanctions ought to be used more often as the first form of reaction.

At a meeting with the Office of the Auditor General the agency itself pointed out that the deterrent effect of its compliance monitoring activity has not been satisfactory. The Norwegian Pollution Control Authority maintained that pursuing serious breaches of the regulation in collaboration with the police has been enhanced in 2001, and the use of criminal charges has increased. It is expected that also in its future efforts the Norwegian Pollution Control Authority will stress the pursuit of breaches of the regulation as an instrument to strengthen the deterrent effect of the regulations.

## **5.2 THE NORWEGIAN AGRICULTURAL INSPECTION SERVICE**

The authorities' objective is to reduce the health and environmental risks from pesticides by 25% from 1998 to 2002. Several risk-reducing measures have been implemented, including the introduction by the Norwegian Agricultural Inspection Service of a new tax system differentiating the level of tax according to the health and environmental risks a pesticide poses. Although the Norwegian Agricultural Inspection Service developed a model to calculate the health and environmental risks from pesticide use, so far the model has not provided a good indication of how the risks have changed in the period.<sup>220</sup>

The Norwegian Agricultural Inspection Service uses the results from a monitoring programme run by the Norwegian Food Control Authority to measure illegal concentrations of pesticides in foodstuffs. Although the number of discoveries of illegal residues of pesticides in food is small, from 1998 to 2000 there was an increase.

The occurrence of pesticide residues in the natural environment has been monitored by a separate programme financed jointly by the environmental protection authorities and the agricultural authorities. The Norwegian Agricultural Environmental Monitoring Programme (JOVÅ)

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<sup>219</sup> Document no. 3:4 (2000–2001), *The Office of the Auditor General's investigation of Norway's compliance with the OSPAR Convention within industry, waste water management and agriculture.*

<sup>220</sup> See the discussion of the Norwegian Agricultural Inspection Service's model for calculating health and environmental risks in Section 4.1.2.

has followed the occurrences of selected pesticides in streams, drinking water and ground water in exposed agricultural areas. Although the findings from the programme present an unclear picture, the audit revealed that from 1998 to 2000 there was no clear decline in impact.

At the end of 2001, the indicators mentioned provided no basis for concluding that the risks or releases of pesticides have substantially been reduced from 1998 to 2000. In light of this, the question should be raised as to whether the Norwegian Agricultural Inspection Service ought to have a more detailed overview of the actual use of those agents with especially undesirable properties. This would have been valuable information in addition to the risk index, so long as the sales figures in the period have had limited value. More detailed analyses of where and how the high-risk agents are used might also point out areas in agriculture where risk-reducing measures would be particularly effective.

### Targeting of compliance monitoring activity

For monitoring to effectively help to reduce the risks connected with pesticide use, it is crucial for monitoring to be aimed at those activities in agriculture where the risks are highest. In the period 1998–2000 the Norwegian Agricultural Inspection Service did inspections of importers and dealers of pesticides. There are relatively few enterprises licensed to import or sell pesticides, and the goal has been to inspect all of them a one to five year intervals. The agency stated that the frequency of inspections primarily depended on the size of the enterprise and the agency's findings from previous inspections.

The audit revealed that large groups that are covered by the regulations in question had not been considered for monitoring. At the same time, studies done by the agency itself also revealed that the risks connected with pesticide use at agricultural enterprises were considerable. At a meeting with the Office of the Auditor General, one regional office pointed out that the dangers of incorrect handling and risk of serious harm to human health or the environment are probably greater out among users than among dealers and importers.

The Norwegian Agricultural Inspection Service's central administration performs comprehensive evaluations of the health and environmental risks connected with the use of various pesticides. These evaluations are part of the agency's processing of applications for approving pesticides. The scheme gives the agency expertise in the risks connected with using the various products. Combined with knowledge of where in agriculture the pesticides are used, the agricultural authorities would have a good basis for identifying relevant enterprises with particularly high risks. Therefore this should enable the agency to base its compliance monitoring more on evaluations of which enterprises or activities involve the greatest risk of damage to human health or the environment.

