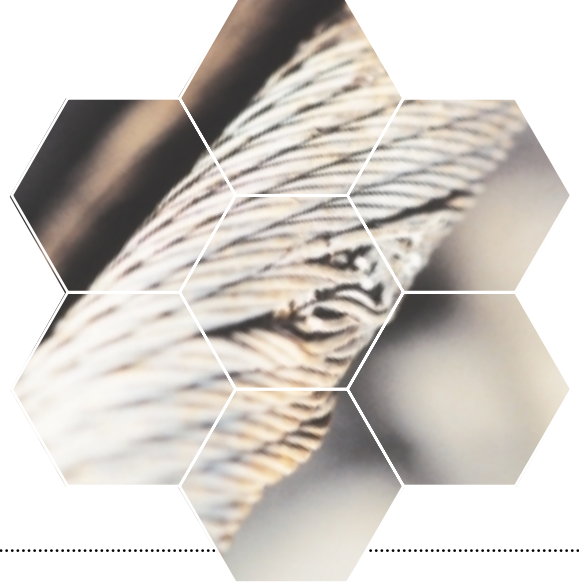


# Onsite...Insight

Putting the Pieces Together

Rockwood  
Service Corporation  
Longview Inspection Inc.  
Canspec Group Inc.  
Hellier Training Institute  
Sperry Rail Service

## Wire Rope Inspection



### Industries Served

Oil and Gas  
Pulp and Paper  
Power  
Pipeline  
Mining  
Fabrication  
Petrochemicals  
Aerospace  
Railroad

Rockwood Service Corporation is the fastest growing Materials Engineering and Inspection company in the world. Rockwood Industrial Services brings together Longview Inspection, Canspec Group, and Hellier Training Institute in order to provide comprehensive and responsive services to our clients. Rockwood Service Corporation also owns Sperry Rail Service, the world's leading provider of railroad track testing services. By "Putting the pieces together", we are ready to meet the ever changing needs of our clients, throughout the world.

Halkin, a world leader in wire rope inspection, joined Rockwood Service Corporation in February 2000 bringing another key service to the Rockwood group. Halkin provides NDT services that accurately identify rope defects, including those missed by visual inspection. Instrumentation "reads" the rope along its working length at any speed, identifying internal and external defects. Broken wires, corrosion, abrasion and other damage is detected and reported immediately and a formal computerized report is provided.

### Inspection Services

NDT services focused on wire rope inspection include three areas of specialization:

- Guyed Flares and Chimneys
- Tramways and Mine Hoists
- Steel Cord Conveyors

### Guyed Flare and Chimney Services

Guy wires are in constant motion and under constantly varying loads. They are exposed to the elements, sometimes extremely hostile. Inspection, lubrication and tensioning are essential to ensure safe operation and extend service life.

### Inspection

Electromagnetic instrumentation is used to measure the loss of metallic area (or LMA) and localized faults with out the need to climb the stack or take it out of service. The EM machine is pulled to the guy wire upper attachment and lowered to the bottom attachment using a rope tractor. Test results are recorded on a strip chart recorder and interpreted by the inspector. Defects or loss of metal are noted and summarized in a field test report. Formal reports are provided within approximately two weeks.



*Electromagnetic instrumentation installed on a guy for inspection*



Longview  
Inspection

Longview Inspection Inc.  
A Rockwood Company

# Wire Rope Inspection

## Lubrication

Proper lubrication will extend the life of the guy rope. The internal portion of the wire rope is subject to corrosion. A good penetrating lubricant will protect the inside and outside of the rope, while at the same time allowing the rope to "breathe" so that water, in the form of condensation can find its way out of the rope. Heavy grease coatings trap moisture and foreign material inside the rope and can lead to premature failure. Halkin uses a lightweight, penetrating, synthetic lubricant. This lubricant penetrates to the inner most wires to preserve and lubricate them while allowing the rope to "breathe".

