

## **Metering is a must II!**

Enforcement of the Nuclear Energy Act at scrap-processing companies in 2004 and 2005

Article code 6178





## Summary

As part of the project "Enforcement of Nuclear Energy Act at scrap-processing companies" the Inspectorate of the Ministry of Housing, Spatial Planning and the Environment carried out company inspections at 115 scrap-processing companies in 2004 and 2005. The purpose of the project was the enforcement of the Nuclear Energy Act and the regulations based on that Act, the Radiation Protection Decree and the Detection of Radioactively Contaminated Scrap Decree. The Detection of Radioactively Contaminated Scrap Decree, which among other things mandates the use of equipment for the detection of radioactively contaminated scrap, is applicable to a company if a scrap-processing threshold defined in the decree is exceeded. In that case the company has to comply with a number of requirements, as follows: metering obligation, registration obligation, designating a person responsible and providing financial guarantees.

Of the 82 scrap-processing companies inspected in 2004, 54 were found to have to comply with the requirements under the Detection of Radioactively Contaminated Scrap Decree. Of the 33 scrap-processing companies inspected in 2005, 28 were found to have to comply with that decree. Compliance with the requirements under the decree was as follows: 80% (2004) and 79% (2005) of the companies complied with the metering obligation, 46% (2004) and 57% (2005) of the companies complied with the registration obligation, 63% (2004) and 68% (2005) of the companies had employed a person responsible who was instructed in that task and 74% (2004) and 64% (2005) of the companies had meanwhile provided financial guarantees. Total compliance with the decree was 20% (2004) and 25% (2005). Compliance with the decree in the years 2004 and 2005 has improved compared with the situation in 2003, when total compliance with the decree was 0%. The impression is that compliance has improved owing to the provision of information and enforcement by the Inspectorate for Housing, Spatial Planning and the Environment.

A number of the provisions of the decree and the regulations connected with it can be said to be difficult to enforce and implement. The Inspectorate for Housing, Spatial Planning and the Environment will urge the policy directorate responsible of the Ministry of Housing, Spatial Planning and the Environment to carry out a swift evaluation and change the regulations.

9% (2004) and 30% (2005) of the inspected companies were found to have breached the reporting obligation mandated for instance in Article 33 of the Nuclear Energy Act. Radioactive substances were present at 5% (2004) and 0% (2005) of the companies, in violation of article 29 of the Nuclear Energy Act, without the companies being in possession of the relevant required permit.

In 2004 and 2005, 9 companies were informed that official reports would be drawn up and administrative-law measures were taken in response to the violations identified.

The Inspectorate for Housing, Spatial Planning and the Environment will bring the findings arising from the inspections to the attention of the industry association Metaal Recycling Federatie [Metal Recycling Federation].





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# 1 Introduction

The Inspectorate for Housing, Spatial Planning and the Environment for the South-West region is responsible for enforcement of the Nuclear Energy Act. It has been carrying out inspections at numerous scrap-processing companies since 1999. The results of the inspections have been published in the reports:

- Enforcement of Nuclear Energy Act at scrap-processing companies in 1999;
- Looking for a radioactive needle in a stack of scrap; Enforcement of Nuclear Energy Act at scrap-processing companies in 2000 and 2001;
- Metering is a must!; Enforcement of Nuclear Energy Act at scrap-processing companies in 2002 and 2003.
- Enforcement of the Nuclear Energy Act and Environmental Management Permit Act at scrap companies in South-Holland and Zeeland Provinces (2004).

Companies trading in scrap regularly have to deal with the presence of radioactive substances in the scrap. Radioactivity in scrap can consist of contamination on the outside or a contamination in the scrap. Also, a source can be encapsulated within the scrap. The presence of radioactive materials in scrap can be established using various kinds of detection equipment.

- A gate detector that is placed at the entrance to a scrap company's site. This instrument detects whether radioactive materials are potentially present in scrap cargoes delivered by car or train.
- A crane detector mounted in the claw of a crane used to transfer scrap. This detects whether the claw's contents might potentially contain radioactive materials. Crane detectors are used especially for the transfer of scrap that has been delivered by boat.
- A hand-held detector, portable equipment to detect radiation. The detection of radiation is an indication of the presence of radioactive materials.

The reason why the Environmental Inspectorate, as it was called at the time, decided in 1999 to carry out pro-active inspections at scrap-processing companies was the question whether hazardous and non-licensed situations occurred in the regular scrap trade that went unreported. A large number of scrap-processing companies were inspected in the period from 1999 up to and including 2002. Inspections were aimed primarily at understanding the trading in and the nature of the metals. During the company inspections performed in that period, the Inspectorate was only able to recommend to the companies to start using detection equipment for checking scrap cargoes delivered. After all, there was as yet no legal obligation to do so. At companies which at that time already possessed detection equipment, the Inspectorate for Housing, Spatial Planning and the Environment reviewed compliance with the Nuclear Energy Act and the General Administrative Decree based on it, the Radiation Protection Decree.

Since 1 January 2003, the Detection of Radioactively Contaminated Scrap Decree has been in force. The decree requires a specific target group to use equipment for the detection of radioactive scrap and to provide financial guarantees for the removal of radioactively contaminated scrap. The decree applies to companies annually trading, via the shipyard, in



excess of quantities determined in advance. Since 30 April 2003, the Detection of Radioactively Contaminated Scrap Regulation that is connected with the decree has been in force. This imposes further requirements on the metering equipment to be used, the registration of metering data and the skills and competences of the specialist responsible within the company. From 2003, the Inspectorate for Housing, Spatial Planning and the Environment has in its inspections of scrap-processing companies also covered compliance with the Detection of Radioactively Contaminated Scrap Decree and the Detection of Radioactively Contaminated Scrap Regulation. In addition, compliance with the Nuclear Energy Act and the General Administrative Measure based on it, the Radiation Protection Decree, was verified.

#### Outline of contents

In section 2 the Detection of Radioactively Contaminated Scrap Decree and the regulation connected with it are explained in brief. This is followed in section 3 by a description of the approach used in the inspections carried out in 2004 and 2005. Section 4 analyses the data obtained in the company inspections. Sections 5 and 6 present the conclusions and recommendations.



## 2 Detection of Radioactively Contaminated Scrap Decree

The Detection of Radioactively Contaminated Scrap Decree is a General Administrative Measure based on article 21 (1) and article 32 (1) of the Nuclear Energy Act. The decree mandates the use of equipment for the detection of radioactively contaminated scrap and demands financial guarantees for the cost of removing radioactively contaminated scrap.

Scrap-processing companies are required to comply with the obligations of the decree if their turnover on an annual basis, in tonnes of scrap traded via the shipyard, exceeds:

- 100 tonnes stainless steel,
- 1,000 tonnes aluminium, or
- 20,000 tonnes iron.

The decree applies particularly to companies where scrap is processed, treated and stored or transhipped.

The decree encompasses four obligations.

1. Metering obligation.
2. Registration obligation.
3. Person responsible.
4. Financial guarantees.

The Detection of Radioactively Contaminated Scrap Regulation connected with the decree imposes more detailed requirements relating to the metering equipment to be used, the registration of the metering data and the skills and competences of the specialist responsible within the scrap-processing company.

