I. **PURPOSE**

Due to the increase of terrorist threats nationwide, the possibility exists of a radiological incident occurring within Loudoun County. To support early detection and respond to radiological/nuclear threats, the Loudoun County Sheriff’s Office employs radiation detection systems.

The purpose of this General Order is to establish policy and procedure regarding the use of Personal Radiation Detectors (“PRD’s”) and the preliminary investigation of illicit radiological materials.

II. **POLICY**

It shall be the policy of the Loudoun County Sheriff’s Office to deploy PRDs to personnel in the field for the purpose of detecting, verifying, locating, and measuring illicit radioactive material. All Sheriff’s Office personnel shall adhere to the following principles whenever radioactive materials are encountered to mitigate exposure:

A. **Time** – minimizing the exposure time reduces the dose from the radioactive source.

B. **Distance** – the intensity and dose of radiation decreases dramatically as the distance from the source is increased.

C. **Shielding** – material that absorbs or blocks radiation; thicker and denser materials create better shielding.

III. **PROGRAM DESCRIPTION**

The Preventive Radiological Nuclear Detection Program ("PRND") is a national and regional effort to detect, report, and deter any unauthorized attempts to import, possess, store, develop or transport illicit radiological/nuclear materials.

To achieve this effort, radiation detection equipment is deployed with law enforcement and fire service personnel in the National Capital Region through grant funding. There are two levels of detection:
A. The routine level is *Steady State*. During normal daily operations, a deputy sheriff passively detects, with a PRD, the presence of a source of radiation and will investigate its source.

B. The heightened awareness level, *Enhanced Steady State*, is typically adopted during a special event, where large crowds may gather. The awareness level may be switched to *Enhanced Steady State* because:

1. The special event requires additional security.
2. Intelligence dictates additional screening is necessary due to a threat.
3. Information dictates a radioactive source is likely to be present.

The deputy sheriff initiating an investigation based upon detection of a radioactive source has an established procedure to follow to locate the source that is causing the alarm. In the event the deputy sheriff is unable to locate the source cause for the alarm, additional resources may be required. Loudoun County Fire and Rescue’s (“LCFR”) HAZMAT Unit can provide advanced detection and identification of radioactive isotopes in support of this program and will provide access to additional technical resources.

IV. PRIMARY SCREENING

Only those personnel who have attended and successfully completed an agency approved course, Primary Screener/Personal Radiation Detector (PER-243), shall be permitted to operate a PRD.

A. PRD’s may be issued to any sworn member of the Sheriff’s Office, members assigned to the following units/programs shall take priority:

1. Traffic Safety Unit (Motor Unit, Crash Reconstruction Unit, Truck Safety Unit)
2. Explosive Ordnance Disposal (EOD)
3. Crime Scene Unit
4. Special Operations Section (“SOS”)

In accordance with training, PRD users shall adhere to the following protocols unless approved training subsequent to this General Order dictates otherwise:

B. PRD operators shall not change or alter the manufacturer’s default settings on the device and shall follow the manufacturer’s guidelines.
C. When an operator observes the PRD alarm, the operator shall transmit the following radio message to the Emergency Communications Center:

“Unit XX” … “I will be conducting a PRD investigation.”

Using terms such as “radiological” or “nuclear” over radio traffic, which are likely to incite panic in the public and/or press, shall be avoided.

D. Actions to Take if Elevated Radiation Levels are Detected

1. Observe surroundings

2. Note dose rate reading, when PRD vibrates and flashes, which indicates higher than background radiation levels

E. Verify the Alarm

1. Separate persons, packages/objects, or vehicles suspected of causing the initial alarm.

2. Buildings/areas: Leave the general area, then return to reacquire the alarm.

3. A verified alarm is one that is repeated with the same instrument or with another instrument. The preferred method of verification shall be to use another PRD; however, that may only be accomplished when an additional operator is readily available to respond for such assistance (i.e., does not require a call-out of personnel).

F. Locate Source Causing the Alarm

1. Pinpointing the source of the cause of the alarm is an overt act; consider involving another deputy for officer safety.

2. The PRD shall be left in the silent/vibrate mode. As the PRD moves closer to the radioactive material the intensity of the vibration will increase.

3. Observe initial reading:
   a. Conduct left-right scan
   b. Conduct rotational scan
   c. Conduct up-down scan
G. Measure the Dose Rate of the Source

1. Do not measure if:
   a. The source is a suspected explosive device. If an explosive device is suspected, immediately defer to EOD protocol.
   b. If the dose rate reading is 2 mR/h or higher, consideration should be given to cordonning off the area and creating safety zones (incident specific).
   c. The LCD displays “OL” (indicates a gamma radiation overload for the PRD: reading is greater than 10 R/h).
   d. There is spilled material.

