
Training Of Guard Forces For The Physical Protection of Nuclear Facilities

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Abstract: The regulatory framework for physical protection in Germany requires a guard service capable of fulfilling its tasks and defines in detail the requirements on equipment, qualification, training and practice of the guard forces. There is also a clear requirement for exercises and practice in the context of required measures in order to support the deployment of the Police forces and cooperation with external authorities.

Practice is an essential part of training and continuing professional development of guards. The benefits of conducting exercises are twofold: the results can be used as a basis for an evaluation and it can provide a tool for training. The training required in the regulations and in the license documents is subject to the supervision performed by the federal supervisory authorities. The required training is based on the design of the facility's physical protection system based on the DBT which provides also the parameters for the exercises in physical protection matters.

This presentation gives an overview about the training of the guard service in nuclear facilities and about the efforts to integrate physical protection practices into the emergency exercises in the safety field, which practices emergency situations beyond the design. The design of physical protection systems based on the Design Basis Threat (DBT) provides sound basic protection, which is supported by the actual training. The terrifying events of September 11th have shown that even though the DBT-based system design provides a strong protection against a wide range of credible threats, it is advisable to be better prepared also for the situation when the physical protection system fails or does not cover all the real circumstances and the real threat which could lead to an emergency situation.

1. INTRODUCTION

The guideline for the physical protection of Nuclear Power Plants (NPP) with light water reactors /1/ explicitly requires a guard service. The guideline "Anforderungen an den Objektsicherungsdienst in kerntechnischen Anlagen der Sicherungskategorie I" /2/ defines all the requirements concerning equipment, duties, qualifications, and training. The requirements for qualification of guards forces include also continuing professional development and training exercises in detail. The exercise requirements define the support provided during the deployment of the Police forces and the cooperation with external authorities as training objectives.

In practice the emergency management staff of a NPP has also to be included in the case of an attack. The emergency management staff is well trained for emergency situations from the safety point of view. In an extended emergency exercise the co-operation between the guard service together with the police force and the emergency management staff should be trained.

2. TRAINING REQUIREMENTS

The guideline /2/ of requirements on guard forces require that only certified security professionals can be hired as guards for the physical protection of a nuclear facility. The required ongoing training for the guards consists of courses every three months on the legal basis, facility policies, and shooting practice.

In particular the ongoing training contains information in

- Knowledge of the facility design as far as physical protection is concerned
- Appropriate actions in the case of violent attacks, e.g., adequacy, necessity, expedience of response and means of response, which includes the use of weapons
- Principles of the cooperation with the Police
- Assessment and communication of threat situations
- Knowledge concerning the credible threat and possible tactics of aggressors
- operation of technical equipment
- self defense techniques without weapons
- shooting practice

This training shall be done in close cooperation with the Police department, which is responsible for the response deployment in the case of an attack. This serves two purposes: it fosters communication and mutual understanding on the basis of more personal knowledge and keeps the Police as the external response force familiar with the specific condition inside the protected area of the nuclear facility.

To maintain cooperation between the guard forces and the Police as the external response force, joint exercises are required. These exercises are in most facilities performed once a year with the active participation of the Police as the external response force and every three months with the Police present as observers and advisors. These exercises are mandatory and therefore, the Supervisory Authority will be informed by the licensee about the exercise in advance. Usually a representative of the Supervisory Authority participates as an observer and the operator will write a report about the training and the training results.

3. EXERCISES IN THE FIELD OF PHYSICAL PROTECTION

In the recommended requirements provided by the IAEA in INFCIRC225/Rev.4, *The Physical Protection of Nuclear Material and Nuclear Facilities*, practice is recommended as a means to test the readiness of guards and response forces in the evaluation process of physical protection and as a means to train the actions of guards and response forces defined in emergency plans /3/.

In Germany the exercises required in the regulations and in the licensing documents are subject of the supervision performed by the federal supervisory authorities. The main task of supervision is the determination of whether the operation of the plant meets the licensing conditions. The design of the facility's physical protection system, including the plans to respond to malevolent acts is based on the design basis threat, DBT. Thus the parameters for the exercise of the guard forces are given by the definitions and assumptions of the DBT. Following this logic, the worst malevolent act which is used for an exercise will be the DBT. Using the same logic, the worst operational situation at the plant will be those assumptions that are part of the DBT.

