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FIELD DEPLOYMENT STANDARDS // CLASS: CRITICAL SITE OPS

FIBER SPLICING STANDARD OPERATING PROCEDURES (SOP)

High-level guidelines for technicians handling core alignment, mechanical splicing, and optical time-domain reflectometer (OTDR) testing protocols.

DOCUMENT ID:	MERRA-SOP-FIBER-SPLI-2026
REVISION CODE:	REV. 4.02 // PRODUCTION
ISSUING DEPT:	ENGINEERING, INFRASTRUCTURE & SAFETY UNIT
SYSTEM STATUS:	APPROVED FOR GENERAL DEPLOYMENT [SYS_OK]

This guide covers field-level fiber optic splicing guidelines. Key topics include preparation and cable stripping, cladding cleanliness, fusion splicer arc profiles, core-alignment validation, heat-shrink sleeve positioning, and OTDR trace testing to document splice loss thresholds beneath 0.05dB.

STEP 1: FIBER PREPARATION.

Carefully strip the outer cable jacket and buffer tubes without nicking the optical fibers. Remove the water-blocking gel using specialized cleaning solvents, and strip the primary acrylate coating from the glass cladding using thermal strippers. Clean the bare fibers using 99% anhydrous isopropyl alcohol to remove all dust and residues.

STEP 2: PRECISION CLEAVING.

Utilize high-performance fiber cleavers to cut the glass at a strict 90-degree angle. Cleave quality is critical; any angle variance over 0.5 degrees will cause high splice loss. Inspect the cleaved fiber end-faces under a microscope for chips or dust before splicing.

STEP 3: FUSION SPLICING.

Position the fibers in the fusion splicer's V-grooves. Run the auto-alignment sequence and check for dust or defects. Core alignment splicers are preferred for long-haul backbones as they align the fiber cores directly, while cladding alignment is typically used for local FTTH networks. Execute the electric arc splice and record the estimated loss.

STEP 4: PROTECTION & TESTING.

Apply a heat-shrink protector sleeve reinforced with a steel strength member over the splice point and place it in the cooling tray. Secure the spliced fibers in the splice tray, maintaining a minimum bend radius of 1.5 inches to prevent micro-bend loss. Perform bi-directional OTDR trace testing at 1310nm and 1550nm to verify splice loss limits under 0.02dB.