NRB 2001

B3 Organisational Measures

infoMil

InfoMil Publication, revised edition
February 2004.

InfoMil
Juliana van Stolberglaan 3
2595 CA The Hague
The Netherlands
P.O. Box 93144
2509 AC The Hague
Telephone + 31 70 373 55 75
Fax + 31 70 373 56 00
E-mail info@infomil.nl
Website www.infomil.nl

Under the responsibility of
Project Group NRB
ing. P.A. Ruardi (VROM/BWL),
project management
ir. K. de Winkel (Tauw BV), editor

Design
Conefrey/Koedam BNO, Zeist

Cover Photograph, Podzol
Photographic Centre SC-DLO

ISBN 90-76323-02-X

3.1 Management of Incident as part of environmental care

Within (quality assured) environmental care systems, a crucial role is played by policy statements, procedures and work instructions etc., laid down within documents. The accompanying registrations and reports also play a crucial role. An overview of these documents and procedures relevant to incident management is given in the table below.

This table can be used as a checklist for design and evaluation of the organisational measures that are important within the framework of incident management, as part of preventive soil protection. This overview is not meant to be complete; individual elements may not apply in specific situations. To every element some explanation is given in order to determine whether it applies to a situation or not, as well as the way it should be implemented within the environmental care system. The following possibilities are distinguished:

P: procedures/work instructions;
R: registrations/reports;
D: policy statements laid down in documents.

Element	Comment	P	R	D
Establish environmental policy towards soil risk	The organisation should have established a formal statement towards its intention to reduce soil risks to a minimum. Within this policy statement the company lays down the way in which the risk level (negligible or acceptable) is achieved and maintained and what means will be used for this purpose. The statement involves the ongoing task to further reduce and prevent soil risk. A policy statement towards soil risk prevention can be part of a policy statement within an environmental care system.			D
	The company pursues a policy aimed at prevention and reduction of soil pollution, soil risk control and full restoration of the soil quality after soil polluting incidents.			
Soil risk control	A soil risk control system is to be established involving (as an example): • system design with probability of soil polluting incidents below an acceptable level; • management plans; • inspection plans; • training of staff; • operating procedures; • work instructions; • activity planning. The system involves the frequency and the procedures for the way in which the activities have to be performed and makes clear the considerations they are founded upon.	P		D
	In order to assure the organisational measures are performed in a proper way, a record of actions is maintained, involving (as an example): • maintenance (what, when, how and by whom); • inspections (what, when, how and by whom); • audits and certification; • registration of training • registration of skills for specific operations.		R	
Performance and acceptation criteria	All equipment (such as process or storage vessels, pipelines) used for activities hazardous to the soil should comply with established relevant design, performance and acceptation criteria/guidelines with (amongst others) respect to: • performance criteria for pressure, temperature; • resistance against corrosive substances; • internal standards/criteria; • CPR-guidelines and/or NEN-standards; • if applicable, surveillance and/or leak detection.	P	R	D

Element	Comment	P	R	D
Making inventories and evaluation of soil risk (probability and effects of failure); planning	Possible soil risks should have been established including possible effects of failure. Distinguished risks have to be assessed. The inventory of risks and the evaluation of possible effects should be repeated periodically.		R	D
	In view of the assessed soil risks it should be decided what technical means (drip pans, leak detection systems, adsorbents, etc.) are inevitable and what organisational measures (maintenance, inspections, training, instructions, etc.) are indispensable.			D
	The company should prove that it works along a systematic line towards preventive soil protection. This can be done by means of a periodically revised Action Plan describing the measures and means to improve preventive soil protection. It should be clear who is responsible for the improvement actions, what time frame is considered and what (financial) means are available to implement the actions.			D
	The company should have a procedure describing by whom, how and according to what frequency soil risks are investigated and evaluated and in what way the systematic approach improving preventive soil protection is assured.	P		
Legal and non-legal demands (such as notification of incidents)	The company should be familiar with legislation and guidelines in order to assess whether it complies with regulations. For this, the company should keep a record of all relevant information.		R	
Targets (in respect to incidents and prevention of soil pollution)	Assessable targets should be set. Procedures should make clear how and with what frequency these targets are assessed and evaluated.	P		D
Laying down responsibilities and competence	Job descriptions should establish duties, responsibilities and competences of staff in respect to: • inspection and examination; • record keeping; • maintenance and repairs; • education and training; • (external) communication; • internal audits. Staff should have appropriate skills, education and experience and sufficient competence as well as adequate means, in order to fulfil their duties.			D
Instruction and training	The company takes care of education and training in order to assure that: • activities are performed in a way with the lowest soil risk; • maintenance, inspections and repairs are performed in such a way that soil risk is reduced to a minimum. In order to achieve this goal the company should establish what skill and education is needed for each activity hazardous to the soil. The company keeps record of training, skill etc. of individual staff.		R	D
	Procedures should make evident in what way the company assures that only qualified staff (i.e. with appropriate training and skills) carries out operations hazardous to the soil.	P		
Instruction and training staff	Staff involved with activities hazardous to the soil should be informed about the soil risk, the technical means and organisational measures to reduce the soil risk and their duties and responsibilities towards preventing incidents. Option 1: the way in which information is exchanged and frequency of the instructions are laid down in a procedure; Option 2: a record is kept (including attendance list) of instructions and information sessions for the staff.	P	R	
	There should be procedures on how to inform external contractors. These procedures could involve: • how to instruct external contractors; • the way agreements are established; • how to assure that external contractors operate within the established agreements.		P	

