Emilija PETROVA*
PhD Student
Faculty of Security
Skopje, Republic of North Macedonia

Metodija DOJCINOVSKI, PhD**
Professor
Military Academy Gen.Mihailo Apostolski
Skopje, Republic of North Macedonia

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BORDER MANAGEMENT AND PROCEDURE IN CASE OF HIGH LEVEL OF RADIATION AT THE BORDER CROSSINGS IN THE REPUBLIC OF NORTH MACEDONIA

The aim of this paper is to strengthen the ability of border crossing staff to check the presence of persons and vehicles for possible presence of radioactive materials outside regulatory control, in an effort to prevent smuggling and illicit trafficking in such means and materials. Regarding the use of radiation detection equipment, which is used at the border crossings in the Republic of North Macedonia, for the needs of control and verification of the entire import and export for possible presence of radioactive shipments. It documents the overall detailed process that the officers involved (customs officers and border police) will use to detect all radioactive material passing through the site, the process that will be used to determine the legitimacy of the radioactive substances that would be detected and the most appropriate way, which should be reacted and acted upon if illegal shipments of this

* E-mail: emilijapetrova83@yahoo.com

** E-mail: metodija.dojcinovski@mod.gov.mk

type are detected. Information that will help existing and new officials to perform their duties in a timely manner, in an appropriate and consistent manner.

Keywords: border crossings, radioactive materials, radiation, border police, customs officers

1. Introduction

In order to successfully counter radioactive threats, law enforcement agencies, and especially those responsible for border management, must always be one step ahead. It is necessary to develop mutual communication, coordination of activities, planning and readiness to respond to threats quickly and efficiently. This could not be done without well-trained and inventive professionals. Well-designed, effective and consistent exchange of information and intelligence procedures, in correlation with operational planning are vital. Provide more training in the field of ionizing radiation and radiation protection, especially for officials working at border crossings. It is important for them to know all the radioactive sources and the dangers they can cause, of course how to protect themselves from unwanted action, in exposure to radiation, because a little carelessness can cause great harm to staff and the environment. The staff the Border Police Service and the Customs officers should know well how to handle all the instruments they have for radiation detection and in case of any incident at the border crossing, to immediately inform the regulatory body in the State to act in accordance with the law.

Radiation threat assessment is the basis for establishing an appropriate radiological emergency preparedness and radiological emergency response systems. Thus, this radiation threat assessment actually identifies the facilities, activities or locations where there is a possibility of emergency radiation on the territory of the Republic of North Macedonia, as well as sources of ionizing radiation that may lead to a radiation emergency that requires appropriate action and measures to protect the population, persons participating in the intervention and the environment Through the realization of their competencies, the institutions directly involved in the border control are obliged to ensure the safety and health of the people, the environment and the cultural heritage. Establishment of a National Coordination Mechanism for Border Management, which will be managed by the Border Police Service in cooperation with all other national border management services, in order to achieve cooperation, coordination, mutual support and exchange of information between them.

2. Radiation detection equipment at the border crossings

The Personal Radiation Detector (PRD)[1] is a small, stand-alone device used to detect gamma radiation. This device is basically used to determine the safety zone or perimeter during field work, to protect officials.

The Radioisotope Identification Device (RID) is a compact device for manual use and is used to locate the radiation source and determine the specific isotope present. The device has the ability for remote, computerized data transmission, for sending isotope data to technical experts who are not present on the spot.

Portal Radiation Monitors (PRMs) are larger fixed systems, located in places intended for basic control and verification, and are used to detect gamma and neutron radiation. Usually, the operation and use of PRM is controlled by a computer.

The Geiger counter is a device for manual use, which helps operators to locate the radioactive source (s) in a timely manner.[2]

3. Organizational responsibility

3.1. Customs Administration / Border Police

The Border Police and the Customs Administration[3] of the Republic of North Macedonia are competent institutions for initial control of the border crossings for entry and exit from our country and responsible for the initial reaction and action in case of activation of a certain alarm and its assessment. The RSD (Radiation Safety Directorate) is responsible for ensuring that all necessary secondary checks and controls have been carried out and that all other agencies have been duly informed of what to do in case of suspicious alarms or threats. [4]

Customs Service:

The main tasks of the Customs Service are: conducting customs supervision, conducting customs control, customs clearance of goods, conducting customs control, investigative and intelligence measures aimed at preventing, detecting and investigating customs offenses and criminal acts, initiating proceedings customs and other offenses, as well as criminal offenses established by law and collection

1 Standard operating procedures for detecting increased levels of ionizing radiation (2016)

2 Plan for protection of the population in case of a radiation emergency event in the Republic of Macedonia (Official Gazette of RM no. 84/11)