The approach underlying the decree and regulation are explained in detail in the report “Metering is a must!; Enforcement of the Nuclear Energy Act at scrap-processing companies in 2002 and 2003.”

While the decree obliges all scrap-processing companies to meter all incoming cargoes of scrap, it does not prescribe what needs to be done if the scrap is actually found to be radioactively contaminated. If metering shows that a scrap cargo is highly likely to contain fissionable materials, ores or radioactive materials, their detection is required to be reported pursuant to article 22 (1) or article 33 (1) of the Nuclear Energy Act. A guideline has been drawn up for this by the Inspectorate for Housing, Spatial Planning and the Environment, specially intended for scrap-processing companies. It describes the procedure to be followed after detection of metal and scrap containing radioactive substances (“Inspection guideline for metal and scrap containing radioactive substances”, of 25 February 2003).





## 3 Approach used in company inspections in 2004 and 2005

### 3.1 Company inspections in 2004 and 2005

In 2004, a total of 82 of the scrap-processing companies known to the Inspectorate for Housing, Spatial Planning and the Environment were selected for a company inspection. Of these companies, 59 were inspected for the first time for compliance with the Detection of Radioactively Contaminated Scrap Decree and the Detection of Radioactively Contaminated Scrap Regulation connected with it. A total of 19 scrap-processing companies had already been previously inspected in the year 2003, when violations of the decree and the regulation were identified. These inspections are called reinspections. Three companies were selected owing to their involvement in reports of scrap containing radioactive materials for reactive inspections. One company was inspected because it discontinued its scrap-processing activities.

Of the 82 scrap-processing companies, a total of 24 companies were inspected in the context of a collaboration agreement relating to the inspection for compliance with the Nuclear Energy Act and the Environmental Management Act, which were performed by the Inspectorate for Housing, Spatial Planning and the Environment for the South-West region (VI-ZW) jointly with the provinces South-Holland and Zeeland and a number of municipalities.

In 2005, a total of 33 scrap-processing companies were selected for a company inspection. Of these companies, twelve were inspected for the first time for compliance with the decree and the regulation. Reinspections were carried out at eleven companies, which had previously been inspected in 2003 or 2004. A second reinspection was carried out at five companies, following up on a reinspection in 2004 or 2005 during which violations had continued to be found. Reactive inspections were carried out at three companies. Two companies were inspected because they ceased their scrap-processing activities.

Virtually all company inspections were carried out without advance notification. In a number of cases it emerged during the company inspection that, as the relevant persons responsible were absent, insufficient information was obtained to adequately verify compliance. A second visit was therefore made to the company in a number of cases.

A company inspection consisted of the following elements.

1. Inspection of the scrap stored on the company premises (Nuclear Energy Act article 15, sub a, and article 29, first subsection: holding radioactive substances, fissionable materials and/or ores). In the inspection of the company premises, the scrap present at that time was inspected on a sample basis for the presence of elevated radiation levels and/or radioactive contaminations.
2. Inspection of the company is covered by the scope of the Detection of Radioactively Contaminated Scrap Decree (Nuclear Energy Act article 21, first subsection, and 32, first



subsection: supplementary rules that can be imposed to protect people, animals, plants and the environment).

- First it was verified whether the company is an establishment as referred to in the Environmental Management (Establishment and Permits) Decree.
  - Next it was verified whether the scrap that is traded via the company premises is stored, processed and/or transhipped by the company.
  - The following step was to assess the scrap turnover traded by the company via the shipyard. This step involved the use of data that had been supplied by the inspected companies and data that was already known to the Inspectorate for Housing, Spatial Planning and the Environment as a result of previous company inspections and/or data from the provisional inspection.
  - Finally it was verified whether the scrap was exclusively traded in closed containers.
3. Inspection of reporting obligation (Nuclear Energy Act article 22, first subsection, and article 33, first subsection: reporting the possession or obtention of radioactive substances, fissionable materials and/or ores). At companies owning detection equipment with digital data storage, mainly gate detectors and a few crane detectors, it was verified whether all alerts given by this equipment as a result of detecting an elevated level of radiation had been reported to the Inspectorate for Housing, Spatial Planning and the Environment or could be explained in another way.
4. Inspection of compliance with Detection of Radioactively Contaminated Scrap Decree and Detection of Radioactively Contaminated Scrap Regulation. If the inspected company was found to come under the scope of the decree, compliance with the latter was inspected. It was verified whether the company complied with all obligations (core provisions) in the decree and all further requirements (non-core provisions) set out in the regulation.

The reinspections were directed mainly at verifying whether the violations identified in the first inspection had since been eliminated by the company. The decree's obligations and the regulation examined in 2004 and 2005 are depicted in a diagram in an annexe to this report.

The Inspectorate for Housing, Spatial Planning and the Environment established in the company inspections in 2003 and 2004 that a number of provisions of the decree and the regulations are difficult to enforce and difficult to implement for the scrap-processing companies. These provisions relate mainly to the metering obligation, namely the detailed rules relating to the metering method included in the regulation connected with the decree, and the registration obligation. At the time of drafting the regulatory requirements it was not possible to assess sufficiently how these matters would turn out in practice. The policy directorate DGM/SAS responsible has stated that it will be proposed, as part of the evaluation, to adapt a number of articles from the decree and the regulation. These adaptations were however not expected in the near term. The state secretary of Housing, Spatial Planning and the Environment therefore agreed in October 2004 to the proposal submitted by the Inspectorate for Housing, Spatial Planning and the Environment not to enforce, with effect from that date, violations of those provisions that were difficult to implement and/or difficult to enforce.

### 3.2 Follow-up

Following the company inspection it was assessed whether any violations had been identified at the scrap-processing company. If a first company inspection of a scrap-processing company identifies violations of one or more core provisions, an administrative and criminal-law warning is issued. The reason for this is that this concerns new regulatory requirements so that companies are given an opportunity to eliminate the violation(s) without sanctions being imposed by the Inspectorate for Housing, Spatial Planning and the Environment. If reinspection reveals that the violation of a core provision has not been eliminated an official report is prepared and an order for periodic penalty payments imposed on the company. The further requirements under regulations, such as the Detection of Radioactively Contaminated Scrap Regulation, are enforced by the Inspectorate for Housing, Spatial Planning and the Environment as "non-core provisions".



If a first company inspection of a scrap-processing company identifies violations of one or more non-core provisions, then an administrative measure is instituted. If reinspection reveals that the violation of a non-core provision has not been eliminated the procedure described for core provisions is followed. The method of enforcement by the Inspectorate for Housing, Spatial Planning and the Environment is described in closer detail in the "Inspectorate for Housing, Spatial Planning and the Environment procedure (VIP) for violations of the Nuclear Energy Act in respect of radioactive substances in scrap". All inspected companies were subsequently informed of the outcome of the company inspection performed. As applicable, instructions were issued to eliminate the violations identified. With effect from October 2004, violations of the provisions that are difficult to implement and/or difficult to enforce were not responded to by enforcement.