Element	Comment	P	R	D
Communication	Information exchange concerning management of incidents in general mainly involves: • informing the neighbourhood; • informing the competent authority (e.g. changes towards the process).			
	The communication concerning the management of (soil polluting) incidents should be laid down in procedures. These procedures could involve: • the way external communication is organised and recorded; • how competent staff is informed; • competent staff responsible for different communication routes.	P		
	Correspondence concerning soil quality management and incident management is stored in a central archive and has to be retained during a certain, agreed term.		R	
Monitoring and registrations	Measurements (such as soil quality monitoring) are performed to check the suitability of measures.		R	
Internal audit	Intermittent internal audits are performed to assess whether: • operations are performed according to the procedures and instructions; • available documents, procedures and instructions are up-to-date; • the organisational measures are effective in respect to their original aim; • the system is implemented in a proper way. The results of the internal audits are reported to the competent board.			D
	A procedure should outline the frequency, the methodology and staff involved for internal audits, as well as the way in which audit results are evaluated.	P		
Assessment by the board	The competent board should periodically assess whether the incident management system is effective and/or appropriate. It should evaluate its policy and targets and if necessary adjust the system (quality improvement cycle). For its periodical assessment the competent board may use: • reports of internal audits; • several records concerning activities, inspections and maintenance; • incident registration; • etc.	P		D

3.2 Soil polluting incident management system

In certain situations a quality assured management system for soil polluting incidents may be used in order to achieve an acceptable (A*) soil risk (see NRB A2.3.2, A4.2.4 respectively). Such a management system for soil polluting incidents would be a further elaboration of a quality assured environmental protection system. The table below gives an overview of policy statements, procedures and\or work instructions to be used and registrations and reports, all relevant to assure restoration of the baseline soil quality after a soil polluting incident, as well as instructions to adapt existing procedures in order to prevent future incidents. This overview should be considered to be an extension to the table presented in chapter B3.1 and presents elements essential to a soil polluting incident management system.

The table serves as a checklist for design and evaluation of the organisational measures essential within the framework of incident management as part of preventive soil protection. This overview is not meant to be complete; individual elements may not apply in specific situations. To every element some explanation is given in order to determine whether or not it applies to a situation as well as the way it should be implemented within the environmental care system. The following possibilities are distinguished:

P: procedures/work instructions;
R: registrations/reports;
D: policy statements laid down in documents.

Element	Comment	P	R	D
Establishing policy	The environmental policy is aimed at full restoration of the soil quality after a soil polluting incident. In order to assure a negligible/acceptable soil risk a system of ongoing improvements is maintained (according to the plan-do-check-act principle).			D
Risk control	A methodology is laid down for reducing the possible effects of soil polluting incidents. This risk control methodology could involve: • plans for training staff; • procedures and work instructions; • management of means for incident repression; • monitoring soil and soil water quality.	P		D
Laying down duties, responsibilities and competence	The responsibilities and competence of staff in respect to soil polluting incident management has to be laid down in job descriptions. Duties, responsibilities and competences involve: • skills and training; • reporting of incidents; • drafting and maintaining the company emergency plan.			D
Instructions and training	Training and instructions are aimed at: • proper operational skills in order to prevent further dispersion of substances after a soil polluting incident; • full restoration of the soil quality.		R	D
Instruction and training of staff	Staff that could be faced with activities hazardous to the soil should be informed on measures and actions to be taken when a soil polluting incident occurs. In response to soil polluting incidents occurred, communication between all staff and departments involved should take place in order to discuss the cause, actions taken and any possible future revision of organisational measures.	P	R	
Communication	Communication concerning 'soil polluting incident management' can involve: • notification of incidents; • gearing activities and essential means and measures with environment and/or water quality governmental services; • gearing with the competent permitting authority.			

