

“Haggie Hints”



by George Delorme
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Preparing “in-service” samples for testing

DISCUSSION:

During our rope training seminars, we have been outlining the best methods to prepare the “in-service” rope samples that will be sent to a laboratory for testing.

It has been suggested we reach out to the mines with this procedure so that we have more consistency in the sample preparation.

RECOMMENDATION:

With the conveyance suspended in the shaft at the collar elevation and working from a safety platform, the eight (8) foot section of rope that will be sent for testing is identified and marked.

Although a ten (10) foot sample is required for a FLC (Full Lock Coil) or HLC (Half Lock Coil) sample, for convenience and because there are very few cases where a FLC or HLC will have an “in-service” test, I will refer to only an eight foot sample in this bulletin.

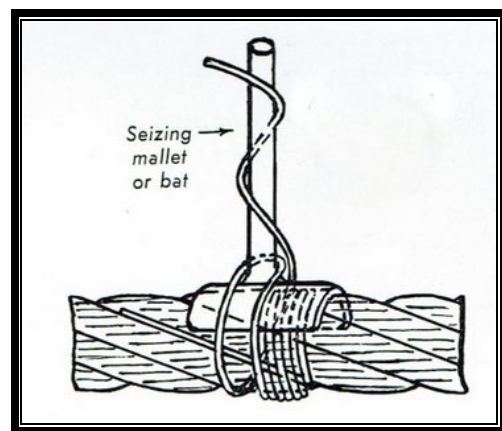
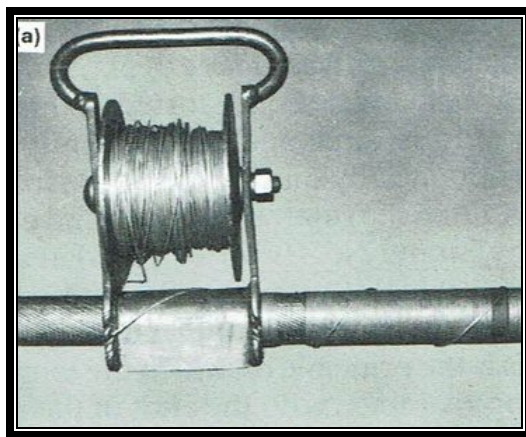
If the shaft is relatively wet and corrosive, it is possible that the section immediately above the conveyance will have corrosion pitting. This pitting will give a false result when the wire torsions are performed at the lab because while the test is designed to indicate remaining wire ductility, areas of surface imperfections will fail prematurely even though there may not be a loss in steel ductility. If a visual inspection indicates there may be corrosion pitting, it is recommended that you discard this section and send a sample from further up the rope that is more typical and representative of the general rope body that will remain in service.

It is also recommended that if possible, identify and clamp another 8 foot sample at the same time. One sample can be sent to the lab for testing while the second is stored in a dry inside storage area in case a "re-test" is required. The second sample should be well identified and dated but scrapped when the acceptable results from the first test are received.

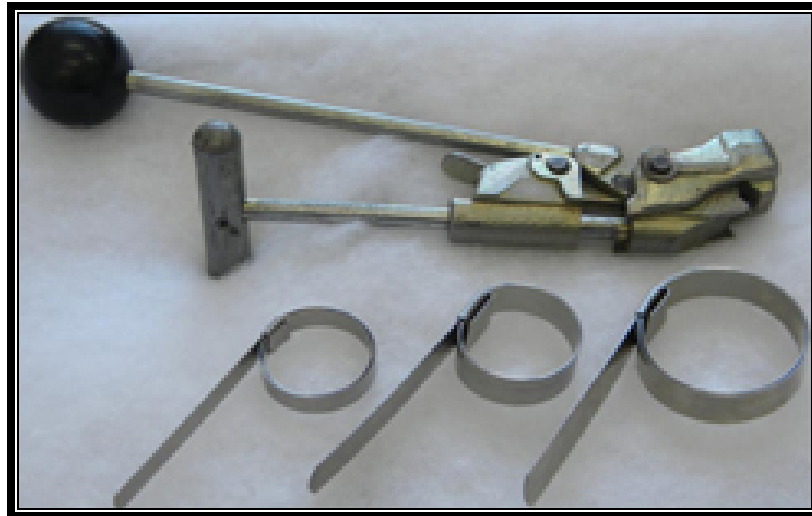
Once the 8 foot sample length(s) is identified, it should be secured to ensure that it will be shipped and tested in the "as is" condition.

