TANGRA

Tabletop Exercise
R/N Detection and Response
Standard Operating Procedures

7-9 September 2022, Sofia, Bulgaria

REPUBLIC OF BULGARIA
MINISTRY OF FOREIGN AFFAIRS

CENTER OF COMPETENCE QUASAR

Tangra

Tabletop Exercise

Sofia, Republic of Bulgaria
7-9 September 2022

FOR MORE INFORMATION
Please contact
Globalinitiative@state.gov.

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EXERCISE AGENDA

All times EEST / UTC + 3

DAY 1 Wednesday | 7 September	
08:30 – 09:00	Arrival / Registration and Sign-in
09:00 – 09:30	Opening Session / Welcoming Remarks
09:30 – 10:30	Introductions
10:30 – 11:00	BREAK / Group Picture
11:00 – 12:15	Discussion on Nuclear Security Detection Architecture & SOPs
12:15 – 13:15	LUNCH
13:15 – 14:30	Exercise Foundations / Scenario 1
14:30 – 15:00	BREAK
15:00 – 15:45	Scenario 1 Continued
15:45 – 16:00	Recap of the Day
16:00 – 17:00	Mobile Detection Unit Demonstration
17:00 – 18:00	Reception
DAY 2 Thursday | 8 September	
08:30 – 09:00	Arrival / Registration and Sign-in
09:00 – 09:15	Welcome and Overview of Day 1
09:15 – 10:30	Presentation on Investigations and Prosecution
10:30 – 11:00	BREAK
11:00 – 12:00	Scenario 2 Introduction and Mission Planning Guide Activity
12:00 – 13:00	LUNCH
13:00 – 14:15	Debrief Mission Planning Guide and Scenario 2 Continued
14:15 – 15:00	Scenario 3 Introduction and Injects
15:00 – 15:30	BREAK
15:30 – 16:30	Scenario 3 Continued
16:30 – 16:45	Recap of the Day
DAY 3 Friday | 9 September	
08:30 – 09:00	Arrival / Registration and Sign-in
09:00 – 10:00	Welcome and Activity Overview – SOP Review
10:00 – 10:30	BREAK
10:30 – 11:45	SOP Review Briefs and Discussion
11:45 – 11:55	TTX Next Steps and Participant Feedback
11:55 – 12:15	Closing Session

EXERCISE OVERVIEW

Exercise Background

The U.S. Department of State, Bureau of International Security and Nonproliferation's Offices of Weapons of Mass Destruction Terrorism (WMDT), the Bulgaria Ministry of Foreign Affairs, and the Institute for Nuclear Research and Nuclear Energy will host the Tangra Tabletop Exercise (TTX) on September 7-9, 2022, at the Center for Competence Quasar's Innovative Event Center.

The U.S. Department of State (DOS) assists partner countries in the design, development, and execution of exercise activities to help test and strengthen interagency coordination, communication, and procedures in response to a nuclear or radiological threat.

The Tangra Tabletop Exercise (TTX) builds off of previous exercise efforts. This TTX emphasizes the decision-making processes, information sharing, communication and coordination of information, and deployment of resources involved in deterring, detecting, and investigating radiological material out of regulatory control (MORC). It provides participants the opportunity to assess and improve current operating procedures as well as discuss interagency coordination and information sharing in response to radiological events.

Manual Overview

- This TTX Participant Manual provides exercise players, planners, and facilitators with all the necessary tools for their roles in the exercise.

- This TTX is an unclassified exercise. Exercise planners control information based on public sensitivity regarding the nature of the exercise rather than actual exercise content. All exercise participants should use appropriate guidelines to ensure proper control of information within their areas of expertise and protect this material in accordance with current jurisdictional directives. Public release of exercise materials to third parties is at the discretion of the partner country.

Exercise Objectives

This tabletop exercise (TTX) will focus on Bulgaria's Radiological/Nuclear (R/N) detection standard operating procedure (SOP) in case of identification of illegal transfer/transportation of nuclear material, radioactive substances, or radioactive sources in the zones of international airports, ports, and border control points for the Republic of Bulgaria.

The TTX is designed to achieve the following specific objectives:

1. **Practice the coordination of national SOPs in response to the identification of radiological or nuclear material out of regulatory control at the national level at border control points within the Republic of Bulgaria.**

2. **Review Bulgarian model for coordinating surge detection measures during a heightened threat level.**

3. **Identify gaps or areas for improvement in existing nuclear detection standard operating procedures.**

Exercise Outcomes

The three scenarios in this TTX will provide the opportunity to review the Standard Operating Procedures (SOP) in case of identification of illegal transfer/transportation of nuclear material, radioactive substances, or radioactive sources in the zones of international airports, ports, and border control points for the Republic of Bulgaria. Through facilitated discussions, participants will explore relevant joint agency operations and procedures and operational coordination in response to incidents involving radiological or special nuclear material out of regulatory control. Participants will identify potential gaps and areas for improvement in the SOPs and discuss next steps for addressing them.

