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Approval and use of scanner scaling for payment in British Columbia

Experiences so far

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Outline

- Scanner scaling introduction
- The steps in obtaining scanner scaling regulatory approval
- Scanner scaling pilot project

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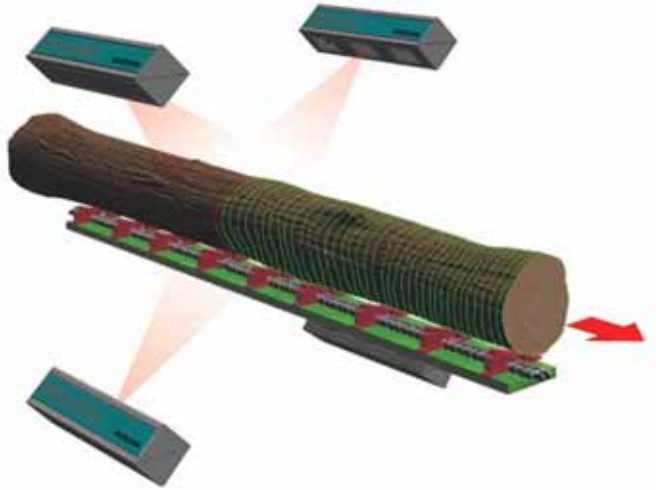
3D laser log scanner

- Determine volume of a log
  - Scanner heads emit a low power laser line on the log‘s surface.
  - Cameras in the scanning heads produce a 3 dimensional image of the log.
  - Scanner system produces accurate measurements of log diameter and length.



Images courtesy of Springer- Microtec

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Regulatory agencies

- Measurement Canada
  - Responsible for testing and certifying scanners

- Canadian Standards Association (CSA)
  - Developed a national scanner scaling standard

CSA Group

- British Columbia Ministry of Forests Lands and Natural Resource Operations
  - Developed scanner scaling procedures to meet existing scaling requirements

BRITISH COLUMBIA

Ministry of Forests, Lands and Natural Resource Operations

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Measurement Canada certification

- Measurement Canada must certify scanners (Timber Dimension Measuring Device) if the scaled volume is used for trade.
- Certification requires testing the scanner at :

1. Measurement Canada's Ottawa lab

2. The installation site

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First scanner approved by Measurement Canada

- Measurement Canada (MC) certifies Springer - Microtec's Logeye 100 scanner at MC's Ottawa lab (Sept. 2015)
- Springer - Microtec's scanner is installed at Interfor's Acorn sawmill. MC tests and certifies it (Oct. 2015)
- The B.C. provincial government authorizes a scanner pilot project at the Acorn sawmill

Scanner scaling pilot project

- Pilot project started at Interfor's Acorn sawmill located in Delta B.C.(February 2016)
- The scanner scaled volume is an official B.C. scale.
- The scale is the basis for paying contractors and government stumpage.

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Pilot project log sort and source

- Provincial regulations require:
  - pre-sorted logs to the mill's specifications ("standard sort")
  - Hemlock/balsam or second growth Douglas-fir logs
- Logs are harvested, processed and sorted to mill specifications. Then hauled to a log dump at tidewater.

Transporting logs to the mill

- At the log dump they are put in bundles.
- Bundles are put in booms
- Booms are towed to the marine storage area and then the Acorn sawmill

Scanning at the mill

- At the mill bundles are broken down and logs placed on the log deck
- Logs are debarked and scanned.
- Logs enter the mill inventory after scanning

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Provincial regulations require that scale volume is linked to the harvest site

- Logs are linked to the harvest site by a “Timbermark”
- To ensure scaled volume is linked to the harvest site, the pilot project regulations require all logs in a boom have the same timbermark
- Interfor developed procedures for ensuring the scaled volume of one boom is kept separate from the next boom

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Measuring top and butt diameter

- The scanner does not measure top and butt diameter at the actual log ends because:
  - Log ends often have splits or other damage
  - Butt end can be irregular shaped or flared