The two methods of accomplishing this are either:

1. the application of wire Seizing (typical tools shown here)



2. Applying Punch-lok clamps using a Punch-lok Banding tool.
(Screw type "hose clamps" are NOT acceptable.)



Note: In order to be effective, either method should be performed while the rope is still hanging vertically in the shaft and supporting the weight of the suspended conveyance.

Theory:

The reason for securing or clamping the sample while it is under tension in the shaft, rather than at zero-tension on the collar deck, is to ensure that the clamping method is applied as tightly as possible thus minimizing the likelihood of testing a "Loose" sample.

By applying the wire seizing or punch lock bands to the rope while it is still under load, any on-tension diameter reduction is captured by the wire seizing or Punch-Lok Bands. This allows the rope to be sampled in its working state and helps to prevent any inadvertent compromise of sample integrity during the conveyance end cut process; i.e. chairing the conveyance, releasing torque, disconnecting the attachment, and maneuvering the rope to perform the cut.

While the application of wire seizing is very effective when performed properly, it requires a special tool and a skilled person performing the work

and is especially difficult and time consuming to do easily or comfortably on a vertical rope hanging in a shaft. For this reason, we highly recommend the use of Punch-Lok clamps applied with a P-1000 banding tool as the method of choice.

These clamps should be applied to cover the same area of coverage as for the wire seizing which is shown below in Figures 1, 2 and 3.

In addition, the first clamp should be placed 12.7 mm (0.5 in) from either end of the sample with the remaining clamps having a 3.175 mm (0.125 in) gap between them.

Once the conveyance is chaired and the end of the rope is laid out on the collar deck, the sample is cut using an abrasive wheel. Any excessive grease and/or contamination can be wiped off using a cloth.

Shipping:

The sample should be shipped to the lab in a fashion so that it is held securely in place and not disturbed during transport. The most effective methods are:

- Strapped to a wooden plank or in a box.
- Put inside a plastic tube with minimal clearance and with end caps securely fastened.

The sample also needs to be well identified with:-

- The Mine, Shaft and Compartment name.
- Reel number
- Original Test Number

Since this info is essential for the lab to properly identify the sample, the tag must be securely fastened to the sample and protected against the environment.

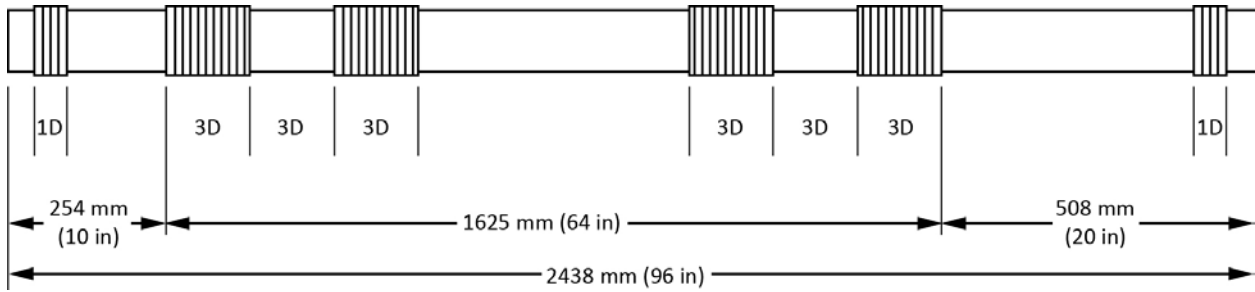
References:

To review all the complete requirements related to returning "in-service" samples, please refer to section 15 of the most recent CSA G4-15.

