



**YUKON ENERGY
CORPORATION**
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Our File: 2/ 2703-05-04

March 5, 2012

Yukon Utilities Board
P.O. Box 31728
Whitehorse, YT
Y1A 6L3

Attention: Mr. Bruce McLennan, Chair

Re: YEC Outage Report – 2009

Please find attached the YEC outage reports for the 1st through 4th quarter of 2009. This information is provided pursuant to the filing requirements of the 1996/7 settlement agreement and corresponding Board Order.

If you have any questions regarding the content within this report please do not hesitate to contact the undersigned.

Yours truly,

A handwritten signature in blue ink, appearing to read "Tom Debolt".

Tom Debolt
Revenue and Financial Analyst
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393-5348

Enclosure

CC via email : Dwight Redden, YECL
Wayne Tonsi, YECL

**Outage / Disturbance Report
January 2009**



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
Jan 9/09	Faro	284	Human Error	1 hour, 33 minutes	The cause of this disturbance was human error. At the time of the event one Aishihik unit was unavailable resulting in a diesel being run both in Whitehorse and Faro. On start up FD3 failed to properly sequence on line and was motorizing. Attempts to manually open the unit breaker failed. Disconnect switch FD0 89-1 was opened which stopped the unit; however before the FD3 breaker was opened properly the operator reclosed switch FD0-89-1 energizing FD3. This resulted in minor injuries to the switchman, extensive damage to the switch and a local outage. Delays in the restoration were a result of care and assessment of first the employee and the extent of the damage.
Jan 10/09	S6838 – Whse North Faro 506	YEC – 137 YECL - 1	Adverse Weather - Snow	506 – 4 seconds S6838 – 28 minutes	System bump, breaker S6838 tripped on over-current. The system unbalance also tripped 506 in Faro on over-current. YECL reports heavy snow conditions as the possible cause.
Jan 12/09	Faro	273	Adverse Weather - Frost	53 seconds	Heavy frost reported in the Faro district is the likely cause of this disturbance.
Jan 14/09	L170 S6838 S150 52-17	YEC – 317 YECL - 1	Tree Contact	L170 – 2 hours, 45 min S6838 – 25 min S150 52-17 – 12 min Faro - 57 min	The cause of this event was found to be multiple trees contacting the L170 transmission line due to snow load. When L170 tripped free the system began to swing tripping feeder breakers S150 52-17 and S6838 on under frequency. Attempts to reclose the line failed resulting in an aerial patrol confirming trees near Tatchun and towards the Faro mine site. The mine site remained isolated and off the grid for the night until the trees could be removed the following day.

**Outage / Disturbance Report
February 2009**



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
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Feb 5/09	WAF	401	Loss of Supply - Generation	1 hour	The cause of this disturbance is a faulty stator winding RTD (remote thermal device) on Aishihik unit 1. During a period of high system loading the AH1 unit stator temp falsely indicated high enough to trip the unit off. With the loss of this unit and the high system load the system collapsed. AH1 was used during the restoration at a reduced output.
Feb 17/09	WAF	401	Human Error	55 minutes	The cause this outage was human error. During planned work on the Aishihik transformer S167 T3 to replace and test high voltage bushings the workman failed to disable/block the transformer protection. During the testing the zone protection operated effectively isolating the Aishihik generation from the grid resulting in a system outage.
Feb 21/09	Mayo-Dawson	1471	Loss of Supply - Generation	31 minutes	The power supply failed on the MH1 505 governor, resulting in MH1 tripping and locking out. The under frequency protected breakers operated in Dawson, with the Mayo and Elsa feeders tripping on under-voltage. L174 remained energized throughout the event. Dawson was restored with P158 diesel units and Mayo and Elsa restored with MH2, the systems were then synchronized.



Outage / Disturbance Report March 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
March 26/09	Mayo	6	Scheduled	1 hour	Scheduled outage required to brush a single pole tap.
March 31/09	Dawson	22	Scheduled	2 hours, 55 minutes	Scheduled outage required to perform distribution maintenance.

Outage / Disturbance Report April 2009



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
April 16, 2009	WAF	401	Animal Contact	1 hour, 10 minutes	A squirrel in the YECL owned Mountain-view substation was found to be the cause of this disturbance. There are questions concerning the YECL protection during this event particularly why the fault did not stop at breaker S6837 (never did clear) which feeds Mountain-view. As a result of this protection setting issue breakers S171 52-3 and S171 52-4 operated splitting the system causing the system wide outage
April 18, 2009	L170	319	Adverse Weather (snow)	Faro – 20 minutes L170 – 3 hours Minto Mine – 8 hours	Heavy snowfall on the L170 transmission line caused a cross-arm to break. An aerial patrol was performed, which located the problem area. Once isolated SCC energized S164 52-3 feeding up to Minto Mine. Faro remained on diesel until the structure was repaired.
April 28, 2009	L250	21	Transmission Failure	1 hour, 20 minutes	A string of dead end insulators on the line side of S7736 is most likely the cause of the outage.