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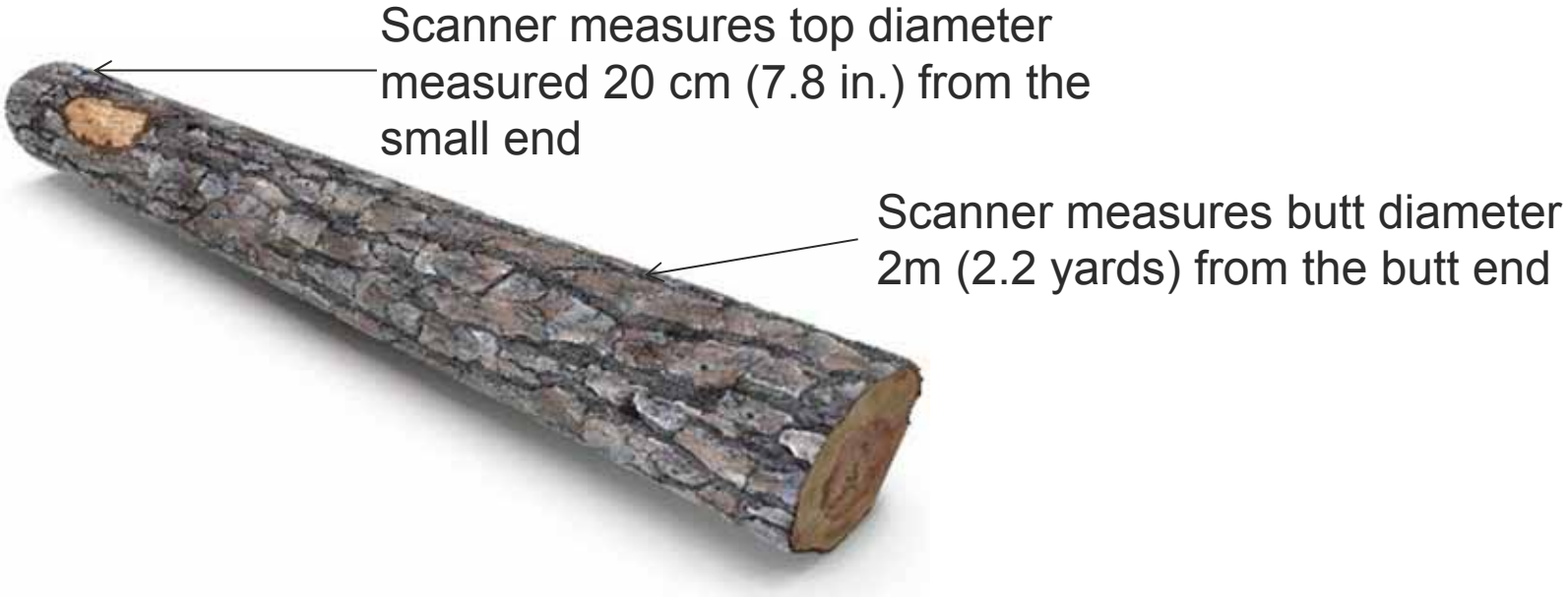
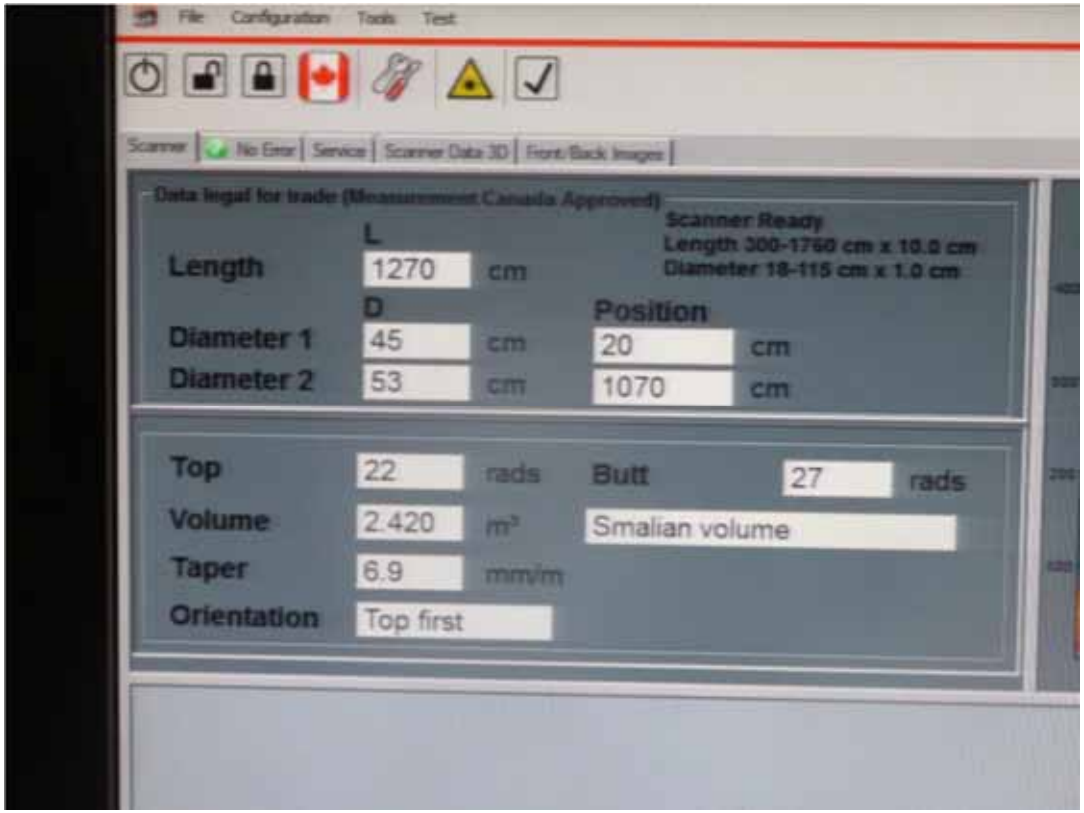
Scanner Measurements on diameter