3 National Strategy for Integrated Border Management (2021-2025)

4 Plan for protection of the population in case of a radiation emergency event in the Republic of Macedonia (Official Gazette f RM no. 84/11)

of mandatory fines, calculation and collection or refund of export and import duties, taxes and other public duties and fees on import, export or transit of goods, as well as implementation of forced collection in accordance with the law,[5] conducting customs-administrative procedure in the first instance, controlling the import and export of effective domestic and foreign money, checks and monetary gold, controlling the export, import and transit of goods for which prescribed special measures of interest for safety and public morality, preservation of health and life of people, animals and plants, protection of the environment, prescribed by the Law on Customs Administration, other laws and regulations.

MOI (Border Police):

The main bearer of activities in the field of border management is the Ministry of Interior (MOI) through the border police which operates within the Public Security Bureau (PSB). According to the Law on Police, the border control in the Republic of Northern Macedonia is under the competence of the Ministry of Interior, and the security of the state border and border control (border surveillance and border checks) are performed by the border police, as part of the Ministry of Interior.[6]

Border control is performed in accordance with the Law on Border Control and covers matters related to border checks and border surveillance, as well as analysis of national security threats and analysis of threats that may affect border security, and is performed in order to for:

– Prevention and detection of crimes and misdemeanours and detection and apprehension of their perpetrators,
– Prevention and detection of illegal migration and trafficking in human beings,
– Protection of life, human health, personal safety, property, environment and nature and - prevention and detection of other dangers to public order, legal order, national security and international relations.

The Border Police is an integral part of the PSB and for efficient performance of its tasks is structured on three levels: central, regional and local.

3.2. Border Check and Control

The main purpose of border checks is to enable fast and unimpeded legal flow of legal passengers and goods and to prevent illegal activities at border crossings through effective systematic checks of persons and vehicles crossing the state border. In order

5 Law on the Customs Administration (Official Gazette of RM no. 46/04, 81/05, 107/07, 103/08, 64/09, 105/09, 48/10, 53/11 and 113/12)

6 Law on Border Control (Official Gazette of RM no. 171/10)

to fulfil that goal, based on the profile and frequency of passengers and vehicles, a categorization of the border crossings[7] (border crossings of the first, second and third category) was performed and accordingly the human and material resources are planned and engaged. In order to speed up the processing of passengers and also to prevent illegal entry and exit of persons using forged or foreign documents, the border crossings were continuously equipped with modern equipment in accordance with EU standards and the Passenger and Vehicle Control System was upgraded.

In that direction, and taking into account the continuous increase of passengers, especially in air traffic, as well as the increased security threats, in the next period the priority will be the further modernization of the border crossings, equipment and IT systems used on them, as well as opening of new border crossings for road traffic. Further improving inter-agency cooperation with institutions present at border crossings will continue to be a priority.

Border checks[8] shall be carried out in the area of border crossings, outside the area of the border crossing by train, aircraft, vessel or other place, as well as on the territory of a neighbouring country in accordance with an international agreement. There are currently a total of 23 border crossings, of which 18 for road, 3 for rail and 2 for air. Four border crossings for road traffic function as joint border crossings with neighbouring countries: BCP Tabanovce - Presevo with R. Serbia has grown into a Joint Border Crossing for international road traffic, and new border crossings were opened ZGP Belanovce - Stancic with R. Kosovo, ZGP G. Crcorija - Golesh with R. Serbia and ZGP Dzepishte - Trebishte with R. Albania, the last two of which are for local traffic.

The border control in the Republic of North Macedonia is performed by the police of the (Ministry of Interior) of the Ministry of Interior in accordance with the national legislation which is to a large extent harmonized with the EU standards in the field of border operations.

The main purpose of border control is to ensure fast, efficient and safe legal flow of passengers and goods, and on the other hand to detect and prevent illegal (illegal) crossing of the state border and all forms of cross-border crime (including smuggling of migrants, trade with people, drug trafficking, smuggling of excise goods, vehicles, etc.), and thus contribute to the detection and prevention of threats to public order, the rule of law, national security and the international reputation of the state. Border control consists of border checks, border surveillance and risk analysis.[9]

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7 Law on State Border Surveillance (Official Gazette of RM no. 71/06/66/07)

8 National Strategy for Integrated Border Management (2021-2025)

9 Standard operating procedures for detecting increased levels of ionizing radiation (2016)

The Customs Service also plays a key role in border control by conducting customs supervision, customs clearance of goods,[10] customs control, excise supervision on the entire territory of the Republic of North Macedonia, investigative and intelligence measures to prevent, detect and investigate customs offenses and criminal works, protection of the safety and security of people, animals and plants, protection of objects of historical, artistic and archaeological value, copyright and other rights, as well as other trade policy measures prescribed by law, implementation of customs controls after customs clearance.

