

Hawkesbury Hydro

Q1 Station Inspections & Transformer Maintenance (55T3)

at 44KV Tessier M.S. & 115KV Main St. W. T.S.

Hydro Ottawa
Feb 2023

TYPE ROUTINE INSPECTION STATION HAWKESBURY MTS ISSUE DATE _____
 SUBSTATION ADDRESS MAIN ST COMPLETED DATE 2/24/2023
 FEEDER/NOMENCLATURE HAWKSBURY 115KV AMBIENT TEMPERATURE -16 °C TESTED BY DOMINIQUE RIVET
 WORK ORDER # 680819 TEST STATUS _____
 TESTED BY DAVE LEFEBVRE

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PROTECTION RELAY PANELS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	CONTAINMENT PIT	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: - single fan not working on T3 motor ceased. - E-light needs to be replaced in battery room. flashing at all times. - When fans are put into manual on the T2 the breaker trips. Need to investigate further. - Primary T2 switch low on SF6 reading about 53PSI name plate mentions minimum operating pressure as 51PSI @ 20°C - T2 tap changer low on oil. Could be due to weather being cold , to be monitored at next inspection. - Evidence of an oil leak at the off load tap changer. To be monitored at future inspcetions for severity.

DEFICIENCIES:

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)

ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES

AUTOMATIC TRANSFER SWITCH

OPERATION	PASS / FAIL	NOTES
VERIFY OPERTION BY OPENING NORMAL FEED	PASS	
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	60
SPECIFIED VOLTAGE PER CELL	2.25

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE		125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

CIRCUIT SWITCHER

NOMENCLATURE 55T3-L
 MANUFACTURER SIEMENS

CURRENT RATING 1200 AMPERES
 VOLTAGE CLASS 121 kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	61	61	61

OPERATION COUNTER	72
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HEATING BLANKET OPERATION	N/A
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CIRCUIT SWITCHER

NOMENCLATURE 55T2-L
 MANUFACTURER SIEMENS

CURRENT RATING 1200 AMPERES
 VOLTAGE CLASS 121 kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input type="checkbox"/> A <input checked="" type="checkbox"/> C <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	53	53	53

OPERATION COUNTER	21
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HEATING BLANKET OPERATION	N/A
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SWITCH

NOMENCLATURE _____ 55T3-LBS _____

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

SWITCH

NOMENCLATURE _____ 55T2-LBS _____

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

TRANSFORMER

MANUFACTURER _____ MOLONEY ELECTRIC _____
 SERIAL NUMBER _____ 213081 _____
 YEAR _____ 1965 _____
 TYPE _____ CONSERVATOR _____
 IMPEDANCE _____ 8.9 _____ %
 TEMPERATURE RISE _____ °C _____
 HV BIL _____ 550 _____
 LV BIL _____ 110 _____

KVA _____ 3,500 / 10,000 / 13,500 _____
 PRIMARY VOLTAGE _____ 110,000 / _____ DELTA _____
 SECONDARY VOLTAGE _____ 12,480 / 7,200 _____ WYE _____
 OIL VOLUME _____ L _____
 TOTAL WEIGHT _____ 94850 LBS _____
 # OF FANS _____ 8 _____
 TAP CHANGER _____ EXTERNAL _____

VISUAL INSPECTION	CONDITION
BUSHINGS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
OIL TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND 21
TRANSFORMER OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND 45
BUSHING OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND 15
TRANSFORMER PRESSURE	<input type="text"/>	<input type="checkbox"/> KPA <input type="checkbox"/> PSI	AS FOUND 0
GAS RELAY	<input type="text"/>	<input type="text"/>	AS FOUND

TAP CHANGER

MANUFACTURER _____ MOLONEY ELECTRIC _____ MODEL _____
 SERIAL NO. _____ YEAR _____ 1965 _____ GALLONS _____ 400L _____

TAP CHANGER OIL TEMP	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND 24
TAP CHANGER OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND 30
TAP POSITION	MIN 4	Max 11	AS FOUND 6
COUNTER	<input type="text"/>	<input type="text"/>	AS FOUND 23,852
DIVERTOR OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND
HEATER CONDITION	<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		
RELIEF VENT	<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TRANSFORMER

MANUFACTURER PENNSYLVANIA TRANSFORMER TECH
 SERIAL NUMBER C-09062-5-1
 YEAR 2014
 TYPE CONSERVATOR
 IMPEDANCE 10.2 %
 TEMPERATURE RISE 65 °C
 HV BIL 550
 LV BIL 110

KVA 15,000 / 20,000 / 25,000
 PRIMARY VOLTAGE 110,000 / DELTA
 SECONDARY VOLTAGE 12,480 / 7,205 / WYE
 OIL VOLUME 18665 L
 TOTAL WEIGHT 54735 KG
 # OF FANS 8
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN		Max		AS FOUND	
OIL TEMPERATURE	MIN		Max		AS FOUND	
TRANSFORMER OIL LEVEL	0%		100%		AS FOUND	
BUSHING OIL LEVEL	0%		100%		AS FOUND	
TRANSFORMER PRESSURE			<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND	
GAS RELAY					AS FOUND	

