Training programme for coordinators and site managers

Programme de formation pour les coordonnateurs et les chefs de chantier

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ABSTRACT: In order to carry out construction work in contaminated areas, coordinators and site managers must have special knowledge about work safety and protection of health. This knowledge can be acquired in the course designed by the Tiefbau-Berufsgenossenschaft as the institution responsible for accident prevention and insurance in the civil engineering industry. The course is described in greater detail below.

RESUME: Pour les travaux de construction en zones contaminées, les coordonnateurs et les chefs de chantier doivent posséder des connaissances particulières en matière de sécurité et de protection de la santé. Ces connaissances peuvent être acquises dans le cours de formation conçu par l'organisme du régime légal de prévention et d'assurance accidents Tiefbau-Berufsgenossenschaft et exposé plus en détail ci-dessous.

1 INTRODUCTION

In the course of work carried out in contaminated areas, serious accidents or illnesses have, in the past, repeatedly occurred. As a result of the accident analysis undertaken, in particular the following causes of accidents were established:

- ignorance of the risk potential
- inaccurate specifications
- wrong choice of equipment
- inadequate measurement techniques
- untrained personnel
- personal protective equipment not available or not used
- inadequate security measures

The findings of these accident analyses have resulted in a special section, „Industrial Contamination", being set up within the expert committee for civil engineering, which in turn is lead by the Tiefbau-Berufsgenossenschaft. The most significant task of this special section was drawing up a set of rules dealing specifically with health and safety when working in contaminated areas. Following a lengthy preparatory period, the „Regulations for Working in Contaminated Areas" - ZH 1/183 (Tiefbau - Berufsgenossenschaft 1992) became binding in April 1992. This set of rules naturally includes, amongst other things, requirements taken from the laws governing hazardous substances, e.g. the Chemicals Act, the Hazardous Substances Regulations and defines these in relation to working in contaminated areas.

A central item in this set of rules is the requirement for competent supervisors. In this connection, the following must be observed: in the event of work in contaminated areas being undertaken by several contractors or if relevant, also their subcontractors, one person must be appointed coordinator to avoid any possible reciprocal endangerment, to coordinate the various operations and supervise adherence to the safety regulations, in particular with respect to hazardous substances. Only persons qualified for the responsibilities involved and able to demonstrate adequate proficiency may be appointed coordinator. In cases where no coordinator is required (because there is only one contractor), the site manager must furnish appropriate evidence of his expert knowledge.

2 COURSE CONCEPTION

Evidence of adequate proficiency in the field of industrial health and safety is to be provided in the form of successful completion of a course on „Industrial Health and Safety when Working in Contaminated Areas". The Tiefbau-Berufsgenossenschaft has drawn up this proficiency course and successfully implemented it for some years now.

The staff lecturing on these courses are advisers, technical supervisory officers and specialists in industrial medicine at Tiefbau-Berufsgenossenschaft. This ensures that the findings gained from remediation practice can be directly integrated into the course and that there is an appropriate level of competence.

2.1 *Target group*

The course is offered to staff from consulting engineers' offices, who are involved in planning remediation projects, as well as to coordinators and site managers. A requirement for attending such courses is the successful completion of a period of study in those technical fields that are specially concerned with projects for the rehabilitation of hazardous waste sites, such as geology, civil engineering and microbiology.

Consulting engineering staff are of particular importance, because they have to give due consideration to work safety when the remedial measures are actually being planned (Figure 1).

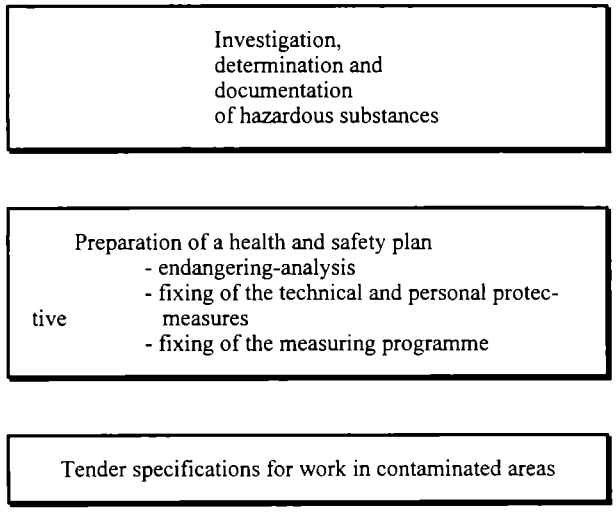

Figure 1. Integration of safety and health protection in the planning phase

The "General Technical Contract Conditions for construction services (ATV) - General provisions for construction work of all types - DIN 18299" stipulate, for instance, that the special requirements for work in contaminated areas must be presented and specified. The specimen tender specification texts included in the comprehensive course material can be particularly helpful in this respect.