Conducting internal controls and audits in all spheres of customs operations and the overall functioning of the Customs Administration, in order to detect cases of non-compliance with laws and internal acts and abuses in the performance of official duties by employees, conducting misdemeanour proceedings, pronouncing misdemeanour sanction for committed customs, excise and foreign exchange misdemeanour, as well as initiating a procedure (IAES, 2019) for criminal acts determined by law.

4. Operational procedures

In case of a radiation emergency[11] at the border crossing point, basic inspection and control, secondary inspection and control and tertiary inspection and control are applied.

4.1. Basic check and control

The basic check and control starts when a certain person or vehicle enters or leaves the terminal or border crossing. At the entrance or exit of the country, the vehicles pass through the PMR systems placed along the lanes. For the purposes of proper PMR control, traffic must be regulated to ensure adequate vehicle speed and flow. The basic inspection and control of persons and vehicles entering or exiting terminals or border crossings can be performed with the help of other hand-held or compact devices and devices for measuring radiation, such as PRD, Geiger counters, RID and backpacks with equipment to detect radiation.

10 Instructions for work in detecting increased levels of ionizing radiation (CA of the Republic of Macedonia) - Skopje, 2011

11 Rulebook for categorization of Radiation and nuclear threats (Official Gazette of RM no. 162/09)

4.2. Secondary check and control

If any of the radiation alarms are activated, the managing official directs the person or vehicle to the place provided for secondary check and control. After determining the safety zone with the help of PRD, the official will separate the passengers from the vehicle and will start checking and controlling both the vehicle and the persons who pose a potential threat. Once the official has located[12] all potential sources of radiation, with the help of UIRI should try and identify them.

After the identification of the sources and the initial on-site investigation (through analysis of the relevant documentation and examination of the suspects), the official should determine whether it is a safe alarm or the presence of possible radioactive material outside regulatory control.

4.3. Tertiary check and control

Tertiary check and control is usually performed by RSD (Radiation Safety Directorate)[13] with appropriate knowledge in the specific area, from regulatory bodies and bodies in charge of radiation detection, through the use of more sensitive and sophisticated equipment for measurement and detection, in order to assess and identifies the threat. RSD can check for possible contamination and supervise and control the process of raising and securing the source. After analyzing all the data provided through tertiary verification and control, the RSD may decide to detain or omit the person or vehicle that triggered the alarm. If the RSD determine that this is radioactive material outside regulatory control, officials should detain suspects and assets and secure the radioactive source.

5. Procedure in case of active alarm

5.1. Steps to be taken

At least two officers should perform all secondary checks and controls. Each of them must own PRD. During the whole procedure, the passengers and / or the vehicle that triggered the alarm must be properly secured. Officials are required to make all devices used for basic screening and detection of gamma

12 National Strategy for Development of Integrated Border Management Skopje-2014-2019

13 Law on protection from ionizing radiation and radiation safety (Official Gazette of RM no. 48/02, 135/07, 53/11, 43/14)

radiation, such as PMR, PRD, RID or Geiger counters, available to colleagues performing secondary screening and control. If the primary alarm refers to gamma-neutron or neutron radiation, if possible, perform an additional check and measurement with another primary detector or PMR. If only gamma radiation, gamma-neutron or neutron-only radiation is detected during the additional initial check-and-check, then refer persons or vehicles to the secondary check-and-check location. If no additional alarm is activated during the additional initial check and control, then it can be assumed that the cause of the initial alarm was natural background radiation. In that case, the officials should document the event, thus ending the procedure.

For all persons and vehicles that will be referred for secondary inspection and control, the official should provide all available data regarding the activated alarm from CAS, the relevant documentation for the shipment (if any), the form for the Report for secondary inspection and control and hand-held radiation detection and detection devices, which will be required for secondary inspection and control. At the moment of access to the persons or vehicles that have turned on the alarm, the officials must be equipped with personal radiation detectors (PDR) or so-called pagers, and they must have at their disposal a radioisotope identification device (RID).