Element	Comment	P	R	D
Company emergency plan	The emergency plan outlines the successive actions to be taken when a soil polluting incident occurs. These actions are aimed at full restoration of the soil quality. Within the company emergency plan – amongst others – the following issues are dealt with: • soil risks, possible incident scenarios and actions to be taken when a soil polluting incident occurs; • spotting and notification of incidents and soil pollution; • immediate actions to be taken to prevent dispersion (such as containment of liquids, applying absorbent materials, stopping leakage, temporarily shutting down installations or blocking pipelines, etc.); • preparing future steps: soil quality checks and soil quality restoration; • any possible adaptations to the organisational measures (such as inspection frequency) and technical means; • available means for repressing possible effects of the incident; • instruction and training of staff.			D
	A procedure on 'how to prepare for and react on soil polluting incidents' can be part of the company emergency plan. Such a procedure could involve: • possible effects of incidents; • responsibilities towards incidents; • information concerning emergency services; • means that have to be available; • information concerning the substances involved.	P		
	A procedure concerning 'Revision of prevention aimed measures' can be part of the company emergency plan. In order to realize a cycle of constant improvement, adaptations of the system of organisational measures towards preventing soil incidents have to be made on the basis of the evaluation of the incident. This could be assured within such a procedure.	P		
Emergency team	There exists an emergency team specialized and trained in handling soil polluting incidents.	P		
Registrations	A system is maintained for registration of soil polluting incidents.		R	
Establishing incident report	Following every soil polluting incident a report concerning the incident is drafted. The report includes: • location and date of the incident; • origin and circumstances; • effect and implications; • measures taken; • possible follow up actions and staff responsible for these actions; • person that first observed the incident; • board responsible for the location of the incident; • record of incident notification to the competent authority.			D
Evaluation	The soil polluting incident is evaluated using the incident report. In view of this evaluation possible additional organisational measures and technical means are taken (like adaptations of the emergency plan). By this lessons are drawn from the incident involved (in order to improve handling of comparable incidents).	P		

3.3 Clean-up duty

Under the duty of care provisions of the Environmental Management Act (section 1.1a) and the Soil Protection Act (section 13) a company has a duty to clean up the soil on discovery of pollution of the soil. This clean-up duty exists irrespective of whether the company has achieved a negligible soil risk (A).
The duty to clean up remains, even if the company has reduced the soil risk to the negligible level (A). A soil risk reduction strategy leading to not-negligible soil risks has to anticipate on the duty to clean up. For this, an Action Plan for Soil Clean-up Operations should have been approved by the competent Authority on the basis of the considerations given below.

In view of the NRB, the cleanup duty is aimed at future pollution only, (i.e. after the NRB based permit regulations come into force). Due to the preventive measures and facilities, the scale of future pollution will be rather small. Soil pollution investigation based on NRB Part B1 minimalises plume lengths and so, costs for clean-up.
The environmental target for soil clean-up is restoring the soil quality as determined by the baseline soil quality investigation (see Part B1.4 Soil pollution investigation).
Within this framework in the Decree on Financial Guarantee [Bulletin of Acts, Orders and Decrees, 150, 2003, April 15] clean-up costs are estimated at € 22,500. This sum gives a rough indication of the State of the Art clean-up technology to be selected.
Soil quality restoration should not last more than several years.

In complying with the clean-up duty, the principle of reasonableness plays a part. The principle of proportionality (General Administrative Law Act section 3.4) states that the consequences of the penalty to be imposed (soil clean-up costs) and the interest intended to be served (restoration of the baseline situation) must be in proportion. The competent authority will therefore need to verify whether the severity of the pollution of the soil justifies the consequences of cleaning up the soil as soon as possible, especially when:
- the soil has been demonstrably polluted but the contamination caused cannot be measured;
- the immediate introduction of the clean-up duty is incompatible with the continuation of operations.

Restoration of the baseline situation is the starting point for soil clean-up following any pollution, making use of State of the Art clean-up technologies (see Soil Remediation Techniques Manual, [66, Handboek Bodemsaneringstechnieken]).
Confronting a soil polluting affair with the technologies presented in the Manual would usually result in one or more options to restore the baseline soil quality within, *at the very latest 4 years* and with clean up costs not exceeding € 22,500 (or any other sum agreed upon between the company and the competent Authority). Normally, a technique is chosen that yields the desired effect within the shortest terms.
The clean-up duty implies that the soil quality is restored to *at least* the base line soil quality established during the base line soil quality investigation. Applying a technique that results in soil quality, better than the baseline situation, is preferred as far as this technique is in compliance with the criteria given.

When there is *no* technique available that meets the criteria[1], *then,* several options (presented in order of lesser preference) exist:
1 A technique is used that restores the baseline soil quality for comparable costs, but over a longer period;
2 A technique is used that restores the soil quality to at least the baseline situation within a comparable time frame, but to acceptable costs that have been agreed upon in advance;
3 Within the criteria given – and considering the baseline situation set by the soil quality investigation – a technique is chosen that results in a certain soil quality target[2], to be agreed on in advance.

[1] When there is no technique available that meets the criteria, a soil risk prevention strategy cannot result in an acceptable soil risk (A*), see also Chapter A2.3.2.

[2] When the baseline soil quality is better than the environmental targets set for remediation of historic soil contamination, at least these environmental targets have to be met.

Juliana van Stolberglaan 3
P.O. Box 93144
2509 AC The Hague
The Netherlands
Telephone +31 70 373 55 75
Fax +31 70 373 56 00
E-mail info@infomil.nl
Website www.infomil.nl