

FIELD TECHNICIAN QUICK-REFERENCE CHECKLIST

Cosmic-Ray Neutron Sensor (CRNS) Field Inspection Checklist

DOCUMENT ID:	CHK-CRNS-RAD-001	EFFECTIVE DATE:	September 2026
TITLE:	CRNS Field Inspection Checklist	REVISION:	1.0
LEAD SPECIALIST:	Kadeem Manning	APPROVED BY:	Kadeem Manning

Step / Activity	Verification Procedure	Target Criteria	Status
1. Enclosure & Seal Audit	Inspect NEMA-4X box and blue desiccant pack.	Desiccant active (blue)	☐ Pass ☐ Fail
2. Battery & Solar Check	Measure 12V SLA battery terminal voltage and charge current.	12.6 to 14.2 V DC	☐ Pass ☐ Fail
3. High Voltage Bias Test	Measure detector tube HV bias voltage with high-impedance DMM.	1350 ± 10 V DC	☐ Pass ☐ Fail
4. Noise Discriminator LLD	Verify LLD threshold voltage on signal processing board.	LLD = 100 mV ± 5 mV	☐ Pass ☐ Fail
5. Barometer Verification	Compare CRNS barometric pressure reading against NIST standard.	Diff ≤ 0.5 hPa	☐ Pass ☐ Fail
6. RH / Temp Probe Audit	Audit internal shield RH/T sensor for vapor factor f_{wv} .	RH diff ≤ 3.0%	☐ Pass ☐ Fail
7. Unmoderated Tube Check	Verify bare/unmoderated tube count rate for thermal neutrons.	Bare/Mod ratio ≈ 0.15–0.25	☐ Pass ☐ Fail
8. Data Logger Storage	Verify 1-hour pulse integration logging to SD card.	Zero lost records	☐ Pass ☐ Fail
9. Cosmic Intensity Sync	Download f_i scaling factor from nearest NMDB station.	f_i factor active	☐ Pass ☐ Fail
10. Field Calibration Check	Audit gravimetric soil core calibration baseline N_0 .	N_0 = 1500–2500 cph	☐ Pass ☐ Fail

FIELD REMARKS & SITE OBSERVATIONS:

Station Name/ID: _____ CRNS S/N: _____
Elevation: _____ m Reference Pressure (P_{rel}): _____ hPa
Raw Epithermal Count (N): _____ cph Pressure-Corrected Count (N_{corr}): _____ cph
Calculated Field-Average Soil Moisture (ω): _____ kg/kg

PREPARED & VERIFIED BY LEAD FIELD TECHNICIAN	FIELD APPROVAL SIGN-OFF
Specialist Name: Kadeem Manning Title: Lead Field Specialist & Instrument Calibration Engineer Affiliation: Environmental & Dielectric Sensing Operations	Signature: _____ Date: _____ Status: ☐ PASS ☐ FAIL