## 4 Results of the company inspections in 2004 and 2005

### 4.1 Company inspections in 2004 and 2005

Annexes 2 and 3 present the general data on the scrap-processing companies inspected in 2004 and 2005. They state whether the company inspection was a pro-active inspection, a reinspection, a reactive inspection or an inspection in connection with company closures. In addition they state whether the inspected company was found to come under the scope of the Detection of Radioactively Contaminated Scrap Decree and whether the inspected company possessed detection equipment. Finally, they state whether the inspection identified violations of the Nuclear Energy Act and the regulations based on it.

### 4.2 Companies to which the decree and the regulation apply

Of the 82 and 33 scrap-processing companies inspected in the years 2004 and 2005, 54 and 28 companies respectively have a turnover on an annual basis of more than 100 tonnes stainless steel scrap, 1,000 tonnes aluminium scrap and/or 20,000 tonnes iron scrap that is traded via the company premises. Table 1 shows the turnover criteria exceeded by the companies. A subdivision has been introduced for the companies exceeding the criterion for stainless steel. Companies with a turnover of between 100 and 500 tonnes stainless steel that do not exceed the threshold set for aluminium scrap and iron scrap, are permitted to use hand-held equipment for detection. The table states in brackets how many of those companies can apply the correct form of detection because they possess the appropriate detection equipment for it. These companies are all required to comply with the obligations arising from the Detection of Radioactively Contaminated Scrap Decree and the Detection of Radioactively Contaminated Scrap Regulation connected with it.

*Table 1: companies inspected in 2004 and 2005 with a turnover exceeding the thresholds set in the decree*

Detection obligation on basis of exceeding threshold for	Number of inspected companies exceeding threshold in 2004*	Number of inspected companies exceeding threshold in 2005*
Aluminium	5 (4)	5 (5)
Iron	9 (8)	4 (4)
Stainless steel (100-500 tonnes)	9 (9)	5 (5)
Stainless steel	5 (2)	2 (2)
Aluminium, iron	1 (1)	2 (1)
Aluminium, stainless steel	4 (4)	5 (4)
Iron, stainless steel	10 (10)	2 (2)
Iron, aluminium, stainless steel	11 (10)	3 (3)
Total	54 (48)	28 (26)

- The number of those companies with the appropriate detection equipment is in brackets.



#### 4.3 Compliance with the Detection of Radioactively Contaminated Scrap Decree in 2004 and 2005

In 2004, one or more violations of the Nuclear Energy Act and the regulatory requirements based on it were found at 44 out of the total of 82 inspected companies. This concerned 43 of the 54 companies to which the Detection of Radioactively Contaminated Scrap Decree applies and one company to which that decree does not apply. Radioactive substances were found on the premises of that company while the company did not have the Nuclear Energy Act permit for this. In the year 2005, one or more violations of the Nuclear Energy Act and the regulatory requirements based on it were found at 21 out of the total of 33 inspected companies. This concerned 21 of the 28 companies to which the decree applies. Violations were found in 2004 and 2005 of the obligations under the decree and the further requirements in the regulation. Annexes 4 and 5 show, for all companies inspected in 2004 and 2005, which violations of provisions in the Detection of Radioactively Contaminated Scrap Decree, the Detection of Radioactively Contaminated Scrap Regulation, and the Nuclear Energy Act were identified.

Table 2 shows the distribution of violations of the core provisions and non-core provisions across the various obligations under the decree and the regulation.

*Table 2: violations of the Detection of Radioactively Contaminated Scrap Decree and the regulation connected with it in 82 company inspections in 2004 and 33 company inspections in 2005*

Year of inspection	2004		2005	
	Decree (core provisions)	Regulation (non-core provisions)	Decree (core provisions)	Regulation (non-core provisions)
Metering obligation:				
1. Decree article 3	9	-	6	-
2. Decree article 4	2	-	0	-
3. Decree article 4 in conjunction with regulation article 2	-	23		13
Registration obligation:				
1. Decree article 5	14	-	6	-
2. Decree article 5 in conjunction with regulation article 3	-	15		6
Person responsible:				
1. Decree article 6	6	-	4	-
2. Decree article 6 in conjunction with regulation article 4	-	14	-	5
Financial guarantee:				
1. Decree article 7	13	-	9	-
2. Decree article 9	1	-	1	-

A total of 9 out of the 54 (year 2004) and 6 out of the 28 (year 2005) companies coming under the scope of the decree and the regulation connected with it do not meter the ionising radiation of incoming scrap cargoes, or if those companies do have detection equipment, do not do so immediately on arrival (article 3 of the Decree). A total of 2 inspected companies (year 2004) use the wrong metering equipment for metering incoming scrap cargoes (article 4 of the Decree). An example of this is a company that exceeds the turnover threshold for aluminium scrap but uses a hand-held detector for metering. This means that a total of 43 of the 54 (year 2004) and 22 of the 28 (year 2005) companies that come under the scope of the decree meter the ionising radiation of incoming scrap cargoes in the correct way.



Of the 43 (year 2004) and 22 (year 2005) companies that meter the ionising radiation of incoming scrap cargoes in the correct way, 23 (year 2004) and 13 (year 2005) however fail to comply with the requirements set in the regulation relating to detection equipment and the way and conditions in which the readings are taken (article 4 of the Decree in conjunction with article 2 of the Regulation).

Of the 54 (year 2004) and 28 (year 2005) companies that come under the scope of the decree and the regulation connected with it, 14 and 6 companies respectively do not keep a register of the readings (article 5 of the Decree). In addition the register of another 15 (year 2004) and 6 (year 2005) companies is incomplete, or cannot be assessed in a cohesive way (article 5 of the Decree in conjunction with article 3 of the Regulation). This means that a total of 25 of the 54 (year 2004) and 16 of the 28 (year 2005) companies that come under the scope of the decree register the readings taken in a complete and correct way.

Of the 54 (year 2004) and 28 (year 2005) companies that come under the scope of the decree and the regulation connected with it, 6 and 4 companies respectively have not designated a person responsible by whom or under whose supervision the readings and the registration thereof are taken (article 6 of the Decree). In addition, 14 and 5 companies respectively have in fact designated a person responsible, but that person does not satisfy the requirements set in terms of skills and competences (article 6 of the Decree in conjunction with article 4 of the Regulation). This means that a total of 34 of the 54 (year 2004) and 19 of the 28 (year 2005) companies that come under the scope of the decree have designated a qualified person responsible.

Of the 54 (year 2004) and 28 (year 2005) companies that come under the scope of the decree and the regulation connected with it, 13 and 9 companies respectively did not provide financial guarantees to cover the costs arising from the removal of radioactively contaminated scrap present in the establishment (article 7 of the Decree). Of the companies that have provided financial guarantees, the majority has joined the Metaalrecycling Zekerheidsfonds Radioactief Schroot [Metal Recycling Radioactive Scrap Guarantee Fund] created by the Metaal Recycling Federatie [Metal Recycling Federation]. In addition, it was found for two companies (one in 2004 and one in 2005) that while they had provided financial guarantees in the form of a bank guarantee, these company had not submitted written evidence for this to the Minister of Housing, Spatial Planning and the Environment (article 9 of the decree). This means that a total of 40 of the 54 (year 2004) and 18 of the 28 (year 2005) companies that come under the scope of the decree have provided financial guarantees.

