DEDSTF – Lines Subgroup

Clearance Requirements DRAFT

Live Line

Sufficient space to maintain OSHA minimum approach distances in place at the date of project approval, either with or without tools, shall be provided. When live-line maintenance is anticipated, designs shall be suitable to support the type of work that will be performed (e.g., insulator assembly replacement) and the methods employed (i.e., hot stick, bucket truck, or helicopter work, etc.).

Clearance Requirements

The clearance requirements presented in this section of the standards will be maintained with the reference conductor at maximum sag and after experiencing the maximum loading conditions ("final" conditions). Maximum sag conditions may be experienced at maximum conductor operating temperatures or under NESC heavy ice conditions. For conductor-to-conductor clearances between different circuits, the upper conductor shall be at maximum sag and the lower conductor at "minimum" sag. Mimimum Sag is defined as 0 degree F, no wind, no ice, initial conditions. In the absence of the necessary data to perform this analysis, the lower conductor's position may be approximated by a straight line interpolation between the attachment points.

Clearances shall assume maximum operating voltages as defined in PJM Manual 3. Baseline Voltage Limits. Exhibit 3 section 3.3.1. The system transient overvoltage's (TOV) shall then be applied and any elevation factors added as specified in NESC.

Clearances between phase and grounded metal

NESC Rule 235 E?

Should include a minimum of 6" buffer or should include a buffer……

This requirement defines clearance minimums between the phase conductor and any grounded metal surface, such as the structure or shield wire.

Voltage	69kV	115kV & 138kV	230kV	345kV	500kV	765kV
Phase-ground clearance (in)		52	97		132	

Avian Considerations.

Design should incorporate considerations for avian affects. The use and/or reference to industry guidelines such as Aplic – Avain Powerline action Committee which contain protection plan guidelines as well as suggested practices should be included in the design of the facilities. Design should determine if there is a need to incorporate Avian considerations which could impact structure dimensions in areas where safe perching of birds has been an issue. Could materially impact the design of an overhead line.

Clearances to ground – Based on NESC Rule 232

All clearances over ground shall be set to accommodate vehicle access, plus a 3 foot clearance buffer at maximum sag. All terrain points shall be considered vehicle-accessible regardless of terrain changes or the presence of access roads.

Clearances to waterways – Based on NESC Rule 232

Clearances over Waters of the United States shall be based, at a minimum, on the NESC requirements in Rule 232, plus a 3 foot buffer. In the event that the Army Corps of Engineers (ACOE) determines higher clearances are required, the ACOE requirements shall be held, plus a 3 foot buffer.