Participants

The participants will include stakeholders from the Bulgarian Interagency that play a role in radiological/nuclear (R/N) interdiction.

Participating Organizations include:

Executive Branch

- Ministry of the Interior
    - General Directorate Border Police
    - General Directorate Combatting Organized Crime
    - General Directorate Fire Safety and Civil Protection
    - General Directorate Gendarmerie and Special Anti-Terrorism Operations
- Ministry of the Economy and Innovations
- State Agency for National Security
- National Center for Radiobiology and Radiation Protection

Judicial Branch

- Military Prosecutor's Office
- National Investigation Service

Academic and Scientific Institutions

- Military Academy
- Academy of the Ministry of the Interior
- University of National and World Economy
- Institute for Nuclear Research and Nuclear Energy to the Bulgarian Academy of Sciences

Other Entities

- State Enterprise "Radioactive Waste"
- SOF Connect (Sofia Airport managing company)

Participating in a Tabletop Exercise

A tabletop exercise (TTX) is intended to generate discussion of various issues regarding a hypothetical, simulated scenario. TTXs can be used to enhance general awareness, validate plans and procedures, and assess the types of systems needed to guide the prevention, mitigation, response, and recovery from an incident. TTXs are a valuable tool to facilitate understanding around complex issues requiring multiple levels of coordination and communication.

This exercise will be a multimedia, facilitated exercise and will cover three distinct, fictitious scenarios:

1. Border Control Point Detection
2. Green Border Mobile Detection System (MDS) Operation
3. International Airport Detection

Roles

The following roles are defined for participation in this exercise:

Participants

Participants are front line officers, operators, stakeholders, and agency personnel who have an active role in responding to the incident by performing their regular roles and responsibilities during the event. Participants initiate actions that respond to or mitigate the simulated threat based on knowledge of response procedures, current plans, and insights derived from relevant training.

Facilitators

The facilitators will manage exercise play during the TTX. The facilitators are responsible for keeping participant discussions on track with event objectives and ensuring participants explore all issues and objectives as thoroughly as possible within time constraints. Facilitators assist participants in reaching exercise objectives, ensure agenda is followed, and moderate discussions as needed. If an exercise uses breakout groups, the event may need more than one facilitator.

Observers

Non-participants view all or selected portions of exercise play. Observers should not have an active role in the exercise unless a specific topic cannot be resolved without their assistance. Observers may capture information and observations on deliberations and decisions made, to be used to inform the TTX outcomes.

Participant Guidance

Exercise Guidelines

The following rules are intended to guide participants as they discuss their actions in response to the scenario:

- Please use the exercise materials as the basis for discussion. Please reference existing plans, procedures, and individual experience and knowledge to recommend a course of action.
- Respond to the scenario using your knowledge of current plans and capabilities (i.e., you may use only existing assets) and insights derived from your training.
- Decisions are not precedent setting and may not reflect your organization's final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions.
- Issue identification is not as valuable as suggestions and recommended actions that could improve prevention and response efforts. Problem-solving efforts should be the focus.
- Please assume that the scenario is plausible. Activities described during this exercise are not intended to portray actual threats or events.
- This exercise will be held in an open, low-stress, no-fault environment. Varying viewpoints, even disagreements, are expected.
- The exercise will not be played in real time.

Security

- This exercise includes information that may be considered sensitive and should not be made available to the public. Distribution of this document and other exercise materials is generally limited to event participants only.

Scope

The Tangra TTX is a scenario-based discussion conducted in person at an unclassified level from 7-9 September 2022 with stakeholders from the Bulgarian interagency that engage in matters of R/N interdiction.

Participation

Participants are expected to actively engage in the exercise and contribute their expertise and experience during each phase. Participants are expected to treat their fellow participants and facilitators as co-equals.

Working Language

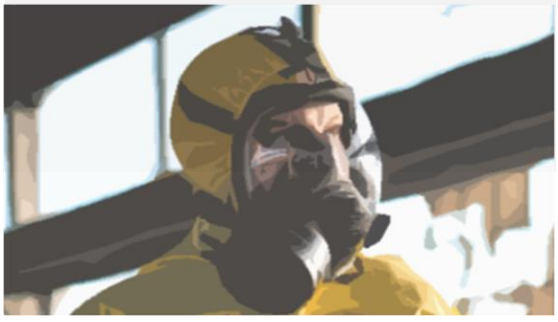
The working language for this exercise is English

Attire

Exercise attire is business.

Location

The exercise will take place at the Center for Competence Quasar's Innovative Event Center. The address is: Sofia 1000, N50 Shipchenski Prohod Str., Building complex of BAS, block 2



Exercise Process

Exercise Introduction
At the beginning of the exercise, the Lead Facilitator will provide an overview of the exercise and materials as well as how the exercise is played.

This Exercise Guidebook will serve as the main reference material for the exercise.