Compliance with the obligations in the Detection of Radioactively Contaminated Scrap Decree and the further requirements set in the Detection of Radioactively Contaminated Scrap Regulation is shown in table 3. Total compliance with the decree shows the percentage of companies where no single violation of the decree and the regulation connected with it was found, namely 11 in 2004 and 7 in 2005.



Table 3: compliance with the obligations in the decree and the Detection of Radioactively Contaminated Scrap Regulation.

Obligation	Compliance		
	2003*	2004	2005
Metering obligation	61%	80%	79%
Registration obligation	12%	46%	57%
Person responsible	31%	63%	68%
Financial guarantees	40%	74%	64%
Total compliance with decree	0%	20%	25%

\* Results for 2003 have been taken from the report "Metering is a must!: Enforcement of the Nuclear Energy Act at scrap-processing companies in 2002 and 2003".

#### 4.4 Compliance with Detection of Radioactively Contaminated Scrap Decree in 2004 and 2005 in reinspections

In the year 2004, reinspections were performed at 19 companies. In the period since the decree became effective, i.e. from 1 January 2003, these companies had already been inspected for compliance with the decree and the regulation, and violations had been found. In the year 2005 a reinspection was carried out at 11 companies, which had already been inspected in 2003 or 2004 for compliance with the decree and the regulation and where violations had been identified. It was found that that the decree continued to apply to all companies where the reinspection was carried out.

In the year 2004, one or more violations of the decree and the regulation were found at 11 out of the total of 19 companies where a reinspection was performed. In the year 2005, this was the case at all 11 companies where a reinspection was performed.

Table 4 shows the distribution of violations of the core provisions and non-core provisions found in reinspections across the various obligations under the decree and the regulation.

Table 4: violations of the Detection of Radioactively Contaminated Scrap Decree and the regulation connected with it found in 19 reinspections in 2004 and 11 reinspections in 2005

Year of inspection Obligation	2004		2005	
	Decree (core provisions)	Regulation (non-core provisions)	Decree (core provisions)	Regulation (non-core provisions)
Metering obligation:				
4. Decree article 3	2	-	3	-
5. Decree article 4	0	-	0	-
6. Decree article 4 in conjunction with regulation article 2	-	6	-	7
Registration obligation:				
3. Decree article 5	2	-	4	-
4. Decree article 5 in conjunction with regulation article 3	-	4	-	2
Person responsible:				
1. Decree article 6	1	-	2	-
2. Decree article 6 in conjunction with regulation article 4	-	4	-	2
Financial guarantees:				



3. Decree article 7	4	-	4	-
4. Decree article 9	0	-	1	-

For the scrap-processing companies that had already been inspected in the period from 1 January 2003, compliance with the obligations in the Detection of Radioactively Contaminated Scrap Decree and the further requirements set out in the Detection of Radioactively Contaminated Scrap Regulation can be summarised as follows.

*Table 5: compliance with the obligations in the Detection of Radioactively Contaminated Scrap Decree and regulation at the companies that had already been inspected earlier (reinspections).*

Obligation	Compliance	
	2004	2005
Metering obligation	89%	73%
Registration obligation	79%	45%
Person responsible	74%	64%
Financial guarantees	79%	55%
Total compliance with decree	42%	0%

In the year 2005, second reinspections were carried out at 5 companies, where reinspections in 2004 or 2005 had found that there were still violations of the Detection of Radioactively Contaminated Scrap Decree and the regulation connected with it. No violations were found in those second reinspections. Those companies, after three inspections by the Inspectorate for Housing, Spatial Planning and the Environment, have achieved 100% compliance with the Detection of Radioactively Contaminated Scrap Decree.

#### 4.5 Compliance with Nuclear Energy Act in 2004 and 2005

In the year 2004, a violation of article 29, first subsection of the Nuclear Energy Act, was found at 4 companies, one of which does not come under the scope of the decree. These companies were holding radioactive substances without a permit.

1. Two companies were using a 'testing source' to test the proper functioning of the gate detector. One company was using a caesium source (Cs-137) obtained through the supplier of the gate detector for this purpose. The other company used a camera lens that had been found to contain a quantity of thorium (Th-232sec). In both cases the activity of the sources used exceeded the exemption and permit thresholds set in the Radiation Protection Decree. The companies did not have a permit for holding the sources.
2. At a third company, a small container on the company premises was found to hold a quantity of scrap, probably of military origin, with an elevated level of radiation. This scrap was found to have come from an instrument panel featuring a number of meters to which luminous paint had been applied. The paint contained radium (Ra-226). The activity exceeded the exemption and permit thresholds set in the Radiation Protection Decree. The company had no permit for holding radioactive substances. This company did not come under the scope of the Detection of Radioactively Contaminated Scrap Decree.
3. At the fourth company readings on the premises found a contamination with natural radioactive substances. The contamination extended across several square metres of the company premises where a hard, limy substance had blended with soil on the floor of the premises. The material was probably scale, deposited in tubing, which had dropped onto the premises during pipe cutting. The pipe itself had been delivered a while before in a scrap cargo to a fellow scrap processing company and had triggered an alarm in the gate detector. The material found on the company premises contained radioactive substances whose activity exceeded the exemption and permit thresholds set in the Radiation Protection Decree. The company did not have a permit for holding the radioactive substances. An official report was drawn up by the Inspectorate for Housing, Spatial Planning and the Environment on the violation identified.



In the year 2005, no violation of article 29 of the Nuclear Energy Act was found at any of the inspected companies.

In the year 2004, a violation of article 33, first subsection, of the Nuclear Energy Act was found at 7 companies, which all come under the scope of the decree. In the year 2005 this was the case at 8 companies, which likewise all come under the scope of the decree. At these companies it was concluded, on the basis of information obtained from the database of the gate detector, that not all alerts of the gate detector (triggered by elevated radiation levels in scrap cargoes) had been reported to the Inspectorate for Housing, Spatial Planning and the Environment. With regard to these probable violations found, it is not possible to establish with certainty in retrospect whether these alerts were in fact caused by cargoes of radioactively contaminated scrap. These companies were all instructed to report any cases where radioactively contaminated scrap is found to the Inspectorate for Housing, Spatial Planning and the Environment without delay.

#### 4.6 Sanctions

The companies at which a first company inspection of a scrap-processing company identified violations of one or more core provisions, received an administrative and criminal-law warning. As this concerns new regulatory requirements, companies are given an opportunity to eliminate the violation(s) without sanctions being imposed by the Inspectorate for Housing, Spatial Planning and the Environment.

Sanctions were imposed in the form of a notice to impose an order for periodic penalty payments (administrative law) and the preparation of an official report (criminal law) at the scrap-processing companies where reinspection in 2004 and 2005 had still found violations.

In the year 2004, notice of an order for periodic penalty payments was sent to 5 out of a total of 19 companies. In the year 2005, this notice was sent to 5 out of the total of 11 companies. None of the notices sent in 2004 and 2005 has to date resulted in the preparation of an order, as in most cases the companies have eliminated the violations found. In a number of cases, a second reinspection is still outstanding.

In the year 2004, an official report was drawn up for 5 out of the total of 19 companies. In addition an official report was drawn up in 2004 for one company in respect of the detection of radioactive substances on the company premises. In the year 2005, an official report was drawn up for 4 out of the total of 11 companies.