## Pursuit of breaches of the regulations

The Norwegian Agricultural Inspection Service does not have routines to ensure a uniform pursuit of noncompliances. The pursuit is left to the judgement of the individual inspector, which implies a danger that follow-up would be random and not very consistent. The agency has not established routines for characterising noncompliances by the seriousness of the circumstances uncovered through its monitoring activity. According to the agency's internal instructions, serious breaches are to be presented to the central administration, which would consider criminal charges or revoking the violator's licence. From 1998 to 2000, no cases were presented to the central administration for such consideration. Since the agency does not have criteria for which breaches should be considered serious, it has been difficult to decide whether cases should be pursued further.

Certain pesticides are highly toxic and must be reckoned to be especially hazardous chemicals, with a considerable potential for harm if used incorrectly or illegally. Each year the Norwegian Food Control Authority performs nearly 3,000 tests to uncover any pesticide residues in food. If residues of illegal pesticides are proven or the threshold values for residues of legal agents have been exceeded, the Norwegian Agricultural Inspection Service is to pursue the matter with the importer or manufacturer. The audit revealed that the Norwegian Agricultural Inspection Service's pursuit of cases of this type is not very satisfactory. As a rule, the Norwegian Agricultural Inspection Service has written to the manufacturer or importer in question to request an account of the matter at hand. A question may be raised as to whether this is a suitable form of reaction.

### **5.3 THE NORWEGIAN LABOUR INSPECTION AUTHORITY**

Since the Norwegian Labour Inspection Authority is to contribute to a fully satisfactory working environment, the reduction of chemical risk factors has been stressed as a key challenge. The audit revealed that the agency has done little to follow up on this priority in setting specific targets for its own efforts aimed at chemical health risks in the workplace.

Efforts have followed two different plans of action, one for reducing chemical health risks and one aimed at a particular substance group. Although the formal status of the plans of action was unclear, the Directorate of Labour Inspection documented considerable knowledge of chemical health risks in the workplace, and a number of measures to reduce risks were described. Some diffuse measures were implemented, but the audit revealed that these were not rooted in clear strategies and performance targets in the area of chemicals.



The Norwegian Labour Inspection Authority did not consider reducing the use of particularly dangerous chemicals as a relevant goal for its efforts at reducing chemical health risks. Although measures to chart the use of chemicals posing a particular health risk were considered, the audit revealed that the agency did little to conduct such a survey. In the period 1998-2000 the Norwegian Labour Inspection Authority did not have an overview of the extent to which the chemicals in question were in use.

The agency identified isocyanates as being a substantial risk factor linked to serious allergies and hypersensitivity among Norwegian workers. The agency stated that these substances have been at the centre of the agency's work on chemicals and that a plan of action had been prepared. The audit revealed that the agency had not charted the use of isocyanates in connection with the plan of action. This raises questions about the agency's basis for evaluating and prioritising various measures to reduce risks associated with the use of isocyanates in the workplace.

### Targeting of compliance monitoring activity

The Norwegian Labour Inspection Authority is supposed to do risk-based compliance monitoring. In an earlier audit, the Office of the Auditor General pointed out that efforts to implement a suitable tool to base its compliance monitoring more on risk assessments had taken a long time.<sup>221</sup> On the background of the importance of basing inspection activity on risk in focusing attention on those areas where the work situation is worst, the Office of the Auditor General indicated the need for the ministry to follow up on this prioritising. In a letter to the Office of the Auditor General, the Ministry of Labour and Government Administration stated that the groundwork for a common system for risk assessment was finished being laid. The model was to be implemented in 2000 and used for compliance monitoring in 2001.

The model in question for basing inspection activities on risk involves the agency's relevant departments and the district offices proposing risk-classifications of various industries and types of impacts. This includes impacts connected with chemical health risks being evaluated in a systematic and uniform manner. The Directorate of Labour Inspection stated that this model was used in connection with inspection activities in 2002. The model was used as a basis for central inspection planning and only applied to those parts of the agencies inspection activities that are co-ordinated by the Directorate of Labour Inspection. Thus, there are still vast differences among the various districts in respect of using risk assessments as the basis for orienting inspection activities.