Scenario and Subject Matter Experts
Each exercise module will begin with a presentation of the exercise scenario describing a challenge to nuclear security at blue and green borders.

Periodic Small Group Discussions
Exercise Players will at certain times during the TTX organize into small groups to maximize participation.

Small group facilitators will monitor and assist the small groups as they progress in their discussions.

Players should take notes of their discussions for sharing later with the other groups.

Sharing Outcomes
At the end of each module, the Lead Facilitator will moderate a discussion among the small groups to share and highlight the outcomes of discussions.

Subject matter experts will also share key insights related to the discussion outcomes.

4

Repeat
When an exercise module is completed, the Lead Facilitator will guide participants in repeating steps 2-4 to discuss the next module as the scenarios change.

5

Exercise Conclusion
Notes taken throughout the exercise will document lessons learned and best practices for countering the illicit trafficking of nuclear and other radioactive material at points of entry. Participants will be asked to provide feedback regarding the TTX structure, execution, and content.

Scenario 1

BORDER CONTROL POINT DETECTION

INJECT ONE

On September 3, the Bulgarian Border Police receives information from the General Directorate Combatting Organized Crime about an ongoing investigation and arrest of an individual connected with a drug smuggling operation. To get a lighter sentence the subject admitted he is part of an organization that has been smuggling drugs into Bulgaria, but also indicated that he knows of an upcoming operation that will smuggle radioactive material. He is not aware of whether the source will be smuggled in or out of Bulgaria, nor what the type of radioactive source it will be but has heard it will be sometime in the next 72 hours. He also indicated that although he does not know for certain, his colleagues were discussing trying to cross somewhere on the northern border with Romania through one of the Border Control Points (BCP). Based on this, a heightened threat level has been established.

Inject One Questions for Discussion:

1. Do your Standard Operating Procedures or other regulatory documents address information and/or intelligence sharing processes related to R/N?
2. How is information supposed to flow from frontline personnel to leadership, and then between Bulgarian interagency organizations implicated in the SOPs?
3. Would this information be shared with Romania, and if so, how and by which Bulgarian agency?
4. Would this information be shared with the BCPs along the border with Romania, and if so, what actions would they take?
5. What is the criteria/process for establishing a heightened threat level?
6. Would this cause a change in your agency's day-to-day operations, and if so, is this enhanced security posture captured in your existing Standard Operating Procedure or other plans?
7. Would this heightened threat level affect R/N operations? If so, how? How would this be communicated?
8. How long could we maintain an enhanced security posture at multiple

NOTES

INJECT TWO

On September 7, at approximately 1230 hours, at the Ruse border crossing, the Central Alarm Station (CAS) receives a gamma alarm from one of the Radiation Portal Monitors (RPMs) on a truck entering Bulgaria. The shipping information for the truck shows that the load is fertilizer. The report from the CAS shows radiation readings much higher than what the officers are used to seeing for a typical load of fertilizer. Because of this, the truck is sent to secondary.

As the load is further analyzed, it appears from the CAS report that there is a peak in the conveyance near the middle of the container. Border Police conduct secondary inspection with the radioactive isotope identification device (RIID), which shows both Potassium-40 along with Uranium-238. The Mobile Unit for Detection of R/N Materials from the General Directorate Fire Safety and Civil Protection is called to the scene and confirms these readings.

Inject Two Questions for Discussion:

1. How are appropriate next steps/SOP activation determined at this point in the situation?
2. Would it be necessary for Border Police to coordinate with any other agencies at this point?
3. What agency performs secondary inspection and/or collects spectral files?
4. Based on the RIID readings, what actions would be taken during secondary inspection?
5. What does the process look like for technical reachback, are experts available or on-call to provide guidance?
6. What actions would be taken to secure the driver and the load?
7. What equipment or systems are in place for radiation detection at the border crossing points?

NOTES

INJECT THREE

Upon inspection of the outside of the truck with a K-9, the dog initially sits, indicating the presence of possible explosives or precursors. Once the Explosive Ordinance Disposal (EOD) Team arrives they identify what they suspect to be a Radiological Dispersal Device (RDD).

Inject Three Questions for Discussion:

1. How are appropriate next steps/SOP activation determined at this point in the situation?
2. Do BCPs have access to explosives trained K9s and personnel? Which agency is the lead?
3. Is this realistic, do the SOPs call for EOD notification and/or support?
4. How long would it take for the nearest EOD team to get to the BCP?
5. What agency would be in charge of clearing the vehicle, cargo, and driver of possible explosives?
6. Would the radiation alarm change the EOD response, if so, how?

NOTES

INJECT FOUR

A short time later, a picture is uploaded to Twitter by a traveler passing through the Border Control Point (BCP). The picture shows officers in bomb suits approaching the vehicle. A local news outlet became aware of picture and is contacting individuals at the national police and Ministry of Interior for comment on an incident.