- Log taper is calculated from diameters measured every 10 cm along the log
- Apply taper to determine log diameter at top and butt of log.
- Example: taper = 1cm/m (0.4 in/1.1yard)
- Measured butt diameter at 2 m = 40 cm (15.7 in.)
- Actual butt dimeter = 40 cm + (1cm/m X 2m) = 42 cm (16.5 in.)

Scanner volume

- Volume is calculated using Smalians formula
- Gross volume = net volume, no deductions for defect, i.e. rot, missing wood
- Logs destined for the scanner have very little defect



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Determining species and grade

- Scanner only measures volume
- Species and grade determined by piece scaling sample bundles at sortyard
- Sample bundle species and grade volume ratio is applied to scanner volume
- Sampling frequency for hemlock/balsam sort = 1 bundle in 42

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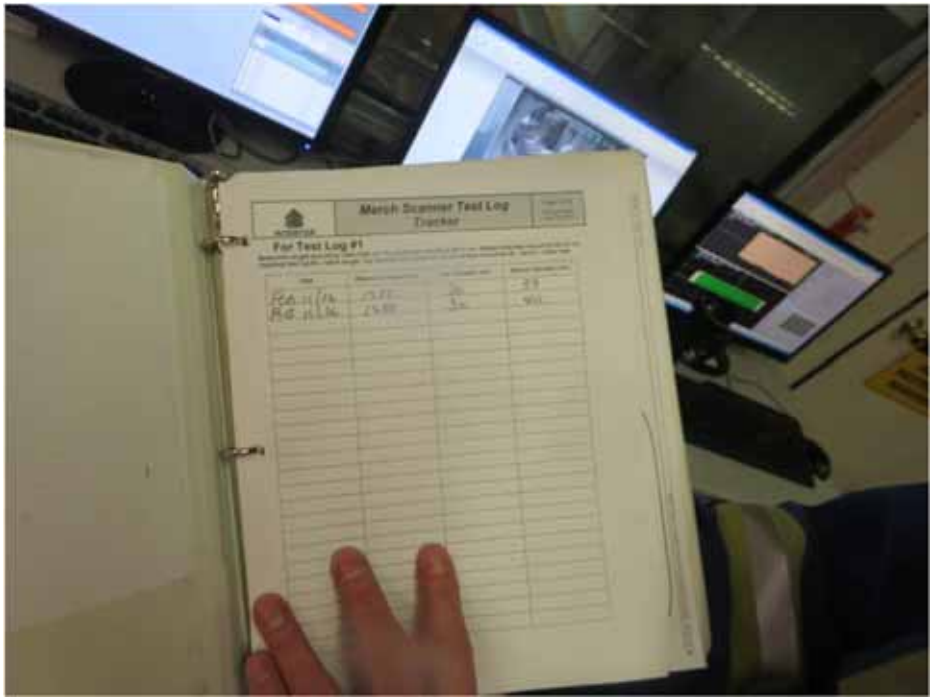
Scanner accuracy testing

- Before starting a new boom a manufactured pole (test log) of known dimensions is run through the Acorn scanner.
- Scanner accuracy is verified and test log measurements are recorded in a log book



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Savings from scanner scaling

- Estimated savings from scanner scaling are $8.00 m^3 ($1.76 MFBM)
- Savings come from reduced log handling. Logs are **not :**
  - Dewatered
  - Stick scaled.
  - Re-bundled and re-boomed
- Logs go directly from the harvest site to the mill where they are scanner scaled.

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Outlook for scanner scaling In British Columbia

- Interfor plans to scanner scale about 80,000 m^3 (17,660 MFBM) this year and more next year.
- Another coastal forest company is very interested in scanner scaling.
- One interior based company is considering converting their unused mill merchandising decks to scanner scaling stations.
  - Scanner would scale sample loads used in the their weight scale system

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Summary

- Measurement Canada has certified Springer-Microtec's Logeye 100 scanner
- Scanner scaling pilot started at Interfor's Acorn sawmill
- Acorn mill scanner scaled volume is an official scale used for payment to contractors and stumpage.

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