2. Document the following (when feasible):
   a. Location and description of person, package, vehicle, building, etc.
   b. Highest dose rate reading found during the detect, verify, and locate processes
   c. Highest dose rate reading at approximately 1 meter from suspected object/item
   d. Include units in your report:
      (a) µR/h => micro Rem per hour
      (b) mR/h => milli Rem per hour
      (c) R/h => Rem per hour

3. After measuring the dose rate, the deputy should leave the vicinity of the suspect radiological material as soon as reasonably possible. Allow PRD to readjust to background radiation levels.

H. Assess

1. Assess the totality of the circumstances
   a. PRD dose rate reading
   b. Situation surrounding the alarm
   c. Behavioral/physical observations
I. Adjudicate

1. Adjudicate the alarm at the lowest level possible.

2. After consulting with a supervisor, request a Secondary Screener in a timely manner if necessary.

V. SECONDARY SCREENING

Determining the radioactive isotope requires the employment of a Radioisotope Identification Device (RIID) which is a function of LCFR. Whenever a PRD operator deems a secondary screening is necessary, he/she shall, in the following order:

A. Ensure that notification is made to the Weapons of Mass Destruction (WMD) Coordinator for the Washington Field Office (WFO) of the Federal Bureau of Investigation. Such notification may be made directly to the WMD Coordinator for the WFO or through the Joint Terrorism Task Force.

B. Request a response from the LCFR HAZMAT Unit for a “PRD Investigation.” HAZMAT personnel will follow protocol as dictated by LCFR policy. LCFR will take care of any notifications to the Virginia Department of Emergency Management and the Virginia Emergency Operations Center. Additionally, LCFR will handle any mutual aid requests for a Secondary Screener, should they be unavailable.

C. Request a response from the Criminal Investigations Division

D. Request that a Command Staff page be sent

VI. SCREENING AT SPECIAL EVENTS

A. Needs during special events will be determined based upon the nature of the event.

B. Background radiation levels shall be determined during pre-event screening to establish a baseline.

C. Whenever screening for radioactive sources at special events has been deemed necessary, typically through intelligence channels, such screening shall be done passively.

D. During any planning initiative where passive Primary Screening has been identified as a resource that will be deployed, Sheriff’s Office personnel shall coordinate with the LCFR HAZMAT Unit regarding the availability of Secondary Screening resources.

E. To ensure that medical patients are not needlessly re-screened during a special event, once a medical patient has been adjudicated, he/she shall be provided with documentation
(paperwork, wristband, badge, tag, etc.). However, should that same medical patient leave the venue, he/she shall be subject to re-screening upon re-entry.

F. All alarms during special events, regardless of final adjudication, shall be formally documented.

VII. STORING RADIOACTIVE / NUCLEAR MATERIAL

A. Under no circumstance shall a member of the Loudoun County Sheriff’s Office take possession of, transport, or store any radioactive material. The Virginia Department of Health, Division of Radiological Health maintains a duty officer who is available 24 hours a day to respond to radiological emergencies. Requests for that duty officer may be made through the Virginia Emergency Operations Center, by specifically asking for assistance from Radiological Health.

VIII. INVESTIGATION

A. The initial PRD operator, any assigned detectives, and any other assigned Loudoun County Sheriff’s office personnel shall work collaboratively with any Commonwealth of Virginia and/or federal assets that respond to an investigation of illicit radioactive material in Loudoun County.

B. Law enforcement does not have the authority to enforce regulatory violations. Whenever it appears that an individual is not in compliance with Virginia regulations, the Virginia Department of Health Office of Radiological Health shall be notified. Such notification shall be made through the same channels as found in Section VII of this General Order.

IX. DOCUMENTATION

A. The completion of formal documentation (Incident-Based Reporting) shall only be required for alarms that have been adjudicated as a threat or whenever non-compliance with Commonwealth regulations is discovered. The online Radiation Alarm Reporting form shall be completed as well.

B. For alarms that are adjudicated as not a threat, the completion of the online Radiation Alarm Reporting form, including synopsis, shall be completed. For alarms that are adjudicated as not a threat, but someone has been detained for more than 20 minutes, detailed notes shall be added to the call articulating the facts and the online Radiation Alarm Reporting form shall be completed.

X. MAINTENANCE

A. Daily functional checks shall be made against the High and Low Energy Function Test
Sheets which are located at each Substation, as well as at the Operational Support Division’s Operational Response Center, the Adult Detention Center, and the Court House.

1. If the PRD dose rate reading does not fall within the ranges of the High and Low Energy Function Test Sheets, reach out to the PRND team lead or PRD instructors for further assistance. The PRD may need to be calibrated or replaced.