The German physical protection system is based on mainly technical measures. In particular, delay against intrusion is provided by structural barriers. The guards operating the physical protection equipment monitor the facility conditions concerning physical protection, assess events, decide, alert the Police and operate the equipment. The guards do not play an active role in the facility's physical protection delay design. They rely on technical measures to provide the required delay time, rather than

confronting the intruders. The Police, who are the external response force, will take over the responsibility to stop the malevolent action before the intruder can enter relevant buildings.

The operator provides measures for

- detection and alarm assessment,
- alerting response, and
- delay.

The Police provide the response through

- timely deployment,
- adequate personnel and equipment, and
- take over the responsibility for physical protection after being alerted.

Even though the parameters for practice are given by the design of the physical protection system, the exercises never become a useless routine procedure. The simulation of a malevolent act is always a challenge to the guards and the capabilities of guards to assess, decide, and act properly in threat situations. These exercises have built and will maintain for the future a sound basis for response to situations that are beyond the design of the facilities physical protection system.

The training activities include:

- assessment of events
- decision making in order to have a minimum response time of the police
- acting in order to provide the suitable conditions for the police, e.g. access to the plant with minimum delay.

4. EXTENDED EMERGENCY EXERCISES

The requirements on the design of a facility's physical protection system do not explicitly include safety emergency cases, which are excluded in the assumptions on which the DBT is based on. Nevertheless, the physical protection has to be provided to the maximum possible extent under the specific conditions of an internal emergency case.

The September 11th attack has demonstrated that a threat which seemed to be incredible can turn into reality and can disastrously exceed any limitation given by nearly any DBT. The DBT concept is, despite this recognition, still a valuable concept because it provides a basis to set the level of protection and to define and distribute the responsibilities in the State's physical protection system as well as to design the physical protection measures. But the DBT is a limited threat, limited in tools, explosives, weapons, capabilities, motivation, and number. A malevolent act certainly will not become reality in the way it is defined in the DBT. The September 11th experience gave reasons to reconsider not only the DBT itself but also the limitations for exercises in order to be better prepared for malevolent acts which do not follow the assumptions in the DBT document.

The need to have emergency procedures and to exercise them has been recognised before the September 11th attack occurred. It is planned to elaborate recommendations for federal requirements on guard service exercises within the frame of NPP emergency exercises. The project stipulates that the recommended requirements on emergency exercises concerning the physical protection have been verified on the example of 2 exercises of different types. These types are not obligatory. One prerequisite to carry out this project therefore is to find two operators that volunteer to perform the integrated safety and security emergency exercise.

One exercise is called the emergency exercise with a security element. This means that during the exercise of an internal emergency case, e.g., an accident beyond the design involving heavy injury to persons, physical protection elements are carried out also. Practice which is directly related to such emergency situations are:

- the access control with minimum delay for emergency vehicles from outside,
- the manual search of emergency equipment being brought into the area,
- supervision of the perimeter with personnel reduced to the minimum, and
- communication with the emergency management staff.

The second type is called the exercise focused on physical protection. The principle of this type of exercise is that

- the physical protection system fails and a violent assault leads to failures of safety systems and in sequence turns into an emergency situation
- failures in the protected safety system caused by an insider in combination with a malevolent act during which the remaining redundancy will be destroyed.

The principle of both types is that the emergency management staff convenes to manage the situation in order to train in the communication and the co-operation between the emergency management staff, the operator shift, and the guards, the Police, the fire brigade and the other involved emergency organisations.

Two exercises are in the preparatory phase. Both types focus on physical protection. It has been turned out that in exercises with the security element, no operator was interested in participating because the training effect of the exercise of the emergency-with-security- element-type was considered rather low. To have two exercises of the same type makes sense, because the facilities are of completely different organisations and design.

Another result has come out in the preparatory phase. Because the benefits of conducting exercises are twofold: the results can be used as a basis for an evaluation and it can provide a tool for training, it has to be emphasised that this type of exercise does exceed the licensed design. The main interest therefore lies on the effects for the capability of guards.

5. CONCLUSION

Exercises are an essential part of guard forces' training. Historically, training has shown good results, as can be seen in the examples of the response to actions of Greenpeace or on the occasion of the demonstrations against fuel element transports during preparation and start.

The integration of physical protection elements into the existing plant safety emergency exercises are an additional element of the training opens the opportunity for exercises which will improve the preparedness to respond to a malevolent act within the design limits of the physical protection system and even beyond the DBT definitions and assumptions.

6. REFERENCES

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