If at any time, before or during the secondary inspection and control, the official notices a reading of "9" on the screen of his PDR, he or she must immediately move away from the radiation source until the display number changed to "8" or lower, after which he should immediately inform his superior about it. Remove passengers from the vehicle. Constantly secure both persons and vehicles. After setting up the safety perimeter with the help of PDR, using the manual radiation measuring devices, try to locate the potential source of radiation among the passengers or in the vehicle. If you can, mark potential locations where the source might be located. If you suspect that it may be residual radiation as a result of medical treatment, isolate the person and ask them about any medical treatments they have been exposed to in the past. Officials MUST NOT be in close contact with persons considered to have been exposed to medical isotope treatment. All body fluids in these patients may be contaminated with medical isotopes, including their sweat and saliva. Officials should detain all persons and vehicles that will turn on the neutron and high gamma radiation alarms and report the incident to their superiors immediately. Officials should call the RSD whenever it is necessary to coordinate tertiary verification and control and verify the identification of the source. Isolate and secure the source or sources until RSD representatives arrive at a secure location at the border crossing. At the very border of the security perimeter around the source, in the safe zone, the reading of PDR must not be higher than "8".

6. Previous experiences and results

In the period from 2008-2010, there were 20 incidents of illicit trafficking in radioactive material on the territory of the Republic of Northern Macedonia, of which 15 incidents were recorded at the following border crossings: Bogorodica, Blace and Tabanovce. In 14 of the incidents, the presence of a radioactive source was detected in trucks loaded with scrap metal, while in one of the incidents, a truck loaded with consumer goods was returned due to the presence of thorium lamps. The other five incidents that occurred on the territory of the Republic of Northern Macedonia confirmed the presence of an ionizing scrap metal fire reporter (Am-241) in two incidents and the presence of a radioactive source from a radioactive lightning rod (EU-152, Co-60) in scrap metal in three incidents.

Namely, in the period from 2007 to 2012, there were 27 incidents of illegal trade on the territory of the Republic of Macedonia, with the largest number of incidents occurring in 2008, at the border crossing Blace. In the period from 2017 and 2018, there were a total of 8 incidents with illegal trade at the border crossings in the Republic of Macedonia, with which the majority of incidents are recorded at the border crossings Tabanovce and Blace. We can conclude that most of the extraordinary events in the period 2007 - 2012 occurred at the border crossing Blace during import. The reason for this is the fact that in Kosovo at that time the area of protection from ionizing radiation, including radioactive sources, was not properly regulated. The lack of a regulatory body is the reason for the increased number of emergency events, especially in 2008. Following the establishment of an appropriate regulatory body in Kosovo, which was established on 21.06.2011, there has been a significant decline in the number of emergency events at the Blace border crossing. On 06.06. 2018, the Radiation Safety Directorate of the Republic of North Macedonia and the Agency for Radiation Protection and Nuclear Safety of the Republic of Kosovo signed a memorandum of cooperation. Co-60, Th-232, Eu-152/154, Am-241, Ra-226 and others appear as sources in most of the extraordinary events in this period. These are radioactive sources built into lightning rods that were installed in the past on the entire territory of SFRY by the Institute of Nuclear Sciences "VINCA", ionization fire alarms and radioactive sources that are part of measuring instruments.

The detected radioactive sources are usually of 5 categories or are excluded from the control, but they have enough activity to be detected. In case of detection of a radioactive source at the border crossing, actions are taken to respond and deal with the situation. The following are performed: basic, secondary and tertiary inspection and control. The Border Police and the Customs Administration of the Republic of North Macedonia are competent institutions for initial (basic)

control of the border crossings for entry and exit from the Republic of Macedonia and responsible for the initial reaction and action in case of activation of a certain alarm and its assessment. Of course, they are also responsible for performing a secondary check that will highlight the initial signs of a threat.

Agencies, which should act in case of identification of suspicious alarms or threats. The Radiation Safety Directorate for each incident that will occur at the border crossings receives the notification from the responsible person of the Customs Administration through the Duty Operations Center DOC or through the NCCBM (National Coordination Center for Border Management).

