

1 **Q. (Reference Application)**  
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3 **Please provide a detailed timeline and costs beginning January 2018 to the**  
4 **present covering all work, inspections, oil samplings and notifications relating**  
5 **to the MUN Substation.**  
6

7 A. Table 1 provides a detailed timeline from January 2018 to March 2023 covering all work,  
8 inspections, oil samplings and notifications relating to MUN Substation.<sup>1</sup>

Table 1 Detailed Timeline of MUN Substation Work (January 2018 – March 2023)	
Date	Activity
2018-01-09	MUN Substation Inspection (Short)
2018-01-11	Infrared Scan
2018-02-25	MUN Substation Inspection (Long)
2018-03-28	Install New Battery Bank
2018-04-18	MUN Substation Inspection (Short)
2018-04-19	Battery Capacitance Testing
2018-06-12	MUN Substation Inspection (Long)
2018-06-12	MUN-T1 Transformer Main Tank Oil Sample
2018-07-11	MUN-TB-1-2 Breaker Full Maintenance
2018-07-24	MUN-T1 Full Maintenance
2018-08-21	MUN Substation Inspection (Short)
2018-08-22	MUN-14L-B Breaker Oil Sample
2018-09-17	MUN Substation Inspection (Short)
2018-11-27	MUN-T1 Protection Inspections
2018-11-29	MUN Substation Inspection (Long)
2018-12-20	MUN-12L-B Breaker Oil Sample
2018-12-20	MUN-T1 Transformer Main Tank Oil Sample
2018-12-20	MUN-T2 Transformer Main Tank Oil Sample
2019-01-25	MUN Substation Inspection (Long)
2019-01-28	Infrared Scan
2019-02-21	MUN Substation Inspection (Short)

<sup>1</sup> Table 1 reflects the end date of each activity. For example, full power transformer maintenance can require several weeks to complete. Table 1 shows the date at which all maintenance was recorded as completed in Newfoundland Power’s asset management technology.

**Table 1**  
**Detailed Timeline of MUN Substation Work**  
**(January 2018 – March 2023)**

Date	Activity
2019-04-17	MUN Substation Inspection (Long)
2019-05-10	Battery Capacitance Testing
2019-05-22	MUN Substation Inspection (Short)
2019-06-10	MUN-T1 Transformer Main Tank Oil Sample
2019-07-29	MUN Substation Inspection (Long)
2019-09-09	MUN Substation Inspection (Short)
2019-10-03	MUN-14L-B Breaker Oil Sample
2019-10-04	MUN Substation Inspection (Long)
2019-12-06	MUN Substation Inspection (Short)
2019-12-18	MUN-14L-B Breaker Oil Top Up
2020-01-03	MUN-12L-B Breaker Oil Sample
2020-01-03	MUN-T2 Transformer Main Tank Oil Sample
2020-01-30	Infrared Scan
2020-02-16	Infrared Scan
2020-03-18	MUN Substation Inspection (Short)
2020-03-18	MUN-T1 Transformer Main Tank Oil Sample
2020-04-17	MUN Substation Inspection (Long)
2020-04-28	MUN-T1 High Voltage Bushing Replacement
2020-05-05	Battery Capacitance Testing
2020-05-05	MUN-T1-B Full Maintenance
2020-05-07	Electromechanical Relay Testing
2020-05-14	Infrared Scan
2020-05-14	Install New Battery Heater
2020-05-25	MUN-T2-B Full Maintenance
2020-06-26	MUN Substation Inspection (Short)
2020-07-08	MUN Substation Inspection (Long)
2020-07-21	MUN-T2 Full Maintenance
2020-08-21	MUN Substation Inspection (Short)
2020-10-16	MUN Substation Inspection (Long)
2020-10-16	MUN-14L-B Breaker Oil Sample
2020-10-16	MUN-T1 Transformer Main Tank Oil Sample

<b>Table 1</b> <b>Detailed Timeline of MUN Substation Work</b> <b>(January 2018 – March 2023)</b>	
<b>Date</b>	<b>Activity</b>
2020-12-02	Infrared Scan
2020-12-02	MUN Substation Inspection (Short)
2021-01-25	MUN-12L-B Breaker Oil Sample
2021-01-25	MUN-T2 Transformer Main Tank Oil Sample
2021-03-26	MUN Substation Inspection (Short)
2021-04-26	Battery Capacitance Testing
2021-04-26	MUN-T1 Transformer Main Tank Oil Sample
2021-04-27	MUN Substation Inspection (Long)
2021-06-11	MUN Substation Inspection (Short)
2021-10-19	MUN Substation Inspection (Long)
2021-10-19	MUN-14L-B Breaker Oil Sample
2021-10-19	MUN-T1 Transformer Main Tank Oil Sample
2022-01-20	MUN-12L-B Breaker Oil Sample
2022-02-10	Infrared Scan
2022-02-10	MUN-T2 Transformer Main Tank Oil Sample
2022-02-15	MUN Substation Inspection (Long)
2022-04-08	Battery Capacitance Testing
2022-04-08	MUN Substation Inspection (Short)
2022-04-25	MUN-T1 Transformer Main Tank Oil Sample
2022-05-24	MUN Substation Inspection (Long)
2022-08-17	MUN Substation Inspection (Short)
2022-08-25	Notification Received from Customer about High Noise Level; MUN-T2 Transformer Main Tank Oil Sample and Audio Testing; MUN-T2 Removed from Service
2022-08-26	Oil Sample sent to Analytical Laboratory for Analysis and Diagnostics
2022-08-27	MUN-T2 Electrical Testing <sup>2</sup>
2022-08-30	MUN-T2 Internal Inspection
2022-08-30	MUN-T2 Transformer Main Tank Oil Sample and Audio Testing

<sup>2</sup> Electrical testing differs from typical maintenance. This testing was completed as an attempt to diagnose the high noise and temperature levels being experienced by MUN-T2. Electrical testing included megger testing, ratio testing, power factor testing and winding resistance. All test results were normal.

Table 1 Detailed Timeline of MUN Substation Work (January 2018 – March 2023)	
Date	Activity
2022-09-14	MUN Substation Inspection (Long)
2022-09-27	MUN-T1 Transformer Main Tank Oil Sample and Audio Testing
2022-10-07	MUN-T2 Transformer Main Tank Oil Sample and Audio Testing
2022-12-20	MUN Substation Inspection (Long)
2022-12-20	MUN-14L-B Breaker Oil Sample
2023-01-29	MUN Substation Inspection (Long)
2023-02-10	MUN-T1 Transformer Main Tank Oil Sample
2023-03-22	MUN-T1 Transformer Main Tank Oil Sample

1 Table 2 provides estimates of the total maintenance costs for MUN Substation from 2018  
2 to present.<sup>3</sup>

Table 2 Estimated Cost of MUN Substation Work (January 2018 – March 2023)					
2018	2019	2020	2021	2022	2023 YTD
\$73,000	\$5,000	\$69,000	\$5,000	\$19,000	\$1,000

3 Newfoundland Power estimates that it has incurred approximately \$172,000 for the work  
4 completed on MUN Substation since 2018.<sup>4</sup>

<sup>3</sup> Newfoundland Power does not track maintenance costs on a per-substation basis. The costs presented in Table 2 are estimated based on hourly rates to complete the work and include both operating and capital costs.  
<sup>4</sup> Costs in 2018 and 2020 were higher due to additional work completed in those years, as shown in Table 1.