

ENVIRONMENTAL AND HEALTH RISKS FROM ABANDONED INDUSTRIAL SITES – A STRUCTURED APPROACH

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SUMMARY

Industrial sites that have been abandoned in the past may cause risks for humans and the environment. The dangers often originate from hazardous materials that are left behind. Additional risks may be imposed by the structural disintegration of the premises over the years. To counteract further risks and to improve the situation, a structured and stepwise approach was developed that can be applied by the competent authorities at the local or regional level.

1 INTRODUCTION

Industrial sites that have been abandoned in the past may cause risks for humans and the environment. The dangers often originate from hazardous materials that are left behind by the last enterprise that has been operating the facilities. For instance, such materials can be released because of deterioration of their original containment. This often is the case with asbestos that was applied frequently as insulating, fire protection and construction material. Another possibility is that tanks with residual fuels or chemicals have started leaking in the years after proper maintenance has stopped. Also, it may turn out that (hazardous) waste was dumped on the terrain by the last operator. In other cases, third parties may have used the abandoned site to get rid of their waste materials in an illegal manner.

Figure 1. Example of an Abandoned Industrial Site in the Netherlands



In many situations an additional risk may be imposed by the structural disintegration of the buildings over the years. This may lead to a direct danger that parts of the constructions could come down. Also, the fire safety and/or electrical safety are frequently insufficient. Risks are particularly at hand when the terrain is not properly fenced off and is used for habitation or small businesses. Also children are often attracted to the premises because they see it as a good playing ground.

To counteract further risks and to improve the situation, the VROM-Inspectorate of the Netherlands worked out and facilitated a structured approach that can be applied by the competent authorities at the local or regional level.

2 STEPWISE METHOD OF APPROACH

To assess and tackle the problem, a structured approach was followed, consisting of three important steps.

2.1 Inventory of Abandoned Sites with a Potential Health or Environmental Risk

First of all it is important to define the target group. Depending on the local or regional situation, the focus will be on specific types of industries/branches. In the North of the Netherlands, several factories producing potato-starch, strawboard, and dairy have been active until the sixties of last century. After the production stopped, the sites were abandoned and left. Since then, a process of deterioration took place, leading to the problems indicated.

Several sources could be used to complete the inventory, e.g. local permitting and enforcement authorities, data from authorities in charge of conservation of monuments and historic buildings, industrial consultants, historical archives, surveys of selected industrial areas or local media. After scrutinizing the list, the next step can be taken.

2.2 Site Visits And Risk Assessments

All sites identified in the inventory are subsequently visited in order to investigate the actual situation. Depending on the estimated human and environmental risks, the cases are divided into four classes:

- Class 1: High risks: short term measures required (including fencing off the site)
- Class 2: Medium risks: medium term measures required
- Class 3: Low risks: limited measures required
- Class 4: No risks: no need for measures

Situations are classified as high risk when: (a) there is a wide-spread contamination in and around the buildings or when the constructional integrity is severely affected and (b) when safety or health of humans is directly at risk. Sites classified as high risk or medium risk need adequate follow-up.

2.3 Further Investigation And Treatment Of Sites With High Risks

As a third step, specialists make detailed assessments of the high-risk objects in terms of contamination, danger of constructional collapse and fire safety. If appropriate, samples are taken for more detailed analysis. Depending on the results of the investigations, an action programme to solve or mitigate the problems is initiated. For example, it could be decided to decontaminate the site, to shore up or pull down dangerous walls, or to fence off the terrain against unwanted access.

3 RESULTS

The above stepwise approach worked well in the Netherlands. From 69 potentially hazardous sites identified in the northern part of the Netherlands in 2003 (step 1), 47 were actually visited and assessed (step 2). Of these, the situation in 7 cases was classified as high risk and 7 as medium risk. Up to now measures have been taken at 5 of such sites (step 3).

An important issue is of course are the costs of the required measures. In principle, the current owner of the site has to pay ('the polluter pays' principle). However, there will be cases in which this does not work, e.g. when the last owner went bankrupt. In such circumstances, for the sake of the health and well-being of the population, the local authorities will have to take their responsibility and to come up with some budget. In a number of cases funds for conservation of (industrial) monuments or more general funds for redevelopment/revitalisation may successfully be applied for.