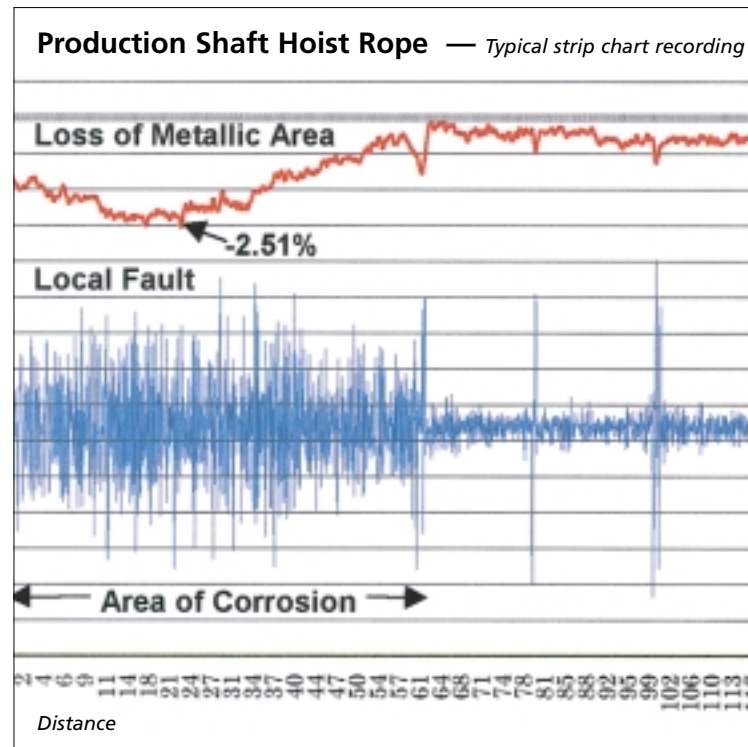
## Tensioning

Correct tensioning of guy ropes is necessary in order to insure adequate support of the stack. Halkin uses hydraulic equipment to tension the ropes to the correct

values in accordance with the manufacturer's recommendations. When tensioning the guy ropes, their current condition and strength are taken into consideration and the proper adjustments are made. "Before and after" tension data are included with the formal report. Halkin provides replacement rope installation services and installs ropes on new projects.

Wire rope needs inspection throughout its service life for:

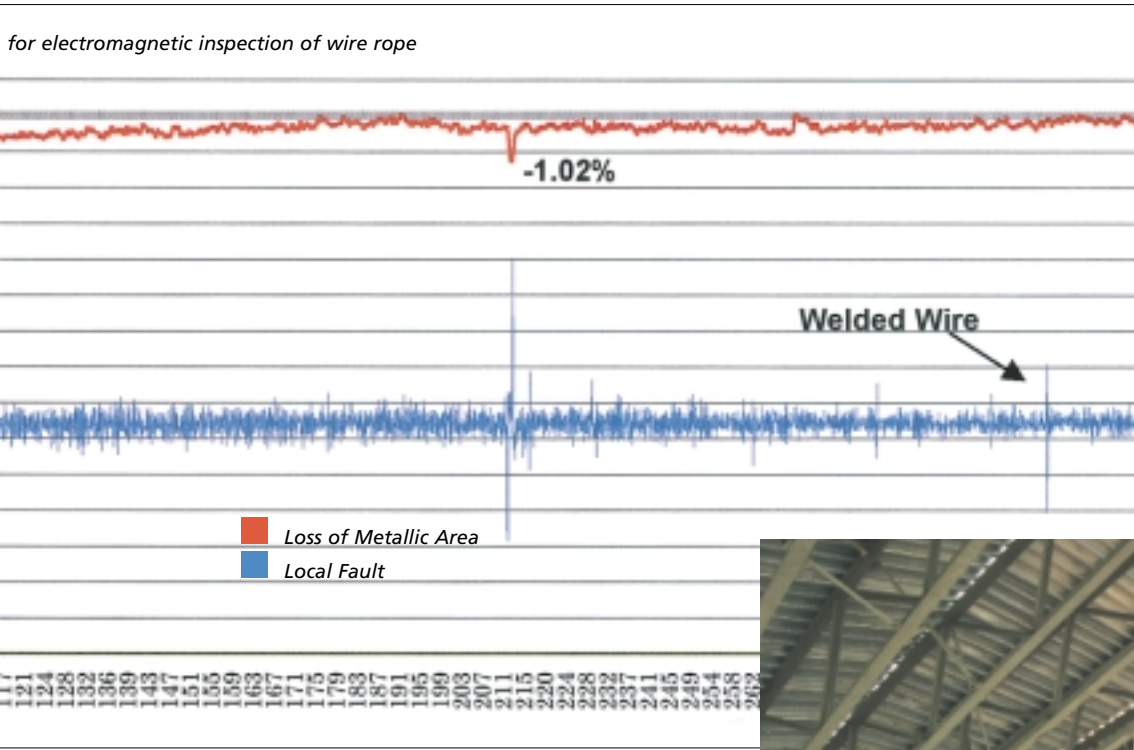
- Safety of personnel and operations,
- Protection against loss and liability,
- Economic and safe extension of rope life, and
- Satisfying regulatory agency requirements.



