

# Field Technician Quick-Reference Checklist: Gamma-Ray Soil Moisture Scanner

System: Gamma-Ray Soil Moisture & Density Scanner | Form ID: CHK-GAMMA-RAY-SO-2026

|             |       |           |                    |
|-------------|-------|-----------|--------------------|
| Tech Name:  | _____ | Date:     | ____ / ____ / 2026 |
| Station ID: | _____ | Serial #: | _____              |

| #  | Verification Step / Action       | Target Parameter / Criteria                               | Status                                                         |
|----|----------------------------------|-----------------------------------------------------------|----------------------------------------------------------------|
| 1  | Radiation Survey Check           | Background exposure $<0.05\text{ mR/hr}$ at 1.0 m         | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 2  | Battery Voltage Test             | $12.0\text{--}14.5\text{ V DC}$ under operational load    | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 3  | Collimator Shutter Function      | Smooth open/close transit; positive lock in CLOSED        | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 4  | Photopeak Alignment              | Cs-137 peak centered at $662\text{ keV} \pm 5\text{ keV}$ | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 5  | Discriminator Window             | LLD = $600\text{ keV}$ , ULD = $720\text{ keV}$           | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 6  | Unattenuated Air Count ( $I_0$ ) | $I_0 \geq 10,000\text{ cps}$ , count stability $<0.5\%$   | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 7  | Standard Absorber Test           | Aluminum plate attenuation within $\pm 1.5\%$ target      | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 8  | MCA Dead-Time Verification       | System dead-time $<5.0\%$ during soil measurement         | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 9  | Probe Standoff Alignment         | Rigid $10.0\text{ cm}$ spacing; perpendicular face        | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |
| 10 | Post-Survey Radiation Sweep      | Collimator LOCKED; background normal at enclosure         | <input type="checkbox"/> Pass<br><input type="checkbox"/> Fail |

| FIELD OBSERVATIONS & INTERFERENCE LOG | PREPARED BY SIGN-OFF                                                                                                                           |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes / Anomalies:                    | <div>Prepared by: Kadeem Manning</div> <div>Title: Lead Field Specialist</div> <div>Signature: _____</div> <div>Date: ____ / ____ / 2026</div> |