Q. ***Re: Tab 4.4 - Rebuild Distribution Lines Update***

Please provide details of Newfoundland Power's preventative maintenance program referred to at page 2.

A. **Overview**

Newfoundland Power's preventative maintenance program is intended to ensure safe and reliable operation of the electrical system. Scheduled inspection and maintenance activities are undertaken on all distribution lines owned by Newfoundland Power. In its present form, the preventative maintenance program has been in place since 2004.

Distribution Line Inspections

Distribution line inspections are completed by qualified employees familiar with the operation, maintenance and construction of utility lines. Distribution line inspectors are responsible to inspect lines thoroughly with a focus on identifying potential public and employee safety hazards, environmental hazards, and risks to system reliability. Line inspectors are trained to ensure a consistent standard is employed to all inspections.

All overhead primary distribution lines are required to have a minimum of one detailed ground inspection every seven years. Distribution vegetation inspections are completed every three and a half years for brush clearing and tree trimming. Distribution pad mounted transformers are inspected annually.[1]

Distribution line inspections evaluate the condition of the following components:

- Support Structures[2] - Wood Poles, Steel Towers, Anchors and Guys
- Hardware - Cross Arms and Braces, Platforms
- Insulators - Polymer Type, Porcelain Type
- Conductor – Primary, Neutral, Stirrups/Leads/Primary Connections, Underground Cables, Conduit and Guards
- Primary Devices - Pole Mounted Transformers, Metering Tanks, Lightning Arrestors, Capacitors
- Switches – Cutouts, In-Line Switches, Gang Operated Switches
- Vegetation and Right of Way - Brush Clearing, Tree Trimming, Encroachments

Each component is analyzed from the perspectives of public and employee safety, reliability and environment to determine if action is warranted.

[1] Distribution lines scheduled for a detailed ground inspection, a vegetation inspection and pad mount transformer inspections in the same year undergo a single combined inspection for all 3 activities.

[2] Under the Joint Use Agreement Bell Aliant is responsible to inspect their support structures. Newfoundland Power's line inspectors are responsible to inspect the hardware, insulators, conductor, primary devices and switches on joint use lines owned by Bell Aliant.

When recording a distribution line deficiency, inspectors collect as much information as possible to assist in planning follow up work. This may include:

- the type of deficiency
- the priority of the deficiency[3]
- outage requirements including the type and number of customers affected
- considerations such as whether the deficiency is near a school, hospital, etc
- materials required for repair
- traffic control requirements
- whether the site is truck accessible
- environmental concerns

Preventative Maintenance

All deficiencies identified through the distribution line inspections are assigned a priority classification based on the condition of the component inspected.[4] The response time to address the deficiency is based on priority and ranges from an immediate response to including the deficiency in the following year's Rebuild Distribution Lines capital project.

During a distribution line inspection minor repairs such as the following may be completed by the inspector:[5]

- Reattach or replace a missing guy guard
- Reattach or replace a missing ground cover
- Add staples to an unsecured ground wire or ground cover

It is not the intent of the preventative maintenance program to bring all existing plant up to the current construction standards. It is also not the intent to record every minor deficiency if it does not warrant a repair.[6]

Concluding

The Company owns and operates in excess of 9,000 km of distribution line in both rural and urban environments. The preventative maintenance program, using regular inspections of distribution lines and timely repair of identified deficiencies, will minimize risk to public and employee safety, the environment and system reliability.

[3] Examples of higher priority work include the replacement of automatic sleeves and porcelain cutouts on the main trunk of distribution feeders. Examples of lower priority work include the replacement of 2- piece insulators and porcelain cutouts not showing signs of failure, or the installation of lightning arrestors and current-limiting fuses,

[4] To assign a priority to a deficiency, the inspector must take into consideration public and employee safety, the criticality of the line (radial or loop, number and type of customers, load, etc.) and the physical location of the line (populated or remote area, near existing roadways or cross-country, etc.).

[5] The inspector will typically have the required materials on hand to complete minor repairs.

[6] For example, if the inspector determines that a minor chip in a pole does not undermine the strength of the pole and poses no danger to public or employee safety, reliability or the environment, then it is not entered into the maintenance system as a deficiency.