Credit Statement (Figures 1, 2 & 3) – *"With the permission of the Canadian Standards Association (operating as CSA Group), material is reproduced from CSA Group standard, 'G4-15 – Steel wire rope for general purpose and for mine hoisting and mine haulage', which is copyrighted by CSA Group, 178 Rexdale Blvd., Toronto, ON, M9W 1R3. This material is not the complete and official position of CSA Group on the referenced subject, which is represented solely by the standard in its entirety. While use of the material has been authorized, CSA Group is not responsible for the manner in which the data is presented, nor for any interpretations thereof. For more information or to purchase standards from CSA Group, please visit <http://shop.csa.ca/> or call 1-800-463-6727"*

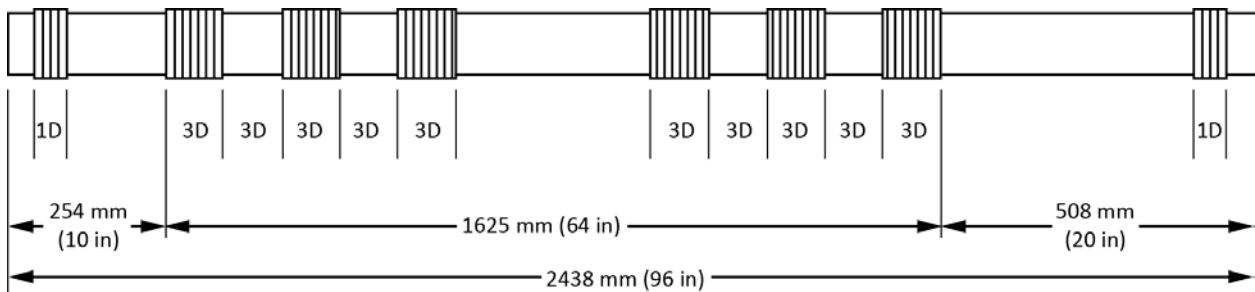
Figure 1

Seizing requirements for 6 and 8 strand ropes



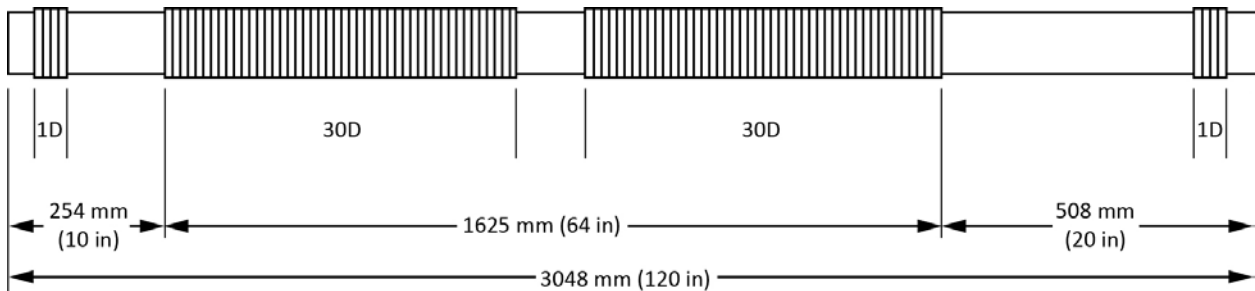
Note: The 254 mm (10 in) long sample for torsion testing and visual examination comes from the 508mm (20 in) end and 1 x D seizing is provided at each end of the 2438 mm (96 in) sample.

Figure 2
Seizing requirements for rotation-resistant ropes



Note: The 254 mm (10 in) long sample for torsion testing and visual examination comes from the 508mm (20 in) end and 1 x D seizing is provided at each end of the 2438 mm (96 in) sample.

Figure 3
Seizing requirements for Half and Full Locked coil ropes



Note: The 254 mm (10 in) long sample for torsion testing and visual examination comes from the 508mm (20 in) end and 1 x D seizing is provided at each end of the 3048 mm (120 in) sample.