TAP CHANGER

MANUFACTURER REINHAUSSEN MODEL MD1-I
 SERIAL NO. 1400253 YEAR 2013 GALLONS _____

TAP CHANGER OIL TEMP	MIN		Max		AS FOUND	<u>6</u>
TAP CHANGER OIL LEVEL	MIN		Max		AS FOUND	<u>45</u>
TAP POSITION	MIN	<u>8</u>	Max	<u>16</u>	AS FOUND	<u>12</u>
COUNTER					AS FOUND	<u>37,559</u>
DIVERTOR OIL LEVEL	MIN		Max		AS FOUND	
HEATER CONDITION		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	
RELIEF VENT		<input type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TYPE ROUTINE INSPECTION STATION HAWKESBURY MS ISSUE DATE _____
 SUBSTATION ADDRESS TESSIER ST COMPLETED DATE 3/27/2023
 FEEDER/NOMENCLATURE TESSIER AMBIENT TEMPERATURE _____ °C TESTED BY DOMINIQUE RIVET
 WORK ORDER # 680819 TEST STATUS _____

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PROTECTION RELAY PANELS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	CONTAINMENT PIT	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: No deficiencies to report.
 DEFICIENCIES: _____

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)

ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES

AUTOMATIC TRANSFER SWITCH

OPERATION	PASS / FAIL	NOTES
VERIFY OPERATION BY OPENING NORMAL FEED	PASS	
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	
SPECIFIED VOLTAGE PER CELL	

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE		125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

TRANSFORMER

MANUFACTURER	FERRANTI-PACKARD
SERIAL NUMBER	0308401001
YEAR	1985
TYPE	SEALED
IMPEDANCE	6.96 %
TEMPERATURE RISE	65 °C
HV BIL	250
LV BIL	95

KVA	10,000 / 13,300 / 16,700
PRIMARY VOLTAGE	44,000 / DELTA
SECONDARY VOLTAGE	12,470 / 7,200 WYE
OIL VOLUME	L
TOTAL WEIGHT	31397 KG
# OF FANS	6
TAP CHANGER	INTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN		Max		AS FOUND	30
OIL TEMPERATURE	MIN		Max		AS FOUND	36
TRANSFORMER OIL LEVEL	0%		100%		AS FOUND	55
BUSHING OIL LEVEL	0%		100%		AS FOUND	40
TRANSFORMER PRESSURE			<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND	
GAS RELAY					AS FOUND	

TAP CHANGER

MANUFACTURER		MODEL				
SERIAL NO.		YEAR				
		GALLONS				
TAP CHANGER OIL TEMP	MIN		Max		AS FOUND	
TAP CHANGER OIL LEVEL	MIN		Max		AS FOUND	
TAP POSITION	MIN		Max		AS FOUND	
COUNTER					AS FOUND	
DIVERTOR OIL LEVEL	MIN		Max		AS FOUND	
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I					
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I					

 OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TRANSFORMER

MANUFACTURER PIONEER TRANSFORMERS
 SERIAL NUMBER G16194-1
 YEAR 2012
 TYPE SEALED
 IMPEDANCE 6.91 %
 TEMPERATURE RISE 65 °C
 HV BIL _____
 LV BIL _____

KVA 10,000 / 13,330 / 16,670
 PRIMARY VOLTAGE 44,000 / DELTA
 SECONDARY VOLTAGE 12,470 / 7,200 / DELTA
 OIL VOLUME L
 TOTAL WEIGHT 28880
 # OF FANS 6
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN	<input type="text"/>	Max	<input type="text"/>	AS FOUND	18
OIL TEMPERATURE	MIN	<input type="text"/>	Max	<input type="text"/>	AS FOUND	20
TRANSFORMER OIL LEVEL	0%	<input type="text"/>	100%	<input type="text"/>	AS FOUND	40
BUSHING OIL LEVEL	0%	<input type="text"/>	100%	<input type="text"/>	AS FOUND	40
TRANSFORMER PRESSURE		<input type="checkbox"/> KPA	<input checked="" type="checkbox"/> PSI	AS FOUND	0	
GAS RELAY				AS FOUND		

TAP CHANGER

MANUFACTURER ABB MODEL UZERT 250/300
 SERIAL NO. 1ZSC 8714 910 YEAR 2013 GALLONS _____

TAP CHANGER OIL TEMP	MIN	<input type="text"/>	Max	<input type="text"/>	AS FOUND	15
TAP CHANGER OIL LEVEL	MIN	<input type="text"/>	Max	<input type="text"/>	AS FOUND	30
TAP POSITION	MIN	12	Max	12	AS FOUND	12
COUNTER				AS FOUND	2,586	
DIVERTOR OIL LEVEL	MIN	<input type="text"/>	Max	<input type="text"/>	AS FOUND	
HEATER CONDITION		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	
RELIEF VENT		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