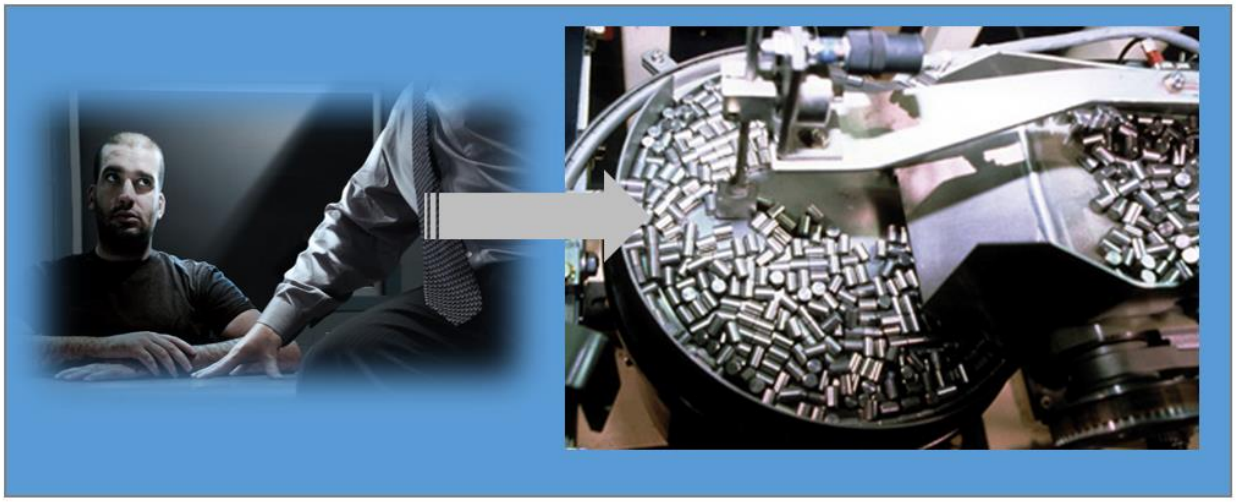
Inject Four Questions for Discussion:

1. How would the media be handled due to the Twitter post at a national-level, versus on-scene?
2. Is there a lead agency for media and/or public information?
3. Would this media inquiry cause a change to any response actions?
4. Does the SOP address media or public information?

NOTES

INJECT FIVE

Upon detention, the driver admits that he was hired to smuggle a package across the border from Romania into Bulgaria and was told to call a number to get further directions once he has crossed the border. He states he was not aware that it was an explosive device.



Inject Five Questions for Discussion:

1. At this point, what agencies would be involved?
2. What would be the next steps?
3. Who would lead the investigation and evidence collection?
4. Would this transition to a national-level response and if so, do other existing plans or policies cover this level of response?
5. Does the SOP adequately reference other pertinent plans?
6. How would this incident be ultimately resolved?

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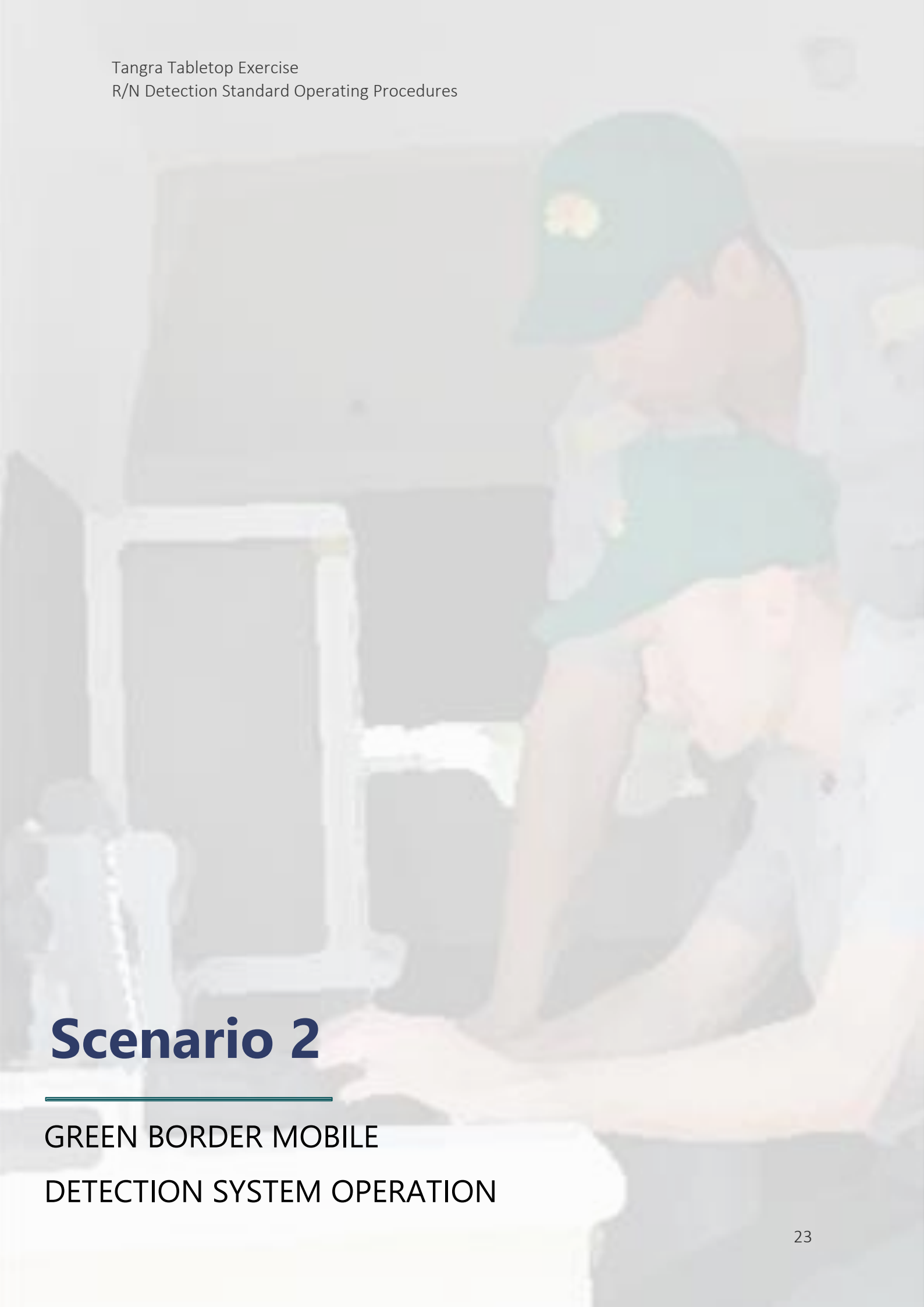

