

MSHA Safety Alert

Nondestructive Testing & Wire Rope Examinations

MSHA conducted wire rope nondestructive testing (NDT) and inspections on hoisting ropes that had been determined safe for service as a result of a recent examination and found that these ropes had flaws and no longer met MSHA's in-service standards. Therefore, MSHA is recommending that mine operators use NDT when conducting required six month inspections of wire ropes. NDT equipment utilizes magnetic or ultrasound waves to view the inner workings of the rope without cutting into it, much like a CT scan or MRI. Loss of metallic area, flaws (broken wires and corrosion) and strength loss can be evaluated through NDT for the entire active length of a hoist rope. The following are best practices for mine operators to maintain wire ropes, including conducting nondestructive testing and examinations:



BEST PRACTICES

- Conduct wire rope NDT at least once every six months to identify deterioration including: wear, corrosion, distortion, broken wires and loss of metallic area.
- Review the wire rope NDT results to identify deteriorated portions of the wire rope that shall be visually examined more frequently.
- Examine daily any portion of the wire rope where a reduction of rope strength is present.
- Conduct wire rope examinations during daylight hours.
- Perform visual examinations at a rope speed no more than 50 fpm.
- Clean and remove old lubricant to conduct a thorough visual wire rope examination especially in high stress sections.
- Follow the rope manufacturer's guidance for proper lubrication. Use pressure lubricators to maintain proper lubrication at the core level.
- Correct mining conditions that cause corrosion to maximize hoist rope service life.
- Install and maintain wear blocks and rollers to minimize rope wear.



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