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<sup>221</sup> Document no. 3:9 (1999-2000) *The Office of the Auditor General's investigation into performance attainment at the Norwegian Labour Inspection Authority*

Integrating considerations of chemical health risks into planning and carrying out inspections is a technically daunting challenge. The audit revealed that the agency has at its disposal occupational hygienists at the district offices and personnel with special chemical expertise at the Directorate of Labour Inspection. However, the unit with special responsibility in the area of chemicals pointed out that the number of full-time equivalents with relevant qualifications at the agency was cut in half in the 1990s. Its specialised knowledge in the area of chemistry was described as insufficient. It is therefore uncertain whether the agency has associated with it the necessary expertise to address chemical health risks as part of active compliance monitoring.

A continuous improvement of compliance monitoring requires that these activities are evaluated on the background of experiences from previous inspections, for instance. Routines for describing inspection activities and systems for storing and analysing relevant information are important in this connection. In the period 1998-2000 the agency had few routines and systems to enable it to assess the extent and quality of compliance monitoring aimed at chemical health risks. For example, the Norwegian Labour Inspection Authority did not have a system that in a simple manner enabled it to see the topic or regulation stressed in an individual inspection, audit or verification. This raises a question as to whether the ministry and regulatory agency had a sufficient basis for assessing whether chemical health risks were being satisfactorily addressed.

### Pursuing breaches of the regulations

The Norwegian Labour Inspection Authority has established routines that declare that noncompliances involving hazardous chemicals are to result in an order to take corrective action, and that noncompliances involving particularly dangerous chemicals should be reported to the police. Nowhere does it appear in current routines that a lack of considering substitutes is a situation that should provoke a reaction. Nor has the Norwegian Labour Inspection Authority drawn up a list of the hazardous chemicals that should result in criminal charges when noncompliances are uncovered.

In the period, the Norwegian Labour Inspection Authority did not have routines or systems to synthesise information on the agency's use of various forms of reaction. Thus, the agency's administration had limited knowledge of how often it responded with harsh forms of reaction, for example, coercive fines or criminal charges. Insufficient knowledge about the agency's practice in this area made it difficult to assess whether the use of reaction tools is satisfactory and whether more rigorous practice can be a suitable instrument for reaching the agency's goals. The lack of an overview also made it difficult to determine whether the agency's practice in the 13 various districts is uniform.

For a time it was a goal for the agency for criminal charges to be used for serious working environment crimes. There was a tendency for only acute workplace accidents to be reported to the police. At the same time it was recognised that serious working environment crime can be associated with other circumstances. The need was especially pointed out for prosecutorial pursuit of cases where employees suffered long-term exposure to hazardous substances in the workplace. It is also enshrined in an internal instruction that noncompliances involving improper handling of particularly dangerous chemicals are to be routinely reported to the police.

The Office of the Auditor General's investigation revealed that breaches of the regulations governing occupational chemical health risks are rarely reported to the police. And so there is a gap between current objectives and internal instructions regarding which circumstances are to be reported to the police and which circumstances that were reported in actual fact. The Directorate of Labour Inspection and a majority of the district offices also stated to the Office of the Auditor General that the deterrent effect of the agency's efforts is limited because the threshold for criminal charges is high. This weakens the importance of the regulations as an instrument in efforts to reduce the risks to health connected with using chemicals in the workplace.

## Appendix

### List of documents

#### Reports to the Storting

- Report no. 58 (1996–1997) to the Storting, *Environmental policy for a sustainable development*
- Report no. 24 (2000–2001) to the Storting, *The government's environmental policy and the state of the environment in Norway*

#### Propositions to the Storting

- Proposition no. 1 (1997–1998) to the Storting, the Ministry of Local Government and Regional Development
- Proposition no. 1 (1999–2000) to the Storting, the Ministry of Local Government and Regional Development
- Proposition no. 1 (1998–1999) to the Storting, the Ministry of Agriculture
- Proposition no. 1 (2000–2001) to the Storting, the Ministry of Agriculture
- Proposition no. 1 (1998–1999) to the Storting, the Ministry of the Environment