Scenario 2

GREEN BORDER MOBILE DETECTION SYSTEM OPERATION

INJECT ONE

Intelligence is received from the Türkiye Embassy in Sofia that they are investigating a case involving a Bulgarian citizen. The individual is in custody in Türkiye and has told officials there that a radiological explosive device is going to be brought across the Türkiye/Bulgaria border in the next few days through the farmlands somewhere between Triangular Point and I-7, but not through a BCP, in an effort to not be detected.

[CLASSIFIED]

TÜRKIYE EMBASSY IN SOFIA

DATE OF RELEASE: 8 September 2022

DATE OF INFORMATION: 7 SEPTEMBER 2022

REPORT NUMBER: AAR-9-1023-Z

Notification of Investigation of Bulgarian National in Custody in Türkiye

[CLASSIFIED] Summary: Türkiye notified Bulgaria that a Bulgarian national is custody and under investigation. Türkiye made the arrest during a sting operation outside of the city of Edirne. The suspect is a known sympathizer of a regional terrorist organization's activities. The suspect told officials that they heard a radiological dispersal device (RDD) will be smuggled across the Türkiye /Bulgaria border through the farmlands sometime over the next few days. The suspect told officials that they think the terrorists will smuggle the RDD somewhere between Triangular Point and I-7 to avoid detection at a border crossing point.

[CLASSIFIED]

INFORMATION ALERT: In light of the information shared by Türkiye concerning a Bulgarian citizen, the Bulgarian National Police has been granted a search warrant for the home of the suspect.

Note: Please be aware that this intelligence is report is fictional and is solely used for the Tangra Tabletop Exercise.

R/N Detection Operations: Mission Planning Guide Activity

Situation

A. General Situation

B. Criminal Element

C. Friendly forces

Objective 1:

Objective 2:

Objective 3:

General Concept/Instructions:

Photos (*if applicable*):

Location Considerations

☐ Physical location/description
☐ Public /open area /non-public area
☐ Risks/Safety Concerns
☐ Persons or interest/target vehicles/vessels

Communications

☐ Cell/Radios
☐ Reporting Requirements

Hours of Operation

☐ Start Time_____ End Time_____

R/N Detection Operations: Mission Planning Guide Activity

Coordination/Command

Commander:

Command Post Location:

Specific Responsibilities:

☐ Security/Overwatch/Countersurveillance

☐ Detection Operators

☐ Quick Intervention Team

☐ Explosives Ordinance Team

☐ Secondary Inspection Team

☐ Reachback

☐ Other

Legal/Management Review/Approval:

Equipment

Weapons (if applicable)

☐ Individual:

☐ Unit Level:

Surveillance

☐ Binoculars ☐ Drones ☐ Other

R/N Detection Operations: Mission Planning Guide Activity

Radiation Detection instruments *(How many of each)*

- ☐ _____PRD
- ☐ _____RIID
- ☐ _____Survey Meter
- ☐ _____Backpack
- ☐ _____ MDS Van

Personal

- ☐ Safety equipment/clothing/rain gear/flotation device

Disguise/other

Support Requirements

- ☐ Vessels *(how many, marked or unmarked)*
- ☐ Video support/monitoring
- ☐ Charging stations
- ☐ Batteries
- ☐ Food/water
- ☐ Additional staff/teams

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INJECT TWO

At approximately 1530 hours, a deployed Mobile Detection System (MDS) unit receives a gamma alarm on a vehicle. The subject vehicle is stopped, and the driver is questioned and removed. Initial secondary inspection indicates that the vehicle does not have any radiological sources in it. A subsequent secondary search of the individual does repeat the alarm and a RIID indicates it is highly enriched uranium (HEU).