## 5 Conclusions

As part of the project “Enforcement of Nuclear Energy Act at scrap-processing companies” the Inspectorate of the Ministry of Housing, Spatial Planning and the Environment carried out company inspections at 115 scrap-processing companies in 2004 and 2005. The purpose of the project was the enforcement of the Nuclear Energy Act and the regulations based on that Act, the Radiation Protection Decree and the Detection of Radioactively Contaminated Scrap Decree. The Detection of Radioactively Contaminated Scrap Decree has been effective from 1 January 2003. The results of the inspections carried out in the years 2004 and 2005 can therefore be compared with the results of the inspections carried out in the year 2003. A reinspection was performed at 35 of the 115 companies, 5 of which were a second reinspection. Violations had already been identified earlier at these companies since the decree and the regulation became effective. These inspections verified whether these violations had meanwhile been eliminated.

The following can be concluded from the company inspections performed:

1. Of the inspected scrap-processing companies, 66% (2004) and 85% (2005) have a turnover exceeding the criteria set in the decree. Of these companies 80% (2004) and 79% (2005) had, at the time of the inspection, the correct metering equipment to be used, and the reading was performed without delay on all incoming scrap cargoes.
2. Of these companies, 46% (2004) and 57% (2005) register the readings taken in the prescribed manner.
3. Of these companies, 63% (2004) and 68% (2005) have designated a person who satisfies the requirements in terms of skills and competences and who is responsible for the execution and registration of the readings taken.
4. Of these companies, 74% (2004) and 64% (2005) have meanwhile provided financial guarantees.
5. The percentage of companies in 2004 that complied with all obligations was 20%. For 2005 this percentage was 25%.
6. A violation of article 33, first subsection, of the Nuclear Energy Act was found at 9% (2004) and 24% (2005) of the inspected companies during the company inspection. On the basis of information from the database of the gate and crane detectors, it was concluded that not all cases of scrap cargoes received, which were found to have elevated radiation levels, had been reported to the Inspectorate for Housing, Spatial Planning and the Environment.
7. A violation of article 29, first subsection, of the Nuclear Energy Act, was found at 5% (2004) and 0% (2005) of the inspected companies during the company inspection. These companies held radioactive substances without the permit required for this.
8. In 2004, an official report was drawn up for 5 companies for violation of core provisions. Also, administrative proceedings were instituted against those companies. In 2005, an official report was drawn up for 4 companies and administrative proceedings were instituted for 5 companies.

To summarise it can be concluded that compliance with the Detection of Radioactively Contaminated Scrap Decree and the Detection of Radioactively Contaminated Scrap Regulation connected with it, both of which have been in force since 2003, improved in the years 2004 and 2005 compared to 2003 (*table 6*). The impression is that compliance has been improved by the



provision of information and enforcement by the Inspectorate for Housing, Spatial Planning and the Environment.

*Table 6: compliance with the Detection of Radioactively Contaminated Scrap Decree from 2003*

Obligation	Compliance (%)		
	2003*	2004	2005
Metering obligation	61	80	79
Registration obligation	12	46	57
Person responsible	31	63	68
Financial guarantees	40	74	64
Total compliance with decree	0	20	25

\* Results for 2003 have been taken from the report "Metering is a must!: Enforcement of the Nuclear Energy Act at scrap-processing companies in 2002 and 2003".

Despite the fact that a growing number of scrap-processing companies complies with the obligation to employ a person responsible who satisfies the requirements in terms of skills and competences, the Inspectorate for Housing, Spatial Planning and the Environment suspects that the designated person responsible is insufficiently knowledgeable. This impression arises in particular with regard to the reporting of scrap cargoes with elevated levels of radiation by the scrap-processing companies to the Inspectorate for Housing, Spatial Planning and the Environment. In a large number of cases the person responsible who reports to the Inspectorate for Housing, Spatial Planning and the Environment, is found to be insufficiently aware of the issue, the metering techniques and the procedures to be followed. Moreover, another person (without the required knowledge) will often handle the reporting on behalf of the scrap-processing company to the Inspectorate for Housing, Spatial Planning and the Environment.

Compliance with the obligation to provide financial guarantees has decreased slightly in 2005. This decrease may perhaps be due to the fact that comparatively many reinspections were carried out in 2005 at companies where violations had been found previously. Those reinspections often revealed that the companies had still not provided approved financial guarantees.

Virtually all scrap-processing companies to which the regulatory requirements apply have now been inspected. An exception is constituted by a small group of companies that on the basis of a turnover of stainless steel scrap of between 100 and 500 tonnes on an annual basis come under the scope of the decree. In view of the expectation that the lower threshold for steel will be revised to 500 tonnes upon reassessment of the decree, no priority is given to inspections among that group of companies.

With regard to compliance with the general provisions of the Nuclear Energy Act (*table 7*) for holding radioactive substances, it can be concluded that each year, in a limited number of cases, radioactive substances are found on the premises of a scrap-processing company.

With regard to compliance with the general provisions from the Nuclear Energy Act on reporting the possession or obtention of radioactive substances without a permit, such as reporting alerts given by detection equipment to the competent authorities, it can be concluded that an improvement in reporting behaviour is discernible in the years 2002 up to and including 2004. In the year 2005 however, it was determined that an increasing number of cases of scrap cargoes that were found - with the aid of detection equipment - to have an elevated level of radiation had not been reported to the competent authorities. The reason for the lower compliance with this 'reporting obligation' cannot have been a lack of awareness of requirements. Virtually all companies with a gate detector now have some experience with reporting to the competent authorities and are familiar with the "Inspection guideline for metal and scrap containing radioactive substances" of 25 February 2003.



Table 7: percentage of violations of the Nuclear Energy Act at scrap-processing companies

Year	Art. 29 NEA <sup>1)</sup>	Art. 33 NEA <sup>2)</sup>
2001 <sup>3)</sup>	3%	30%
2002 <sup>3)</sup>	5%	11%
2003 <sup>3)</sup>	2%	7%
2004	5%	9%
2005	0%	30%

1) The possession of radioactive substances without a permit.

2) Not reporting the detection of probable radioactive substances.

3) Percentages for the years 2001 up to and including 2003 have been taken from earlier reports.





## 6 Recommendations

The following recommendations arise from the company inspections carried out in 2004 and 2005 at scrap-processing companies.

1. Continue company inspections in 2006. Virtually all of the approximately 130 scrap-processing companies that come under the scope of the Detection of Radioactively Contaminated Scrap Decree and the Detection of Radioactively Contaminated Scrap Regulation connected with it were inspected in the period from 1 January 2003. In 2006, mostly reinspections will therefore be carried out at companies where the first inspection found one or more violations of the (core) provisions of the regulatory requirements. If reinspection reveals that there are still violations, an enforcement procedure will commence.
2. Carry out company inspections at scrap-processing companies that, on the basis of data known to the Inspectorate for Housing, Spatial Planning and the Environment, are expected to regularly receive scrap cargoes for which detection equipment identifies elevated radiation levels, but that are suspected of failing to report this detection of radioactively contaminated scrap to the competent authorities.
3. Further to the bottlenecks identified in respect of the difficulties in enforcing and in implementing a number of aspects of the decree and the regulation connected with it, urge the policy directorate of the Ministry of Housing, Spatial Planning and the Environment to carry out an early reassessment and revision of legal and regulatory requirements. A first draft of the amended regulations, partly on the basis of the list of bottlenecks submitted in the year 2004 by the Inspectorate for Housing, Spatial Planning and the Environment, has since been received by the Inspectorate for Housing, Spatial Planning and the Environment.