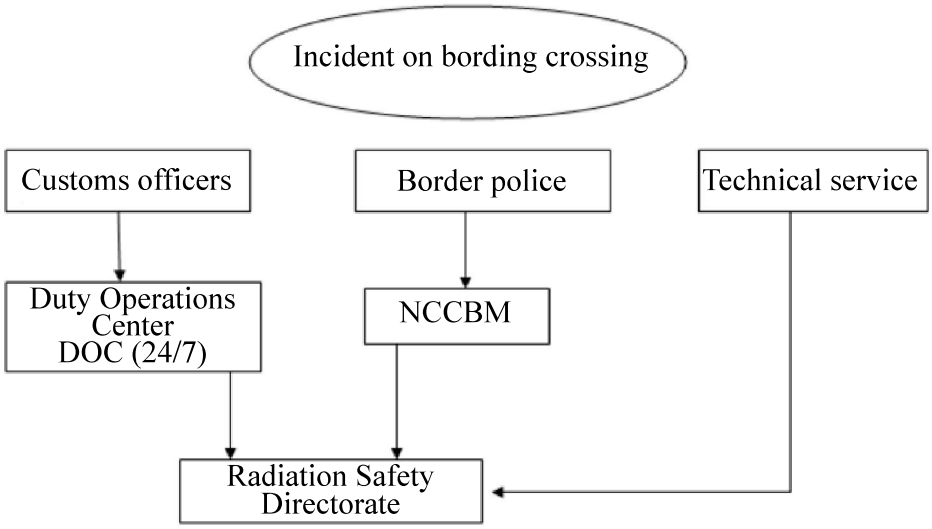

Figure 1. Schematic representation of the response in case of an emergency with radioactive sources at the border crossing

Table 1. Equipment for radiation detection at the border crossings of the Republic of North Macedonia

State border	Radiation pagers	Geiger-Miller counter	Panel Detectors
North	23	4	3
East	12	1	3
South	24	2	3
West	11	2	2
Total	70	9	11

Table 1 shows the total number of detection equipment used by customs officers and border police officers. From this we can conclude that the equipment used by officials is as follows: radiation pagers, Geiger-miller counters and panel

detectors. On the territory of the Republic of Northern Macedonia, the customs and police officers have a total of 70 pagers for radiation, 9 Geiger-Miller counters and 11 panel detectors.

7. Conclusion

In that direction, and taking into account the continuous increase of passengers, especially in air traffic, as well as the increased security threats, in the next period the priority will be the further modernization of the border crossings, equipment and IT systems used on them, as well as opening of new border crossings for road traffic. Further improving inter-agency cooperation with institutions present at border crossings will continue to be a priority. The Radiation Safety Directorate as a regulatory body in the country whose competence is protection from ionizing radiation, radiation safety and security will provide training and exercises for customs officers and border police in cooperation with the IAEA (International Atomic Energy Agency), will strengthen the control of all sources of ionizing radiation in the country, including devices for identification of radiation at the border crossings and will participate in the development of Standard Operating procedures for action when detecting increased levels of radiation at the border crossings. One of the main priorities of the Customs Administration in the coming period will be the full establishment of digital customs, which will also contribute to trade facilitation and strengthen border security.

The Customs Administration will continue with the further harmonization of the national customs legislation and procedures with the legislation of the European Union by amending the customs laws, bylaws and instructions for their application, in accordance with the legislation of the European Union. In order to facilitate and accelerate the flow of goods and passengers will work on improving selective control by applying risk analysis and assessment, improving the quality of services and working conditions of economic operators and customs officers by building a new and improving the existing infrastructure border crossings, acceleration of the flow of vehicles at the border crossings and customs terminals by improving the cooperation and harmonization of controls with other state institutions responsible for the implementation of the customs procedure and introduction of joint controls of goods, passengers and means of transport in one place with the border services of neighbouring countries. In that direction, it will continue with activities in order to provide simple and predictable procedures and formalities. The modernization of the border police will be a priority in the coming period, especially in the area of video surveillance and mobility, because the

existing funds are continuously used and some of them are already depreciated. Priorities will be the maintenance and further development of cooperation with neighbouring countries and improving the efficiency of existing forms of cross-border police cooperation, initiating new forms of cooperation at the southern border, as well as creating conditions (technical, legal) for using data from EU real-time systems (satellite imagery, real-time information and data, etc.).

The assessment of the degree of endangerment of the state border sectors will be performed regularly, and the planning and allocation of resources will be performed in accordance with the established situation and the identified risks. Cooperation with the Ministry of Defence will also continue in the area of support by the Army in securing the parts of the state border that have been identified as the most critical. In 2020, an additional challenge was the emergence of COVID-19 which significantly affected all segments of society, including border management. The pandemic affected the border operations in several aspects, primarily the need to further conduct border police work in much more complex conditions than before (in a pandemic) and the additional tasks and role of the border police and other relevant institutions in the IGS system in dealing with COVID -19 nationally. Given that this situation will continue in the future, the pandemic is a risk factor for all planned measures and activities in the coming period and all involved institutions will take the necessary measures to adjust to new trends and meet the goals in complex condition

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Abbreviations used:

- Personal Radiation Detector-PRD
- Radioisotope Identification Device -RID
- Administrative Technical Affairs-ATA
- Central Alarm Station-CAS
- Radiation Safety Directorate – RSD
- Ministry of Interior – MOI
- Customs Administrations-CA