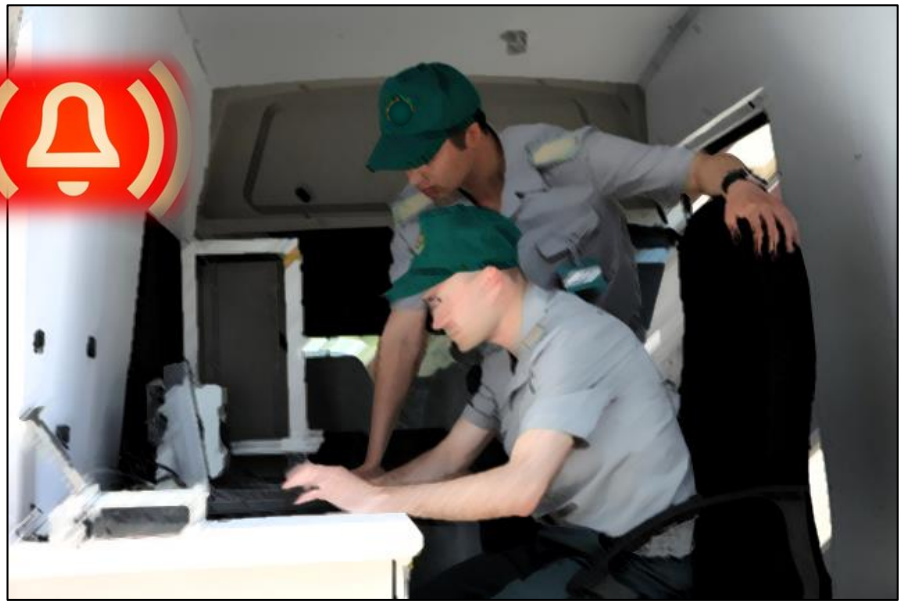
Inject Two Questions for Discussion:

1. Does your SOP specifically address what to do when there is threat material present, and if so, is it adequate?
2. What would be done with the vehicle as well as the driver?
3. How would the source be handled and secured?
4. Would the RIID spectra be sent to experts to further analyze, and if so, to what agency and how would that be communicated?
5. If this issue could not be safely handled at the location of detection, how would the source, vehicle, and person be moved to an appropriate place to be resolved?

NOTES

INJECT THREE

The driver/subject admits that he has a source in his front shirt pocket but does not know what it is, only that he was hired to transport it to Sofia and was to meet with a buyer. Further investigation links this individual to the original intelligence and authorities are able to close the investigation. They conclude that the individual is mentally unstable and acting alone.



Inject Three Questions for Discussion:

1. Once he admits that he has a source in his front pocket, how would this be handled and what would be your concerns?
2. What would be the role of the National Investigative Service?
3. What security, evidence, and prosecutorial considerations would be necessary?
4. Given that this source is HEU and potentially came from another country, who would lead the forensics investigation, if necessary?

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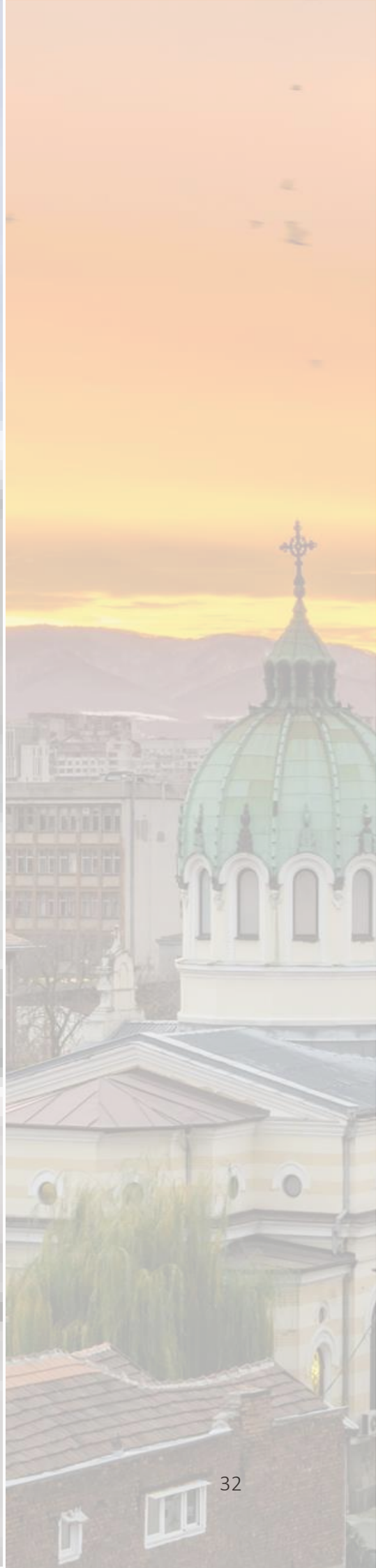