The Inspectorate for Housing, Spatial Planning and the Environment will bring these findings to the attention of the policy directorate responsible of the Ministry of Housing, Spatial Planning and the Environment and the industry association MRF.





## 7 Annexe 1: Checklist for the Detection of Radioactively Contaminated Scrap Decree and Regulation

*Summary of inspection items for the Detection of Radioactively Contaminated Scrap Decree and Regulation in 2004 and 2005*

Item	Decree (core provision)	Regulation (non-core provision)
Metering obligation	<ol style="list-style-type: none"> <li>1. Metering incoming scrap cargo without delay (art. 3)</li> <li>2. Use correct equipment (art. 4, first subsection)               <ul style="list-style-type: none"> <li>• Gate detector</li> <li>• Hand-held detector</li> <li>• Crane detector</li> </ul> </li> </ol>	<p>(art. 2), in what situation should what equipment be used</p> <ul style="list-style-type: none"> <li>• Delivery by road/rail</li> <li>• Only between 100 and 500 tonnes stainless steel (delivery by road/rail), delivery by boat (bulk)</li> <li>• Delivery by boat (bulk)</li> </ul> <p>(art. 2)</p> <p>a. Technical requirements for detection equipment:</p> <ul style="list-style-type: none"> <li>• Distance between the detectors (gate detector)</li> <li>• Metering gamma radiation</li> <li>• Calculate detection limit using ISO-11929</li> <li>• Acoustic/visual alert (gate detector and crane detector) for elevated radiation level</li> <li>• Must be able to meter increase in dosage speed of 10 nSv/h (hand-held detector)</li> <li>• Alert threshold set no higher than 20 nSv/h above detection limit (crane detector and + gate detector)</li> <li>• Reporting of detection limit</li> </ul> <p>b. Metering method using detection equipment:</p> <ul style="list-style-type: none"> <li>• Daily metering of background level on "clean" scrap cargo</li> <li>• Maximum speed during metering (gate detector)</li> <li>• Integration time during metering</li> <li>• Layer by layer metering of bulk cargoes scrap (hand-held detector)</li> <li>• Metering of each claw of scrap (crane detector)</li> </ul>



Item	Decree (core provision)	Regulation (non-core provision)
Registration obligation	Keeping register of readings (art. 5, first subsection): <ul style="list-style-type: none"> <li>• Date of reading</li> <li>• Results of reading</li> <li>• Name and address of supplier of scrap</li> </ul>	(art. 3) <ul style="list-style-type: none"> <li>• Time of reading</li> <li>• Type of metering equipment</li> <li>• Name and address of supplier</li> <li>• Name and address of forwarding agent</li> <li>• Place and country of origin</li> <li>• Alert triggered or not (gate detector and crane detector)</li> <li>• Increase in background level of more than 20 nSv/h (hand-held detector)</li> <li>• Metering of single layer of scrap in bulk boat cargo (hand-held detector)</li> <li>• Metering of single claw of scrap (crane detector)</li> <li>• Registration of data and interrelations</li> <li>• Data storage for period of 10 years</li> <li>• Reports (art. 2) in register</li> </ul>
Person responsible	Readings and registration have to be carried out under supervision of a designated person responsible (art. 6, first subsection)	(art. 4) <ul style="list-style-type: none"> <li>• State basic skills and competences</li> <li>• Practical training (one day) Ionising radiation for the Metal &amp; Scrap Trade (RTD in cooperation with SBC/Elsevier)</li> </ul>
Financial guarantees	<ol style="list-style-type: none"> <li>1. Provision of financial guarantees for the Dutch state, of at least € 110,000, to cover the costs arising from the removal of radioactively contaminated scrap present at the establishment (art. 7)</li> <li>2. Submission of written evidence of the financial guarantees provided (art. 9)</li> </ol>	



## 8 Annexe 2: Results of company inspections in 2004

No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>1)</sup>	Violation
1	Aluminium Delfzijl B.V.	Delfzijl	4 June 04	H	aluminium	P, H	X
2	Aluminiumsmelterij FHS B.V.	Dedemsvaart	22 Apr 04	H			
3	Barzilay Rotterdam B.V.	Rotterdam	21 July 04	P		H	
4	Belder, S.M.B. Scheepvaartservice and Metaalhandel A.	Alblasserdam	29 June 04	P		H	
5	Botlek Metaal Chemie B.V.	Rotterdam	28 July 04	P			
6	Brink Motorblokken Sloperij B.V.	Kampen	22 June 04	H	iron	P, H	
7	Brink, G. and W.	Emmen	11 May 04	P	stainless steel (100-500)	P, H	X
8	Brouwer Metaal v.o.f.	Vught	9 Jan 04	P			
9	Bruchem B.V., Afvalstoffenhandel L.H.	Zaltbommel	13 Feb 04	R			
10	Capricorn Stainless B.V. (2 inspections, also 20-aug-04)	Dordrecht	5 Oct 04	H	stainless steel	P, H, C	X
11	Corus Staal B.V.	Velson-Noord	17 June 04	P	iron	P, H	
12	Daalen's Recycling B.V., Joop van	Heinenoord	24 Nov 04	P			X
13	Dalen Hendrik-Ido-Ambacht B.V., van	Hendrik-Ido-Ambacht	21 Jan 04	P	iron	P	X
14	Dalen Middelburg B.V., van	Middelburg	4 May 04	P	stainless steel (100-500), aluminium, iron	P, H	X

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure

2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)