#### Committee recommendations

- Recommendation no. 150 (1997–98) to the Storting, Recommendation from the Standing Committee on Energy and the Environment on environmental policy for a sustainable development

#### Acts of law and regulations

- Act no. 79 of 11 June 1976 relating to the control of products and consumer services (Product Control Act)
- Act no. 6 of 13 March 1981 relating to protection against pollution and relating to waste (Pollution Control Act)
- Act no. 9 of 5 April 1963 relating to pesticides
- Act no. 4 of 4 February 1977 relating to worker protection and working environment (Working Environment Act)
- Regulation of 14 December 2000 relating to pesticides
- Regulation of 3 June 1977 relating to imposing coercive fines pursuant to the Act relating to worker protection and working environment
- Regulation of 23 September 1994 relating to waste and wastewater containing amalgam from dental clinics and dentists' offices
- Regulation of 21 August 1997 relating to the classification, labelling etc., of dangerous chemicals

- Regulation of 27 December 1997 relating to the stipulation and collection of fees for the authorities' control of chemical substances and mixtures of substances
- Regulation of 27 December 1997 relating to fees for processing advance notices of new chemical substances

### **The Norwegian Pollution Control Authority**

- Recommendations for the Norwegian Pollution Control Authority's future compliance monitoring activity – strategy and resource needs, 20 May 1996
- Project to strengthen the exercise of authority, with attachment, 22 November 2000
- Report 99:12, The Norwegian Pollution Control Authority's inspections in 1998
- Report TA 1815/2001, The Norwegian Pollution Control Authority's inspections in 2000
- Report 1711/2000, Hazardous substances to be especially aware of (the "observation list")
- Report TA 1822/2001, Hazardous substances in products
- Report 99:23 Brominated flame retardants
- Report 99:24 Short-chain chlorinated paraffins
- Document 98:01, Annual performance plan 1998
- Guideline 1777/2001, Enterprises' self-reporting to the pollution control authorities
- Quality system, Registration and classification of targets for inspection, 28 January 1998
- Quality system, Determination of fee and inspection class/change category, 15 July 1999, Appendices
- Quality system, Guidelines for the planning process for the B Department's compliance monitoring activities, 25 June 1998
- Quality system, Factors in determining whether violations of the Pollution Control Act/Product Control Act are to be reported to the police
- Internal memorandum dated 24 November 1999 on quality assurance of data in analyses of measures
- Internal memorandum dated 2 March 2000 on monitoring brominated flame retardants
- Internal memorandum dated 3 May 1999 on weighted emissions and discharges of heavy metals and organic hazardous substances on the priority list (weighted according to hazardousness)
- Internal memorandum dated 2 July 2000, Basis for planning for 2001
- Internal memorandum dated 25 November 1999, Inspections in 2000 Request for support of principles and assumptions as the basis for meeting the earnings requirement while at the same time sufficient

compliance monitoring capacity is allocated to project-oriented inspections

- Memorandum, Evaluation of, and experience from, the “Chemicals in the Product Register” project (not dated)

### **Norwegian Labour Inspection Authority**

- Letter of allotment from the Ministry of Local Government and Regional Development to the Norwegian Labour Inspection Authority for 1998
- Letter of allotment from the Ministry of Local Government and Regional Development to the Norwegian Labour Inspection Authority for 1999
- Strategic plan for the Norwegian Labour Inspection Authority, 1996
- Inspection manual, revised 20 July 2000
- Governing documents for inspections, Version 2, March 1997
- The chemical working environment – the Norwegian Labour Inspection Authority’s strategy, June 1998
- Plan of action HMS-K, 20 October 1999

### **The Norwegian Agricultural Inspection Service**

- The Ministry of Agriculture, Plan of action for reducing the risks connected with the use of pesticides (1998–2002), 7 October 1998
- The Ministry of Agriculture, Report from the 1998 task force for the plan of action for reducing the risks connected with the use of pesticides (1998–2002)
- Overall annual performance plan for the Norwegian Agricultural Inspection Service 1999
- Overall annual performance plan for the Norwegian Agricultural Inspection Service 2000
- Performance report for the Norwegian Agricultural Inspection Service 2000
- Instruction for the Norwegian Plant Inspection Service for the control of pesticides etc., 5 November 1986
- Control of pesticides used in ornamental and nursery plants etc. – procedures, instructions and guidelines, March 2001
- Internal memorandum by Kai-Uwe Bracklo, March 2000
- Internal document: The import, sale and use of pesticides – control and forms of response to violations of the regulations
- Memorandum from the Norwegian Agricultural Inspection Service to the Office of the Auditor General dated 6 November 2001