Scenario 3

SOFIA AIRPORT DETECTION

INJECT ONE

On September 9, at approximately 2045 hours, several people from a recent flight coming from Germany walk through a portal monitor close together at the Sofia Airport, which subsequently alarms. Not knowing which individual alarmed the portal monitor, authorities detain a group of five people who were close together when the portal monitor alarmed.

Inject One Questions for Discussion:

1. What initial action would the front-line officer take?
2. What agencies operate at the airport and what equipment do they have?
3. Would outside resources be necessary, if so, how long would it take them to arrive, and what equipment would they bring?
4. How long could those five individuals be detained based on a radiation alarm?
5. What other agencies would be notified and who would make those notifications?
6. Does the SOP adequately address the specific steps that should be taken by airport personnel?

NOTES

INJECT TWO

Border Police arrive on-scene and separate the five individuals to identify the source. Using handheld instruments, the Border Police officers get an initial indication of Cesium-137 on one person. As they are further questioning the person, he indicates that he has had a medical treatment recently and produces a letter indicating that he has been treated with Iodine-131. He appears to be nervous or ill and requests immediate medical assistance.

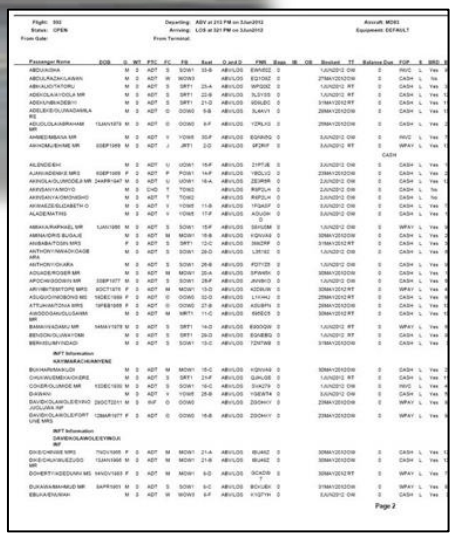
Inject Two Questions for Discussion:

1. How could it be determined whether the other individuals should be detained or released?
2. If it appeared that the individual needed medical treatment, how would this be handled and balanced with the need for the investigation?
3. How would they determine the validity of the medical treatment letter and adjudicate the difference between the isotope identified on the letter and the RIID readings?
4. Would experts be called to assist in verification of the isotope, if so, who?
5. Since this individual was in close contact with others on a plane for an extended duration and he appears to be symptomatic, are their concerns about potential radiation exposure to other passengers?

NOTES

INJECT THREE

As officials are further investigating this situation, they match the individual's name to Lufthansa flight 234 coming from Frankfurt and obtain the airplane's manifest. They determine that he was sitting in seat 14 E. Through questioning he admits that he is was attempting to smuggle sources into Bulgaria. Additionally, they notice that a small handbag he had been carrying is leaking a liquid substance. Handheld radiation detection equipment is utilized and it confirms a gamma source present in the liquid. It appears from a localized survey of the airport that a large area may be potentially contaminated.



Inject Three Questions for Discussion:

1. Once it was determined to be a smuggling case, would it change who the lead agency would be?
2. Who would separate the Cesium-137 source from the suspect, and how would the source be secured? What actions would be taken if he was uncooperative?
3. Knowing that he came in on this flight, what concerns would there be in regard to the airplane due to the contamination, and how would that be affected if it was a foreign carrier?
4. If the plane has already departed for another flight, what actions could be taken?
5. What agency would handle the contamination and clean up issues with this case?
6. What agency would be responsible for transport and long-term storage of the source?
7. What evidence would be collected, how would it be collected and what would be necessary for prosecution in this case?

