

Procedures in Bulgaria for Funding Incidents Involving Radioactive Scrap Metal

The Republic of Bulgaria has developed and is implementing a national system for management of radioactively contaminated scrap metal and orphan sources, which is described below.

The structure of the metal recycling sector in the Republic of Bulgaria is a pyramidal one. Scrap is collected via small-scale dealers and collectors, who sell the scrap to larger scrap processing companies that later, sell the scrap “oven-ready” to the smelting companies. There are three big smelting companies in Bulgaria. The activities of all scrap collecting, storing and smelting companies are under licensing regime controlled by the Ministry of Trade and Energy. The imported scrap is delivered directly by the scrap owner (foreign or national) to the big smelting companies.

The management of cases of identified orphan sources is addressed in the Act on the Safe Use of Nuclear Energy (ASUNE). In such cases the orphan source become a state property and the Chairman of the Nuclear Regulatory Agency (NRA), the Regulatory Body, issues an order assigning a legal person or responsible organization to deal with it as well as specifying the conditions for the implementation of the assigned activities. Generally, such sources are sent for storage to the radioactive waste repository “Novi Han” operated by the State Enterprise Radioactive Waste (RAW). The funding of these activities is provided by the new “Regulation on Determination of Installment, Order of Installment, Collection, Expenditure and Control of the Assets of the Radioactive Waste Fund”. The operators of nuclear facilities and sites generating radioactive waste are obliged to pay fees to the RAW Fund. In case of finding an orphan source it is declared as a RAW because the owner is unknown and it will no be used further. In accordance with the “Regulation on the Terms and Procedure for Delivery of Radioactive Waste to the State Enterprise RAW” subject to delivery to the Enterprise shall be the radioactive waste, the owner of which is not known, i.e. the orphan sources. The described procedures mean that the expenses for liquidation of the events with orphan sources are covered by the RAW Fund.

The ASUNE prohibits the import of RAW into the country except in the cases:

- of re-import of recycled disused sealed sources and sources of ionising radiation manufactured in the Republic of Bulgaria;
- import of waste from (re)processing of materials executed as a service in favour of the Republic of Bulgaria or of the Bulgarian legal entity.

In accordance with the national legislation, the General Department “Border Police” exercises the control at the border access points, as well as the import of scrap metal. It has the necessary personnel and training to control freights and vehicles and is equipped with portable equipment for radiation monitoring.

The scrap metal processing facilities are covered by the requirements of the “Regulation for Emergency Planning and Emergency Preparedness in Case of a Nuclear or a Radiation Accident”. This Regulation specifies the facilities, sites and practices that shall be categorised in one of the five threat categories. The lowest threat category V includes the waste facilities, the scrap metal storage facilities, the processing facilities and national border checkpoints. The category V is defined as practices not involving sources of ionising radiation (SIR), but as a result of an accident or an incident in facilities of threat categories I, II, III and IV or in case of transboundary release, there is a possibility to have a contamination with radioactive substances. In this case there exists a possibility that the projected doses may exceed the dose limits for the general public, determined, for normal operations in the “Regulation for Basic Safety Norms for Radiation Protection” and could require implementation of radiation protection measures. This

requires that each scrap metal storage and processing facility shall develop and maintain an on-site emergency plan.

Each of the smelting companies prepares a scrap delivery contract with the scrap owner, which includes several conditions connected with presence of radioactive contamination or source of ionising radiation in the scrap metal, such as:

- declaration provided by the suppliers that the scrap is free of dangerous waste (including radioactive);
- if there is a dangerous waste, the supplier is considered to be the owner, which means that the supplier has the obligation to pay all the expenses for collection, transportation and safe storage of the source of ionising radiation or radioactive contaminated scrap metal to the RAW - Novi Han repository;

The inherent risks are that scrap supplied by the small-scale dealers may be contaminated. In accordance with the on-site emergency plan of the scrap processing facilities, there are two main lines of defence. The first line of defence, is the scrap delivery contact, i.e. the declaration provided by the suppliers (scrap owners) mentioning that according to its own measurements (performed with hand-held devices) the scrap is free of dangerous waste. The second line of defence consists of measurements performed by the big smelting companies by means of two pillar containing plastic-scintillation detectors.

Measurements are usually performed at two stages of the scrap metal management cycle: first one - on the incoming scrap and then after the scrap has been shredded.

Four levels of alarms are implemented and activation of each leads to a new set of measurements. If the contamination is confirmed, an isolation of the truck or railway car in a dedicated location is performed and intervention of external experts is required. The external experts (Off-site Emergency Response Team) are mainly from the Nuclear Regulatory Agency, Ministry of Health, Ministry of Interior, Civil Protection Authority and State Enterprise Radioactive Waste. In case of an alarm activation, the smelting companies record the information (measurements, date, the supplier, etc.). Actions are undertaken in accordance with the National Emergency Plan, Chapter III "Actions in case of radiological emergency (radioactive contamination)".

The same approach is applied to the organisation of the activities in case of detection of an import of contaminated scrap metal at the borders. The scrap is returned back to the country of origin and the NRA notifies the competent foreign authorities.

As a conclusion:

The source of ionising radiation found in scrap metal or radioactively contaminated scrap metal is possession of the scrap metal owner, which is obliged to cover all expenses for the liquidation of the emergency.

In cases of orphan sources, if it is not possible to find the owner of this source, the Chairman of the NRA assigns a legal person or responsible organization to deal with it and prescribes conditions for the implementation of the assigned activities. In this case, the orphan source is declared as a RAW and becomes a state property and all expenditures are covered by the specially created state Radioactive Waste Fund.

In any case, the sources or radioactively contaminated scrap metal as well as the orphan source are sent for storage to the radioactive waste repository "Novi Han" operated by the State Enterprise Radioactive Waste and the information is recorded by NRA.