### **Letters**

- Letter from the Norwegian Pollution Control Authority to the Office of the Auditor General dated 17 January 2002

- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 May 1999 with attachments
- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 8 June 2001 on the status and further efforts on PCBs
- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 13 December 1999, Report on analyses of measures for priority hazardous substances, with attachment
- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 20 June 2001, Overview of emissions and discharges for priority hazardous substances with attachment
- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 15 December 2000, Plans for release-reducing measures for priority hazardous substances, with attachment
- Letter from the Norwegian Pollution Control Authority to the Ministry of the Environment dated 22 March 1999, Plan for how to make inspection and monitoring an enhanced environmental policy instrument in efforts involving chemicals
- Letter from the Norwegian Pollution Control Authority to a Norwegian industrial company in 1997 regarding the quality control of emissions data subject to mandatory reporting
- Letter from the Ministry of Agriculture to the Office of the Auditor General dated 29 April 2002
- Letter from the Norwegian Agricultural Inspection Service to holders of licences to sell pesticides dated 4 February 1997
- E-mail from the Norwegian Labour Inspection Authority to the Office of the Auditor General dated 7 September 2001, Compliance monitoring of HSE data sheets, health risk labels and declarations to the Product Register, cf. Section 18 of the Working Environment Act
- Letter from the Directorate of Labour Inspection to the Ministry of Local Government and Regional Development dated 28 April 2000
- Letter from Ministry of Local Government and Regional Development to the Directorate of Labour Inspection dated 18 August 2000
- Letter from the National Authority for Investigation and Prosecution of Economic and Environmental Crime in Norway (Økokrim) to the Norwegian Pollution Control Authority and the Norwegian Labour Inspection Authority dated 27 January 2000

## Other documents

- SINTEF report no. STF38 A01020, The working environment and labour inspection during the 1990s, p. 63, January 2001
- The Norwegian Food Control Authority's report 3–2001, Residues of pesticides in vegetable foodstuffs in 2000
- Document no. 3:9 (1999–2000) *The Office of the Auditor General's investigation into performance attainment at the Norwegian Labour Inspection Authority*
- Document no. 3:4 (2000–2001) *The Office of the Auditor General's investigation of Norway's compliance with the OSPAR Convention within industry, waste water treatment and agriculture*
- Hjeltnes COWI, Electrical and electronic waste – sales figures, waste quantities and handling, January 1996
- The Product Register, Overview of isocyanates in industries and product groups, 12 November 2001
- Statistics Norway report 2001/17, Atmospheric emissions of some hazardous substances in Norway
- Statistics Norway memorandum 2000/4, Chemicals in Environmental Pressure Information Systems
- Royal Decree of 26 January 1996, Financial management regulation for the central government
- Directorate of Public Management (Statskonsult) report 2001/1, Good chemistry? The division of responsibility and collaboration between agencies in regulating chemicals, June 2001
- National Institute of Technology, Norway, report no. 47/639, Investigation of alkylphenols and alkylphenol ethoxylates – quantities and use in 1999 and 2000, October 2000.
- Norwegian Institute for Air Research (NILU) report 2001 by Leif K. Sydnes, An assessment of the basis for the authorities' evaluation of the use and release of hazardous chemicals, 5 November 2001
- Norwegian Centre for Soil and Environmental Research (Jordforsk), Agricultural environmental monitoring in Norway, pesticides 1999 – Report no. 22/01.
- Prosjektforum AS, Questionnaire survey on the use of pesticides – summary, 10 March 2000
- Directorate of Public Management (Statskonsult) report 19:1999, Experiences with management by objectives and results in the central government administration