Lubricating tool applying synthetic penetrating lubricant



Tramway, New York State



Tensioning wire ropes at Ocean Journey Aquarium



**Tramways and Mine Hoists**

Public and industrial service tramways and mine hoists require constant inspection to ensure the safety of the general public and workers. Degradation identified during inspection can help to identify factors that will lead, eventual, to rope failure. The primary cause of wire rope failure is internal degradation through corrosion and fatigue, a condition that remains undetected by visual inspection. Arbitrary replacement of ropes based on service life may result in premature retirement due to inadequate knowledge and external factors. NDT will accurately diagnose rope conditions, helping to protect and extend the useful life of the wire rope investment.

In addition to the detection of broken wires, corrosion, abrasion and other defects, estimates of loss of strength, within  $\pm 3\%$  of initial strength, are provided. This allows

comparison of original design factors to present conditions and loads. Field and final reports are provided to document all results. Comparisons are made with past test results and "rope life" is extrapolated into the future to assist with the accurate scheduling of rope changes.

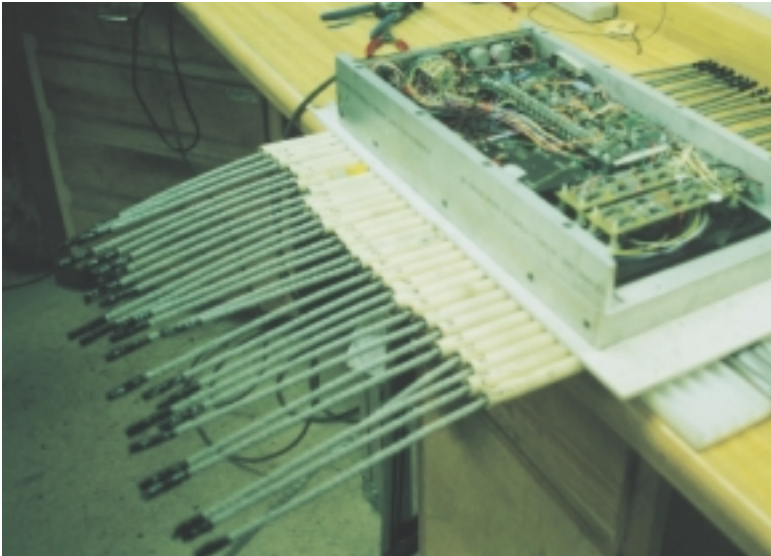
All inspectors are certified in accordance with ASNT and ASTM guidelines. Work is completed following Quality Assurance Manual procedures.

# Wire Rope Inspection

## Steel Cord Conveyor Belts

All belts wear, gradually losing work capability and service life. High speed inspection using magnetic flux leakage picked up by Hall Effect sensors identifies defects and changes in individual cord structures. Loss of metallic area and local faults are identified and our skilled technicians provide on-the-spot results and field reports.

Nondestructive testing provides accurate depiction of cord defects, including those missed by visual inspection. The portable instrument scans the belt along its entire length at normal operating speed. The inspection identifies broken and missing cords, localized internal damage, corrosion, wear, fatigue and compromises to splice integrity.



Calibration of high speed inspection device



Inspection of in-service conveyor belt at bauxite mine, western Africa

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