NOTES

SOP Review

BORDER CONTROL POINT

GREEN BORDER MDS OPERATION

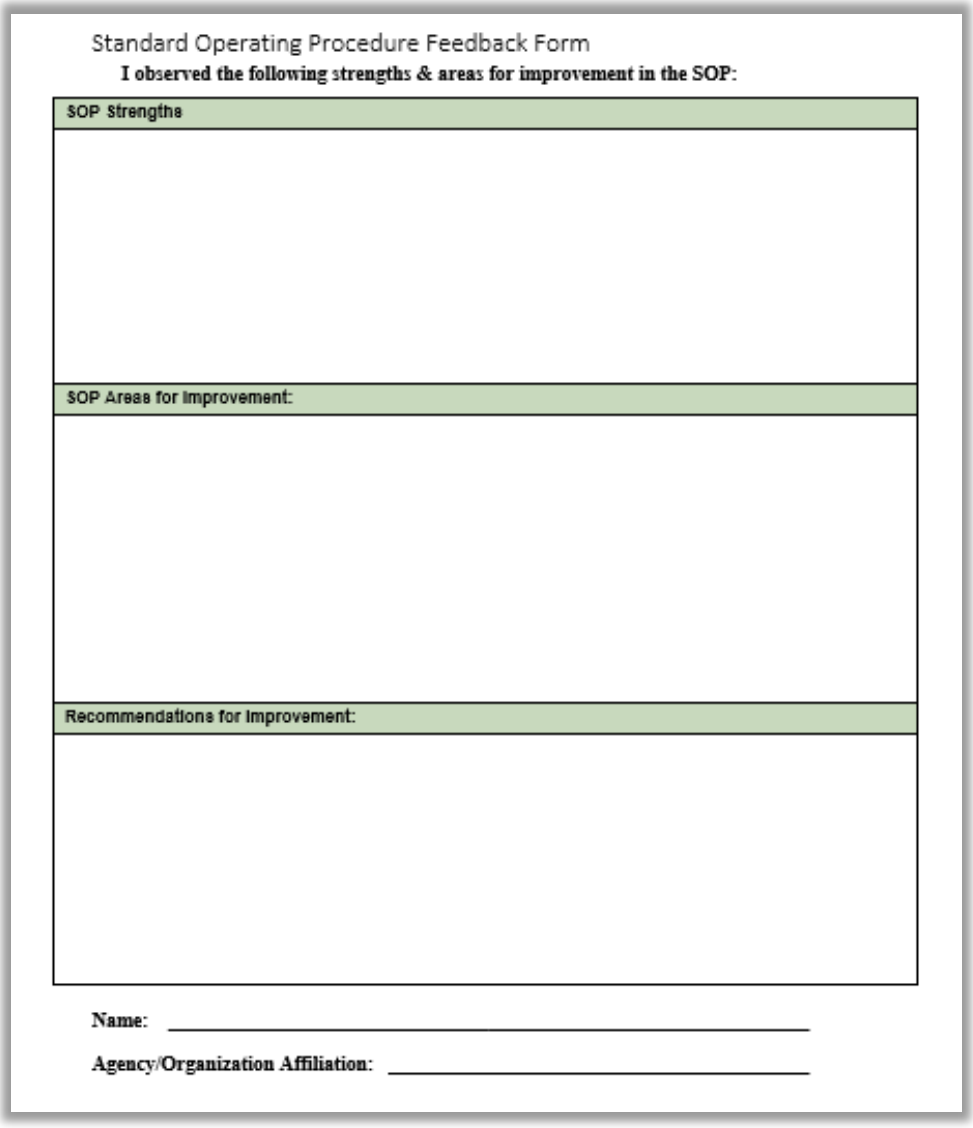
SOFIA AIRPORT DETECTION

Small Group Activity

For our next activity, you will split into three concurrent breakout groups. In your groups, we ask you to reflect on the SOPs using the three exercise scenarios we have covered in this TTX: Border Control Points, Green Border Mobile Detection System (MDS) Operations, and International Airport Detection.

This activity asks you to identify SOP strengths, SOP areas for improvement, as well as recommendations for improvement. During the activity, we utilize the same template we have been using throughout the exercise. We encourage you to reference the notes that you captured during the last two days as the basis for your breakout group discussions. Please share your key findings with each other.
We have extra feedback forms available should you require them.

Each group will nominate a spokesperson to brief the plenary on what was discussed during the breakout session.



Standard Operating Procedure Feedback Form

I observed the following strengths & areas for improvement in the SOP:

SOP Strengths
SOP Areas for Improvement:
Recommendations for Improvement:

Name: _____

Agency/Organization Affiliation: _____

Acronyms

Acronym	Term
AAR	After-Action Report
BCP	Border Control Point
CAS	Central Alarm Station
CNS	Counter Nuclear Smuggling
DOS	U.S. Department of State
EOD	Explosive Ordinance Disposal
HEU	Highly Enriched Uranium
MDS	Mobile Detection System
MFA	Ministry of Foreign Affairs
MOI	Ministry of Interior
MORC	Material Out of Regulatory Control
NII	Non-intrusive Imaging
NNFL	National Nuclear Forensics Library
NORM	Naturally Occurring Radioactive Material
POC	Point of Contact
PRD	Personal radiation detectors
RDD	Radiological Dispersal Device
RIID	Radioactive Isotope Identification Device
RPM	Radiation Portal Monitor
R/N	Radiological/Nuclear
SOP	Standard Operating Procedure
SPM	Spectroscopic Portal Monitor
SNM	Special Nuclear Material
TTX	Tabletop Exercise
WMDT	U.S. State Department Office of Weapons of Mass Destruction Terrorism