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4A-hann-101 By year 2008-2017 A)What are the results of the inspections by major components affecting reliabiliy? B) What corrective action is undertaken to ensure reliability? C) What was the time frame for these actions?

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4B-hann-102 A) Is insulator washing targeted or on a cycle program? B) Does THESL wash when needed due to weather conditions? C) Does THESL wash more in high contaminated areas? D) What impact does washing have on reducing the number of interruptions?

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4A-hann-133 A) Is vegetation management targeted or on a cycle program? B) Does THESL manageme vegetation when needed due to weather conditions, growing seasons, species of trees? C) Does THESL do vegetation management more in densely treed areas? D) What impact does vegetation management have on reducing the number of interruptions?

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4A-hann-103 There are 0.6 defiencies/cir km is the high or low compared to other utilities BM by year 2008-2017?

4A-hann-104 How does the inspector know how old the equipment is (especially if it has been replaced during an interruption)?

4A-hann-105 A)What does a deficiency in a switch look like as a result of aging? B)Or a conductor? C) Is there corrosion on new and old equipment?

4A-hann-106 How many wood poles have failed (by year 2008-2017) without external forces being applied e.g. motor vechile, trees etc. ? to put another way, just due to wind or ice and no other influences?

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4A-hann-134 How many “aged” poles were there between 2015 and 2017 that THESL deemed needed replacment?

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4A-hann-107 What is the Avgerage BM cost by year 2008-2017 of Overhead Line Patrols and Pole Inspections Segment Costs compared to THESL?

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4A-hann-108 A) Does washing on a cycle basis adequately protect the assets? B) Do interruptions occur because the insulators are not washed when “The
10 accumulation of dirt and salt, combined with moisture (during misty or foggy days),
So that leakage of electricity across the insulator occurs?

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4A-hann-109 A)In 2015-2017 on average how long did it take from the identification of a deficiency to the correction of the deficiency? B) What deficiencies were addressed immediately by the inspector?

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4A-hann-110 There were 38 power interruptions per year due to switch failure. A) Does this mean failure to operate when it should have operated? B) What type of switches were involved? C) Where were the switches located on the feeder?

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 1 ORIGINAL
Page 21 of 40 Figure 9: Example of Overhead Switch Impact on System Reliability
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4A-hann-111 According to the diagram Figure 9: Example of Overhead Switch Impact on System Reliability , are the fused switches properly coordinated to capture the interruption at the proper location or are the interruptions not captured at the fault location but at a location that affects many more customers?

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4A-hann-112 Given the weather conditions in February 2015, A) should the insulators have been washed to prevent the contaminant build up? B) How does cycle washing solve the contaminant issue when there is little rain to wash the insulators naturally?

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Pg 78

4A-hann-113 There are 4000 deficiencies per year 2015 -2017. A) How many impact on the operation of the devices and system reliability and how many are like "warning signage have2 been vandalized,"? B) How many are addressed immediately e.g. new warning sign, new locks etc.?

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 5
ORIGINAL Figure 3: Fallen Tree on Power Lines from November 15, 2017 Wind Storm
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4A-hann-114 A) What is the root cause of the interruption in Figure 3: Fallen Tree on Power Lines from November 15, 2017 Wind Storm according to the THESL training guide?

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4A-hann-115 A) What is the criteria for invoking mutual assistance from other utilities and contractors?
B) How often has THESL requested assistance?
C) How long did it take to request assistance from the beginning of the storm?
D) How long did it take for assistance to arrive?

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 5ORIGINAL
Page 10 of 18 Figure 6: Examples of Wind 1 Damage Recent 2018 Storm
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4A-hann-116 A) Did THESL do a post storm analysis on the failures shown in Fig 6?
B) Were the class of poles the correct size for all the conductors and cable attachments on the poles?
C) How old were the poles?
D) If no post storm analysis was done on Figure 6: Examples of Wind 1 Damage Recent 2018 Storm failures, are post storm analysis done on other events? Please provide the results of those analysis for major interruptions.

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4A-hann-117 The evidence states “Throughout the incident, Toronto Hydro had approximately 210 staff and contractors 13 working during a given shift to restore impacted customers, with about 21 dedicated emergency management team members during a given shift 1 to coordinate response 2 activities.”.

Please provide in a table dates, numbers of interruptions, numbers of customer interruptions, staff and contractor level per shift, number of emergency management team members, indicate mutual assistance and/or Level 3 Emergency and type of event for all events from 2009-2018 YTD where Mutual Assistance has been requested or Level 3 Emergency has been declared.

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 6
ORIGINAL Figure 1: Damage Caused by Toronto Ice Storm in April 2018
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Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 6
ORIGINAL Figure 3: Damage Caused by Toronto Wind 1 Storm in June 2018
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4A-hann-118 A) How does THESL propose that capital replacement of aging poles and hardware will prevent an interruption as shown in Figure 1: Damage Caused by Toronto Ice Storm in April 2018 and Figure 3: Damage Caused by Toronto Wind 1 Storm in June 2018? B) How much of the urban tree canopy in the service territory is invasive species such as the Norway Maple with a limited life span? C) Is the urban tree canopy more vulnerable in certain areas of the service territory?

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 6
ORIGINAL Figure 2: Damage Caused by Toronto Wind Storm in April 2018
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4A-hann-119 Was the cause of the interruption in Fig 2 tree contact or defective equipment according to THESL training processes?

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 9
ORIGINAL Figure 1: Value of Scopes of Work 1 (Renewal, Service, Access)
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4A-hann-120 A) Has THESL considered non capital solutions for maintaining distribution reliability (e.g. fuse coordination/protection), enhanced vegetation management, or other programs besides capital to

replace aging assets (Figure 1: Value of Scopes of Work 1 (Renewal, Service, Access))? What were the results?

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ORIGINAL
Page 16, 17 of 37 Figure 2: lines 9-17Number of Deficiencies Processed

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4A-hann-121 Figure 2: Number of Deficiencies Processed shows about 6000 to 8000 Executable work deficiencies annually. Even with cancelled inquiries the value does not reach 29000. A) Please explain what the 29000 deficiencies are. B) Also, how many of the Executable Work are significant, in that they may affect the reliability of the system. (e.g. not missing signs)

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4A-hann-122 Please provide a sample of the Changeout Forms used for Figure 3.

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4A-hann-123 A) How does the person filling out the form know the detail of the existing equipment? B) How many forms were for planned and reactive work from 2015 to 2018**.**

Toronto Hydro-Electric System Limited EB-2018-0165 Exhibit 4A Tab 2 Schedule 9
ORIGINAL
Page 23 of 37 Figure 5: Number of Failed Equipment Returned from the Field

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4A-hann-124 A) Do the numbers and types of failed equipment in Figure 5: Number of Failed Equipment Returned from the Fieldcorrelate with the number of Defective Equipment Interruptions? B) Why or why not?

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ORIGINAL

Page 8 of 10 lines 1-8

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4A-hann-125 A) Does the GPS in the truck record where the work was actually performed? B) If yes, is that data used to identify the trouble spots on the feeder instead of the interrupting device?