

# Health Physics Work Instructions For Area F Parking Lot Survey

## OBJECTIVE

Perform walkover survey for Area F Parking Lot using Ludlum Model 239-1F (i.e., Floor Monitor) interfaced with Trimble GPS Pathfinder Pro XR for electronic data logging (i.e., survey results and GPS coordinates). The results of this electronically logged survey will then be mapped using Geographic Imaging System (GIS) software.

Data Quality Objectives (DQO) for this survey will be sufficient to document the Final Radiological Status Report requirement for scanning items. This survey is based on NUREG/CR-5849 requirements specified in RDP-ESH-007, Decommissioning Plan for the RMI Titanium Company Extrusion Plant, Section 4, Planned Final Radiation Survey. Follow-up surveys will be required using a 100 cm<sup>2</sup> active area probe to establish unconditional release criteria if the GPS/GIS survey measures activity greater than the DQO for the Floor Monitor.

## Data Quality Objectives (DQOs)

### Floor Monitor

The DQO for scanning survey using Ludlum Model 239-1F w/Model 43-37 Detector (434 cm<sup>2</sup> active area) is **5,000 dpm/100 cm<sup>2</sup>** above background (based on 25% of 5,000 dpm/100 cm<sup>2</sup> \* 434 cm<sup>2</sup>). This action level documents the sensitivity DQO of;

- 25% of 5,000 dpm/100 cm<sup>2</sup> averaged over a 1 m<sup>2</sup> area (based on Reg. Guide 1.86), and
- Maximum activity <15,000 dpm/100 cm<sup>2</sup>

### Follow-up Survey

A reading of >5,000 dpm measured with the Floor Monitor will require a follow-up survey using a 100 cm<sup>2</sup> scintillation probe (e.g., Endura™). This is necessary to make a direct correlation between the measured activity (i.e., dpm/100 cm<sup>2</sup>) and the DQOs based on NUREG 5849. The DQOs for the follow-up survey are;

- MDC <1,250 dpm/100 cm<sup>2</sup>
- <5,000 dpm/100 cm<sup>2</sup> average activity averaged over 1 m<sup>2</sup> surface area
- <15,000 dpm/100 cm<sup>2</sup> maximum activity

# **Health Physics Work Instructions For Area F Parking Lot Survey**

## **SCOPE**

These instructions provide the steps required to perform a scanning survey to document requirements for unrestricted release of the Area F Parking Lot. This survey will include;

- 1) 100% scan of parking lot surface using the Floor Monitor.
- 2) Removable contamination measurements.
- 3) Follow-up survey(s) using a 100 cm<sup>2</sup> active area scintillation probe (i.e., if action level is exceeded).

Each of these survey requirements are listed below.

### **Floor Monitor Measurements**

Perform and document the scanning survey according to procedure RDP-HP-60.052, Operating the Ludlum Model 239-1F Floor Monitor. This survey will include the following steps;

**NOTE** Electronically logged data will be plotted using GIS imaging software to provide a visual representation of the survey results.

- 1) Interface Floor Monitor with Trimble Pro XR™ GPS to provide electronic data logging of Floor Monitor results and GPS coordinates.
- 2) Scan 100% of the parking lot surface. Consider using a chalk line(s) to aid in covering 100% of the parking lot surface.

**NOTE** There is a delay between the measured surface activity and meter needle response

- 3) Listen to the audible response of the meter. If an elevated reading is detected, allow a minimum of 20 seconds to allow for maximum needle deflection at the location of the elevated reading.
- 4) Spray paint any locations that exceed the 5,000 dpm action level.
- 5) Document the survey results (i.e., background, measurements and locations for readings >5,000 dpm) on a RMIES Radiation/Contamination Survey Report.

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## **Follow-up Survey**

A follow-up survey is required for Floor Monitor measurements  $>5,000$  dpm. The follow-up survey will provide direct (total) contamination measurements using a  $100\text{ cm}^2$  active area plastic scintillation probe (e.g., Endura™). This survey will include;

- 1) 100% of the surface area within each  $1\text{ m}^2$  grid.
- 2) Scanning measurement will be performed at a distance of approximately  $\frac{1}{4}$  inch from the surface being measured, and a scanning speed of approximately 1 probe width/second.
- 3) The sensitivity for scanning measurements using the Alpha/Beta scintillation detector is assumed to be 1.5 times background. If elevated readings are detected, then stationary measurement(s) will be performed at the location(s) of the highest count rate.
- 4) Document the survey results on a RMIES Radiation/Contamination Survey Report.

## **Removable Contamination**

Smear measurements will be performed at each stationary measurement location. The required Minimum Detectable Concentration (MDC) for smear measurements is  $250\text{ dpm}/100\text{ cm}^2$  (i.e., 25% of release criteria).

## **Evaluation of Survey Results**

If all direct measurements are  $<5,000\text{ dpm}/434\text{ cm}^2$  (i.e., measured by Floor Monitor) or  $<1,250\text{ dpm}/100\text{ cm}^2$ , then the Area F Parking Lot meets the surface criteria unrestricted use.

If 1) direct measurement(s) are  $>1,250\text{ dpm}/100\text{ cm}^2$ , or 2) removable measurements  $>250\text{ dpm}/100\text{ cm}^2$ , then notify the Manager of Health Physics for additional instructions.