2.2 *Course curriculum*

The course comprises a total of 32 instruction units each lasting 45 minutes and covers the following subjects:

1.0 Regulations and rules
Waste disposal law
Federal law governing immission control
Law governing the protection of soil (in preparation)
Workplace regulations
Regulations governing hazardous substances
Technical regulations for hazardous substances
Accident prevention regulations
Regulations, safety rules, information leaflets, etc.

2.0 Personnel requirements, responsibility and liability
2.1 Management, supervision
2.2 Coordinator

3.0 Determination and assessment of specific hazards (hazardous substances, microorganisms and additional potential hazards)
3.1 Potential hazard of hazardous substances and hazardous mixtures
3.2 Potential hazard of microorganisms
3.3 Limits
3.4 Safety evaluation of preliminary investigations
3.5 Supervision and assessment of hazard by measurement

4.0 Overview of work in contaminated areas (remediation methods used on hazardous waste sites) considering safety aspects.

5.0 Safety measures and devices
5.1 Site installation, storage and disposal measures
5.2 Technical protective measures
5.3 Personal protective measures

6.0 Emergency measures, First-Aid

7.0 Industrial medicine
7.1 Preventive check-ups, their contents and legal basis
7.2 Hazardous substances, toxicology and risk assessment
7.3 Contamination/stress as a result of hazardous substances and personal protective equipment
7.4 Hygiene, skin protection

8.0 Safety and health plan, instructions, documentation
8.1 Preparation of a safety plan or of operating instructions
8.2 Direction of employees
8.3 Documentation/Reference material

9.0 Testing

2.3 *Forms of Tuition*

The course is attended by 25 trainees. The subjects outlined under Point 2.2 are taught in the course of sessions. The newly acquired information is then drilled in small working groups using case studies taken from practical situations. For example, the remediation of the grounds of a gas plant. This group work focuses on the preparation of safety and health plans (Figure 2) as well as operating instructions.

Preliminary remarks
1. Validity/Overview
1.1 Name of the hazardous waste site
1.2 Personnel involved
1.3 Work to be carried out in accordance with the provisions of the safety plan
1.4 Duration of validity
1.5 Confirmation of validity by the competent authorities
2. Description of site
2.1 Location of the hazardous waste site
2.2 Site plan showing extent of contamination
3. Remedial methods
4. Description of hazards
4.1 Origins
4.2 Site plan, measuring places
4.3 Contaminants, toxicity
5. Protective measures/Work safety and emission control concept
5.1 Organisation/Clean-and-dirty areas/Decontamination
5.2 Industrial medical service
5.3 Site installation
5.4 Technical protective measures
5.5 Personal protective equipment
5.6 Measurement of contaminants/Measuring programme
5.7 Training programme/Briefing
5.8 Working instructions/Operating instructions/Directions
6. Coordinator/Authority to give instruction/Expert site manager
7. Documentation/Reference material
8. Disposal

Fig. 2. Structure of the Safety and Health Plan

This group work focuses on the preparation of safety and health plans as well as operating instructions.

2.4 *Course objectives*

The courses conducted to date have demonstrated that at the end of the course the students are in a position to plan and supervise the special work safety measures required for work in contaminated areas. These include:
- arranging the necessary surveys and measurements of hazardous substances as well as analysis of the results
- setting out operating instructions for the work and the building site
- briefing employees on the risks of the respective place of work or building site
- supervising and updating the requirements stipulated in the operating instructions
- scheduling individual operations and assessing their effects on each other with respect to potential risks.

The course ends with an examination. Up to now this has been a comprehensive multiple-choice test. In future, however, there will be a written examination not offering any preformulated answers, in which a minimum number of points must be obtained. If this minimum number of points is not reached, the students must sit an oral examination. If the necessary marks are not obtained in this test either, the course must be repeated. Upon successful completion of the course, the trainees are presented with a certificate of attendance.

In remediation practice, it has been found that already a large number of both private and public organisations that are obliged to carry out remedial measures want to be sure that the coordinators and/or site managers have acquired the necessary level of expertise in the course run by Tiefbau-Berufsgenossenschaft, before they award any contracts to consulting engineers and contractors.

3 CONCLUSIONS

Extensive safety and health protection measures are necessary when work is to be carried out in contaminated areas. These measures must be taken into consideration as early as the planning stage and observed or supplemented during construction. For this purpose, the planners, coordinators and site managers require special expertise which includes knowledge of

- the relevant regulations
- the potential hazards posed by hazardous substances and biological working materials
- safety measures and devices
- questions relating to industrial medicine
- the preparation of safety and health plans as well as operating instructions.

As such expertise is not included in conventional training programmes, the Tiefbau-Berufsgenossenschaft has designed the course on „Work safety and health protection for work in contaminated areas" and has run it with great success for several years.

REFERENCES

Tiefbau-Berufsgenossenschaft 1992, Directives for working in contaminated areas, Munich