3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector

No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
15	Dalen Nijmegen B.V., van	Nijmegen	15 Sep 04	P	stainless steel (100-500), iron	P	
16	Daniëls and Zn, v.o.f.	Helmond	13 Feb 04	R		H	
17	Delco Europe B.V.	Nijmegen	11 June 04	P			
18	Dooren, H. van	Middelharnis	17 Sep 04	P			
19	Dordtse Metaalrecycling v.o.f.	Dordrecht	18 May 04	P		H	
20	European Metal Recycling B.V.	Amsterdam	8 Jan 04	P	iron	P, H	X
21	Geelhoed Metaalhandel B.V./Geelhoed Metal Handling B.V.	The Hague	21 Jan 04	P	aluminium	H	X
22	Gerrits Metaalhandel, Gebroeders	Helmond	9 Dec 04	H	stainless steel, aluminium, iron	P, H	X
23	Goese Metaalhandel	Goes	10 Sep 04	P			
24	Groenleer metaalrecycling B.V.	Zierikzee	10 Sep 04	P	stainless steel (100-500)	H	X
25	Groningen Nieuw-Vennep B.V., van	Nieuw-Vennep	1 Sep 04	P	stainless steel (100-500), iron	P, H	X
26	Hamilton Metaalhandel B.V.	Tilburg	22 Oct 04	H	stainless steel, aluminium	P, H	X
27	Heijdens B.V./Oostdam Metaalrecycling, Handelonderneming	Enschede	27 Apr 04	P	stainless steel, aluminium, iron	P, H	X
28	Helmond & Zn. Metaalhandel B.V., J.	Culemborg	27 May 04	H	stainless steel (100-500)	H	
29	Helvert & Zn, B.V. Metaalmaatschappij v/h Joh. K. van	Rotterdam	8 July 04	P		H	
30	Heros Sluiskil B.V.	Sluiskil	6 July 04	P	stainless steel (100-500), aluminium, iron	P, H	X
31	Heuvelman Schroot Recycling B.V.	Veenendaal	24 Aug 04	E	stainless steel, aluminium, iron	P, H	
32	HKS Scrap Metals B.V.	Amersfoort	23 Jan 04	P	iron	P, H	X
33	HKS Scrap Metals B.V.	Amsterdam	24 Feb 04	H	iron	P, H	X
34	Hoeben Metalen B.V.	Hasselt	6 May 04	H	stainless steel (100-500), iron	P, H	
35	Hofman Metaalhandel, H.	Winterswijk	7 Oct 04	P	stainless steel (100-500)	H	X
36	Hoogeveense Metaal-Recycling B.V.	Hoogeveen	22 Apr 04	P	stainless steel (100-500)	H	X
37	Horst Recycling B.V., ter	Varsseveld	28 Oct 04	H	stainless steel	H	X
38	Hout Kabelrecycling B.V., van	Helmond	22 Dec 04	P	stainless steel, aluminium	P, H	X
39	Huiskes Metaal B.V.	s-Hertogenbosch	22 July 04	H	stainless steel, iron	P	
40	Hunter Douglas Europe B.V.	Rotterdam	1 Dec 04	P	aluminium	P, H	X
41	Jansen B.V., Metaalhandel A.C.	Rotterdam	13 May 04	P	stainless steel (100-500), iron	P	X
42	Ketting & Zn. B.V., Metaalhandel	Rotterdam-Pernis	8 June 04	P	stainless steel (100-500),	H	X



No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
					aluminium, iron		

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure

2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)

3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector

No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
43	Koster Metalen B.V.	Beverwijk	24 Mar 04	P	stainless steel, aluminium, iron	P, H	X
44	Kroon Wilnis B.V.	Wilnis	22 July 04	H	stainless steel, iron	P, H	
45	Kurvers B.V., apt.	Roermond	28 May 04	H	aluminium	P, H	
46	Langkamp Oude Metalen	Nunspeet	12 May 04	P			
47	Leeuwen Metaalrecycling B.V., Leo van	Rotterdam	10- June 04	P	stainless steel	H	X
48	Leeuwen Recycling, Ben van	Rotterdam	8 July 04	P	stainless steel (100-500)	P	X
49	Lutgens Metalen B.V.	Maastricht	28 Sep 04	R			
50	Menten Metaalrecycling B.V. , Jos	Haalen	16 Jan 04	P	stainless steel, aluminium, iron	P	X
51	Metaal Transport	Rotterdam	23 June 04	P		H	
52	Milieu Service Hoeksche Waard	Strijen	24 Nov 04	P			
53	Mirec B.V.	Eindhoven	22 Oct 04	P	stainless steel	H	X
54	Nannings, N.F.	Blokker	17 June 04	P			
55	Noord Nederlandse Schrootverwerking B.V.	Franeker	15 Apr 04	P	stainless steel, iron	P, H	X
56	Oosting Metalen-Recycling B.V.	Emmen	11 May 04	H	stainless steel, aluminium	P, H	X
57	Oudsten, G. den	Meerkerk	24 June 04	P			
58	Overdie B.V., Yzerwerf	Alkmaar	7 July 04	H	stainless steel, aluminium, iron	P, H	X
59	Ovet Shipping B.V.	Nieuwdorp	1 June 04	P		H	
60	Pametex B.V.	The Hague	31 Mar 04	P	aluminium, iron	P, H	X
61	Pothuizen B.V.	Amstelhoek	6 July 04	H	stainless steel, aluminium, iron	P, H	X
62	Raak Metaalrecycling B.V., van	Tilburg	13 May 04	H	stainless steel, iron	P	X
63	Roba Metals B.V.	Ysselstein	11 Mar 04	P	aluminium	P, H	
64	Ruiter Handelsmaatschappij B.V., The	Veenendaal	7 Oct 04	P	stainless steel (100-500)	P	X
65	Schip and Zoon, Yzer- and metaalhandel G. van	Alphen a.d. Rijn	6 July 04	P	stainless steel (100-500)	H	X



No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
66	Simmeren Schroot B.V.	Groningen	16 June 04	P	stainless steel, iron	P, H	
67	Sita Metaal Recycling	Rotterdam	9 Jan 04	P			
68	Steenhuis Recycling B.V.	Winschoten	19 Aug 04	P	stainless steel	P, H	X
69	Stolk B.V. Recycling	Zwijndrecht	30 Jan 04	P		P	
70	Stolk's Handelonderneming B.V.	Hendrik-Ido-Ambacht	18 May 04	P		H	

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure

2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)

3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector

No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
71	SZV Schroot Metal Recycling	Terneuzen	29 Oct 04	P	stainless steel (100-500)	H	X
72	Taale B.V., Holding and Onroerend Goed	Middelharnis	12 May 04	P			
73	Transko B.V.	Beverwijk	24 Mar 04	P	iron		X
74	Tweemetaal B.V.	Dordrecht	10 Nov 04	P	stainless steel, iron	P, H	X
75	United Recycling Hoogeveen B.V.	Hoogeveen	22 Apr 04	H			
76	Vemde B.V., A. van	Den Haag	31 Mar 04	P		P	
77	Vin Recycling B.V., van der	Heerlen	28 Sep 04	H	iron	P, H	X
78	Viol Metaal B.V.	Scheemda	19 Aug 04	P	stainless steel, aluminium	P, H	X
79	Xhofleer, Metaalhandel Gebroeders	Gennep	9 Jan 04	P			
80	Zaanse Schroothandel B.V.	Zaandam	15 June 04	P	iron	P, H	X
81	Zemetha	Clinge	29 Oct 04	P			
82	Zethameta B.V.	Vlaardingen	15 Dec 04	P	stainless steel, aluminium, iron	P, H	X

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure

2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)