Outage / Disturbance Report May 2009



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
May 12, 2009	Faro	284	Unknown	1 minute	Faro feeders operated, a line patrol of the area found no obvious cause.
May 25, 2009	Dawson	43	Scheduled	40 minutes	Scheduled outage required to increase fusing in the Callison subdivision to allow for load increased load from a 250 hp water pump.

Outage / Disturbance Report June 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
June 11, 2009	WAF – Partial Outage 40%	1	Foreign Interference - Birds	1 hour, 31 minutes	This event was caused by a bird contacting the YECL owned distribution system, delays occurred in the restoration due to a YECL line patrol and S170 T1 inspection.
June 19, 2009	Dawson	351	Lightning	58 minutes	Lightning strike on the L174 transmission line caused this disturbance; Dawson was restored using local diesel then synchronized back to Mayo hydro.
June 23, 2009	Mayo	4	Unknown	20 minutes	Blown fuse of a customer feed, cause of the trip unknown.
June 29, 2009	Dawson	16	Scheduled	1 hour	Scheduled outage for planned system upgrades.
June 30, 2009	Dawson	16	Scheduled	1 hour	Scheduled outage for planned system upgrades.

Outage / Disturbance Report July 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
July 3 2009	WAF Partial Outage 30%	150	Animal Contact	13 minutes	A fault in the Whitehorse distribution system (feeder 13L) resulted in transmission breakers operating, causing unit 4 to trip off line.
July 6 2009	WAF - L355	5	Unknown	2 minutes	Cause of this event is unknown. The Haines Junction feeder tripped the fire danger rating was checked and the line successfully reclosed.
July 9 2009	WAF Partial Outage 42%	319	Lightning	30 minutes	Lightning in the Carmacks/Faro districts was the cause of this outage.
July 9 2009	WAF Partial Outage 42%	319	Lightning	23 minutes	Second event: Lightning in the Carmacks/Faro districts was the cause of this outage.
July 12 2009	WAF Partial Outage 40%	1 YECL		29 minutes	YECL reports an over-current trip at breaker S9815 in MacIntyre sub, the line was patrolled however the cause was not found. This event escalated to include all three feeders out of S170 due to incorrect CT wiring on transformer S170 T1 that gave a false differential trip signal. This issue has been resolved.
July 15 2009	WAF Partial Outage 22%	319	Lighting	9 minutes	High winds and storm conditions in the area indicate a lightning strike contacted the L170 transmission line.
July 15 2009	Mayo	6	Tree Contact	20 minutes	High winds the previous night caused a tree contact.
July 15 2009	Mayo	8	Tree Contact	25 minutes	Isolated tree contact in the Mayo town site as a result of high winds.
July 20 2009	WAF – Mendenhall & Champagne	25	Scheduled	43 minutes	Scheduled work on the L171 transmission line.

Outage / Disturbance Report August 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
August 8/09	Mayo - Elsa Line	21	Lightning	33 minutes	The cause of this event was most likely lightning strike on or near the L250 transmission line. One re-close was attempted before dispatching linemen to investigate. When no probably cause was found, another re-close was attempted and the breaker held.
August 8/09	WAF – Ross River Line	12	Lightning	31 seconds	The cause of this event was most likely lightning strike on or near the L356 transmission line. One re-close was attempted and the breaker held.
August 10/09	WAF - Faro	318	Scheduled	44 minutes	Planned outage necessary to the Faro town-site to accommodate picking the mine site up with diesel. Required due to transmission maintenance on L170.
August 17/09	WAF – L170	347	Tree Contact	24 minutes	A tree on the L170 transmission line (km 529) caused this incident. The majority of customers were restored within 24 minutes; however those near Drury Creek were off much longer. The line was patrolled by air to locate the cause of the event, the system was returned to normal the following day.
August 18/09	Dawson	1237	Lightning	55 minutes	The cause of this outage is believed to be from a lightning strike on S250 52-2 (Hunker Feeder), this strike escalated to include a complete Dawson outage as well as the L174 transmission line. Dawson was restored using local diesel; L174 was re-energized with Mayo hydro.
August 18/09	WAF – L356	12	Defective Equipment	52 minutes	After flying L356, serviceman reported finding cracked insulators on L356. Ross River remained on diesel for the night until crews arrived to replace the damaged insulation.
August 20/09	WAF – L355	5	Lightning /Tree Contact	1 minute	High winds and storm conditions in the area indicate a possible tree or lightning contact on this transmission line.
August 23/09	WAF – 9L	13	Defective Equipment (YECL)	4 hours, 37 minutes	YECL reported a burned off pole by the Marsh Lake structure to be the cause of the outage. Long outage to the YEC Johnson Crossing customers due to YECL locating then repairing the structure.

