

**§ 77.1434**

be retained until the rope is retired from service.

[48 FR 53241, Nov. 25, 1983; 48 FR 54975, Dec. 8, 1983, 60 FR 33723, June 29, 1995]

**§ 77.1434 Retirement criteria.**

Unless damage or deterioration is removed by cutoff, wire ropes shall be removed from service when any of the following conditions occurs:

(a) The number of broken wires within a rope lay length, excluding filler wires, exceeds either—

(1) Five percent of the total number of wires; or

(2) Fifteen percent of the total number of wires within any strand;

(b) On a regular lay rope, more than one broken wire in the valley between strands in one rope lay length;

(c) A loss of more than one-third of the original diameter of the outer wires;

(d) Rope deterioration from corrosion;

(e) Distortion of the rope structure;

(f) Heat damage from any source;

(g) Diameter reduction due to wear that exceeds six percent of the baseline diameter measurement; or

(h) Loss of more than ten percent of rope strength as determined by non-destructive testing.

**§ 77.1435 Load end attachments.**

(a) Wire rope shall be attached to the load by a method that develops at least 80 percent of the nominal strength of the rope.

(b) Except for terminations where use of other materials is a design feature, zinc (spelter) shall be used for socketing wire ropes. Design feature means either the manufacturer's original design or a design approved by a registered professional engineer.

(c) Load end attachment methods using splices are prohibited.

**§ 77.1436 Drum end attachment.**

(a) For drum end attachment, wire rope shall be attached—

(1) Securely by clips after making one full turn around the drum spoke;

(2) Securely by clips after making one full turn around the shaft, if the drum is fixed to the shaft; or

(3) By properly assembled anchor bolts, clamps, or wedges, provided that

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the attachment is a design feature of the hoist drum. Design feature means either the manufacturer's original design or a design approved by a registered professional engineer.

(b) A minimum of three full turns of wire rope shall be on the drum when the rope is extended to its maximum working length.

**§ 77.1437 End attachment retermination.**

Damaged or deteriorated wire rope shall be removed by cutoff and the rope reterminated where there is—

(a) More than one broken wire at an attachment;

(b) Improper installation of an attachment;

(c) Slippage at an attachment; or

(d) Evidence of deterioration from corrosion at an attachment.

**§ 77.1438 End attachment replacement.**

Wire rope attachments shall be replaced when cracked, deformed, or excessively worn.

**Subpart P—Auger Mining**

**§ 77.1500 Auger mining; planning.**

Auger mining shall be planned and conducted by the operator to insure against any hazard to underground workings located at or near such auger operations and all auger holes shall be located so as to prevent:

(a) The disruption of the ventilation system of any active underground mine;

(b) Inundation hazards from surface water entering any active underground mine;

(c) Damage to the roof and ribs of active underground workings; and

(d) Intersection of auger holes with underground mine workings known to contain dangerous quantities of impounded water.

**§ 77.1501 Auger mining; inspections.**

(a) The face of all highwalls, to a distance of 25 feet on both sides of each drilling site, shall be inspected by a certified person before any augering operation is begun, and at least once during each coal producing shift and all loose material shall be removed from the drilling site before persons