3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector



## 9 Annexe 3: Results of company inspections in 2005

No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
1	Aluminium Delfzijl B.V.	Farmsum	13 Apr 05	HH	aluminium	P, H	
2	Doldersum B.V., Sloop- and Handelsbedrijf J.	Westerhaar-Vriezenveensewijk	3 Feb 05	R			
3	Engelen, Gebroeders van	Borne	30 June 05	P	stainless steel	P, H	X
4	Euro Scrap Alliance B.V.	Rotterdam	27 Oct 05	H	iron	P, H	X
5	Europe Metals B.V.	Heeze	21 Sep 05	H	stainless steel, aluminium	P	X
6	Gerrits A.V.I. Den Bosch B.V., Gebr.	Den Bosch	6 Apr 05	H	iron	P	X
7	Groot Metals B.V., the	s-Gravendeel	5 Oct 05	E		H	
8	Hamilton	Tilburg	15 Aug 05	HH	aluminium	P, H	
9	Hendriks v.o.f., Metaalrecycling Gebr.	Coevorden	27 Apr 05	R	stainless steel (100-500)	H	X
10	HKS Scrap Metals B.V.	Amsterdam	4 Feb 05	HH	stainless steel, aluminium, iron	P, H	
11	HKS Scrap Metals B.V.	s-Gravendeel	23 Feb 05	P	stainless steel, aluminium, iron	P, H	X
12	Inter Metals B.V.	Enschede	27 Jan 05	H	stainless steel, aluminium, iron	P, H	X
13	Intrec B.V.	Kamperland	29 Sep 05	H	aluminium	P, H	X
14	Jacomij Metalen B.V.	Wijk bij Duurstede	12 July 05	P	stainless steel (100-500)	P, H	X
15	Jansen B.V., Gebroeders	Coevorden	15 June 05	P	stainless steel (100-500)	P, H	X

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure



- 2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)
- 3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector



No.	Company name	Place	Date	Type <sup>1)</sup>	Turnover criterion <sup>2)</sup>	Detection equipment <sup>3)</sup>	Violation
16	Jewometaal Stainless Processing B.V.	Rotterdam	3 Nov 05	P	stainless steel	P, H, C	X
17	Kurvers B.V., APT	Roermond	21 June 05	E	aluminium	P	
18	Loop B.V., Frans van der	Landgraaf	9 June 05	H	aluminium	P	X
19	Martens Metaal Elst B.V.	Elst	22 Mar 05	P	stainless steel (100-500)	P, H	X
20	Menten-Hilkens, V.O.F.	Haelen	21 June 05	P	stainless steel (100-500)	H	X
21	Metaalrecycling Coevorden v.o.f. (MEREKO)	Coevorden	27 Apr 05	P	stainless steel, aluminium	H	X
22	Metalimex, Firma	Rotterdam	11 Jan 05	H	stainless steel, aluminium	P, H	X
23	Oosting Metalen-Recycling B.V.	Emmen	21 Jan 05	HH	stainless steel, aluminium	P, H	
24	Pechiney Nederland B.V.	Ritthem	27 June 05	P			
25	Prometaal B.V.	Utrecht	12 July 05	P		H	
26	R.N.S. B.V.	Harderwijk	13 Oct 05	P	stainless steel, aluminium	P, H	X
27	Riwald B.V.	Geesteren	28 July 05	R		H	
28	Schip Alphen B.V., van	Alphen a.d. Rijn	23 June 05	H	stainless steel (100-500), iron	P, H	X
29	Schrijver Metaal Zutphen B.V.	Zutphen	16 Mar 05	H	stainless steel, iron	P, H	X
30	Transko B.V.	Beverwijk	5 Oct 05	H	iron	H, C	X
31	Voeght Metaalhandel B.V., W. the	Honselersdijk	8 Mar 05	H	aluminium, iron	H	X
32	Voeght Metaalhandel B.V., W. the	Honselersdijk	29 Nov 05	HH	aluminium, iron	P, H	
33	Zeehavenbedrijf Dordrecht, B.V.	Dordrecht	15 Sep 05	P	iron	P	

1) Type of company inspection: P = proactive, H = reinspection, R = reactive, E = end-of-company inspection owing to company closure

2) Turnover criterion from the Detection of Radioactively Contaminated Scrap Decree: 100 tonnes stainless steel, 1,000 tonnes aluminium, 20,000 tonnes iron (on an annual basis via the shipyard)

3) Detection equipment: P = gate detector, C = crane detector, H = hand-held detector



## 10 Annexe 4: Violations found in company inspections in 2004

No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
1			X	X							
2											
3											
4											
5											
6											
7			X		X		X	X		X	X
8											
9											

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> BEA
10			X (crane)	X (crane)	X (gate)					X	
11											
12										X	
13				X			X				
14				X		X					
15											
16											
17											
18											
19											
20			X		X					X	
21		X				X					
22			X		X		X	X			
23											
24	X						X				
25			X		X		X				
26	X						X	X			
27							X		X		
28											
29											
30											X

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
31											
32					X						
33			X			X					X
34											
35	X		X	X		X		X			
36	X			X				X			
37	X							X			
38			X		X		X				X
39											
40					X						
41			X		X						X
42	X					X		X			
43			X								
44											
45											
46											
47	X			X			X	X			
48	X		X				X				
49											
50				X							
51											

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
52											
53		X									
54											
55			X	X							
56							X	X			
57											
58			X		X						X
59											
60					X						
61			X								
62					X						
63											
64				X		X					X
65			X		X		X				
66											
67											
68			X	X							
69											
70											
71	X		X	X				X			
72											

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
73			X		X		X	X			
74			X	X							
75											
76											
77							X				
78			X	X				X			
79											
80			X					X			
81											
82			X		X						

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances





## 11 Annexe 5: Violations found in company inspections in 2005

No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
1											
2											
3							X	X			
4			X	X							
5				X							X
6	X								X		X
7											
8											
9	X					X		X			

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
10											
11					X						X
12			X								
13			X								X
14			X					X			
15			X		X		X				X
16			X		X						
17											
18			X		X	X		X			X
19			X		X		X				
20	X		X								
21	X			X		X		X			
22	X										
23											
24											
25											
26			X	X				X			

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances



No.	Detection of Radioactively Contaminated Scrap Decree									Nuclear Energy Act	
	decree art. 3 <sup>1)</sup>	decree art. 4 <sup>1)</sup>	decree art. 4, regulation art. 2 <sup>2)</sup>	decree art. 5 <sup>3)</sup>	decree art. 5, regulation art. 3 <sup>4)</sup>	decree art. 6 <sup>5)</sup>	decree art. 6, regulation art. 4 <sup>6)</sup>	decree art. 7 <sup>7)</sup>	decree art. 9 <sup>8)</sup>	art. 29 <sup>9)</sup> NEA	art. 33 <sup>10)</sup> NEA
27											
28			X		X		X				X
29			X	X				X			X
30			X				X	X			
31	X			X		X		X			
32											
33											

- 1) Detection of Radioactively Contaminated Scrap Decree, article 3 and 4: metering obligation
- 2) Detection of Radioactively Contaminated Scrap Regulation, article 2: further requirements for metering equipment
- 3) Detection of Radioactively Contaminated Scrap Decree, article 5: registration obligation
- 4) Detection of Radioactively Contaminated Scrap Regulation, article 3: further requirements for registration
- 5) Detection of Radioactively Contaminated Scrap Decree, article 6: person responsible
- 6) Detection of Radioactively Contaminated Scrap Regulation, article 4: knowledge requirements for person responsible
- 7) Detection of Radioactively Contaminated Scrap Decree, article 7: financial guarantees
- 8) Detection of Radioactively Contaminated Scrap Decree, article 9: evidence of financial guarantees
- 9) Nuclear Energy Act article 29: permit obligation for holding radioactive substances
- 10) Nuclear Energy Act article 33: reporting obligation for detection of radioactive substances