August 26/09	WAF - Minto mine and Pelly	2	Human Error	3 minutes	Outage cause by the inadvertent protection trip of S253 T1 (Minto Landing) transformer during the project deficiency work.
August 30/09	Dawson	1	Animal Contact	50 minutes	Squirrel contacted the line blowing customers fuse at Henderson Corner.
August 30/09	Mayo	4	Tree Contact	15 minutes	High winds in the Mayo district resulted in a tree contacting the line.



Outage / Disturbance Report September 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
September 11/09	Mayo	9	Tree Contact	2 hours, 15 minutes	Heavy winds in the Mayo district. Tree across both the primary and neutral. Burnt off both phases. Tree was on fire on the ground.
September 14/09	WAF	13	Loss of Supply - Generation	25 minutes	When taking of AH1 the system became very unstable resulting in under frequency tripping of two feeders, with a third opened by SCC. WH4 was running in isochronous at the time AH1 was taken off and may have over reacted to the generation setup with AH1 off line. WH4 has since been run in Droop/Base-load mode with no further incidents.

Outage / Disturbance Report October 2009



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
Oct 7/09	WAF - 10%	1	Human Error	20 minutes	A high level sump float was activated in error tripping off line WH1 and WH2. To stabilize the system SCC tripped feeder S150 52-17.
Oct 9/09	WAF - 16%	1	Loss of Generation	7 minutes	This event occurred during the WH3 load flow testing when 70% gate limit was entered the unit lost PT visibility of shaft speed and initiated an 86E trip, resulting in an under-frequency condition tripping S150 52-17.
Oct 28/09	WAF - 2%	5		9 minutes	The Haines Junction line tripped off on instantaneous over-current. The cause was later found to be a blow fuse at Dimock Timber.

Outage / Disturbance Report November 2009



Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
Nov 4/09	WAF - 100%	442	Human Error	1 hour	While performing a routine governor oil filter change on WH4 the workman inadvertently introduced air into the system resulting in the unit tripping off line.
Nov 10/09	WAF - 27%	154	Loss of Generation	20 minutes	A failed exciter card on WH4 caused an under-voltage condition on the WAF system tripping Faro breaker 506 followed by WH4. The system frequency degraded enough to trip S6838 and S150 52-17 on under-frequency protection.
Nov 14/09	WAF - 10% (L170)	347	Adverse Weather	13 minutes Faro 1 hr 23 mins Minto Mine	Windstorm with gusts up to 90 km per hour and blowing snow is the suspected cause of this disturbance.

Nov 30/09	WAF 14%	1	Loss of Generation	5 minutes	WH4 tripped off due to a low governor oil level, the system air had pushed the oil out of the accumulator tank. The excessive air was either from a stuck (open) automatic valve of a bypass valve. There was enough pre-warming to SCC that the outage was limited to two feeders instead of system wide. Additional generation was added and WH4 was unloaded approximately 25% before tripping.
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Outage / Disturbance Report December 2009

Date	Location	Number of Customers Affected	Cause	Duration (Outage to Restoration)	Comments
Dec 10/09	WAF – 100%	401	Animal Contact	58 minutes	This event was initiated by a bird contact in the YECL distribution system ultimately tripping breaker S164 52-1 splitting the system. This outage should have been limited to the local feeder load.
Dec 14/09	Elsa Line	21	Tree Contact	32 seconds	No adverse weather. Cause unknown at the time of the event. Later identified as a possible tree contact on the Alexco system.
Dec 15/09	Elsa Line	21	Tree Contact	1 minute	No adverse weather. Cause unknown at the time of the event. Unable to patrol the line due to lack of visibility (2:14 am). Later identified as a possible tree contact on the Alexco system.
Dec 15/09	Elsa Line	21	Tree Contact	4 minutes, 46 seconds	Line was patrolled. An Alexco employee reported a flash on or near the line to the serviceman. This specific section of the line is owned and operated by the mine. A span of line was found to be sagging near trees on the right of way. The following day this section of the line was isolated to allow the mine staff to brush.
Dec 15/09	Dawson 100%	1127	Adverse Weather - Snow	21 minutes, 28 seconds	The cause of this event was likely a result of snow loading on the Hunker Creek feeder. When feeder three tripped the system became unstable resulting in an under-frequency condition tripping both F1 and F2.