Appendix A: Visual Inspection Condition Criteria

Overall visual station transformer condition criteria

Condition	Visual Inspection Criteria – Overall Visual Condition
A	Station transformer is externally clean and corrosion free. All monitoring, protection and control, pressure relief, gas accumulation and silica gel devices, and auxiliary systems mounted on the station transformer are in good condition. No external evidence of overheating or internal overpressure. Appears to be well maintained with service records readily available.
B	Normal signs of wear with respect to the above characteristics.
C	One or two of the above characteristics are unacceptable.
D	More than two of the above characteristics are unacceptable – repairable.
E	More than two of the above characteristics are unacceptable – damaged beyond repair.

Station transformer bushing condition criteria

Condition	Visual Inspection Criteria – Bushing Condition
A	Bushings are not broken and are free of chips, radial cracks, flashover burns, copper splash, and copper wash. Cementing and fasteners are secure.
B	Bushings are not broken, but minor chips and cracks are visible. Cementing and fasteners are secure.
C	Bushings are not broken; however, major chips and some flashover burns and copper splash are visible. Cementing and fasteners are secure.
D	Bushings are broken or cementing and fasteners are not secure.
E	Bushings, cementing, or fasteners are broken/damaged beyond repair.

Station transformer main tank corrosion condition criteria

Condition	Visual Inspection Criteria – Main Tank Corrosion
A	No rust, corrosion, or moisture evident on main tank.
B	No rust or corrosion on main tank, but some evidence of moisture ingress or condensation.
C	Some rust and corrosion on main tank.
D	Significant corrosion on main tank – repairable.
E	Significant corrosion on main tank – degradation beyond repair.

Station transformer cooling equipment condition criteria

Condition	Visual Inspection Criteria – Cooling Equipment
A	No rust or corrosion on body of radiators. Fan and pump enclosures are free of rust and corrosion and securely mounted in position. Pump bearings are in good condition and fan controls are operating per design.
B	Normal signs of wear with respect to the above characteristics.
C	One or two of the above characteristics are unacceptable.
D	More than two of the above characteristics are unacceptable.
E	Fan and pump enclosures damaged/degraded beyond repair.

Station transformer oil tank corrosion condition criteria

Condition	Visual Inspection Criteria – Oil Tank Corrosion
A	No rust, corrosion, or moisture evident on oil tank.
B	No rust or corrosion on oil tank, but some evidence of moisture ingress or condensation.
C	Some rust and corrosion on oil tank.
D	Significant corrosion on oil tank – repairable.
E	Significant corrosion on oil tank – degradation beyond repair.

Station transformer foundation condition criteria

Hawkesbury Hydro

Q3 Station Inspections

at 44KV Tessier M.S. & 115KV Main St. W. T.S.

Hydro Ottawa
Sept. 7th, 2022

Contents

1. 44KV Tessier St. - Q1/Q2 Corrective Action
44KV Tessier St. - Recommendations/Corrective Actions
2. 44KV Tessier St. - Station Inspection Report Q3
3. 115KV Main St. - Q1/Q2 Corrective Action
115KV Main St - Recommendations/Corrective Actions
4. 115KV Main St. - Station Inspection Report Q3

44KV Station (Tessier St.) - Q3 Inspection

Q1/Q2 Corrective Actions

- Upon further inspection fans were found to be in working condition. Low voltage supply breaker to fans was found turned off.

Recommendations for Corrective Actions

- Crews did not report any new deficiencies during this inspection. No new recommendations to report at this time.



STATION INSPECTION

TYPE MAINTENANCE STATION MS #2 ISSUE DATE 8/29/2022
 SUBSTATION ADDRESS _____ COMPLETED DATE 8/29/2022
 FEEDER/NOMENCLATURE TESSIER AMBIENT TEMPERATURE 25 °C TESTED BY DOMINIQUE RIVET
 TESTED BY BEN BOILEAU
 WORK ORDER # 680819 TEST STATUS _____

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	PROTECTION RELAY PANELS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	CONTAINMENT PIT	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: FANS ARE OK ON TRANSFORMER . BREAKER WAS OFF.
 DEFICIENCIES: _____

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)			
ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES
N/A	N/A	N/A	N/A

AUTOMATIC TRANSFER SWITCH		
OPERATION	PASS / FAIL	NOTES
VERIFY OPERATION BY OPENING NORMAL FEED	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE		

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	10
SPECIFIED VOLTAGE PER CELL	12

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE	132	125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

TRANSFORMER

MANUFACTURER FERRANTI-PACKARD
 SERIAL NUMBER 0308401001
 YEAR 1985
 TYPE SEALED
 IMPEDANCE 6.96 %
 TEMPERATURE RISE 65 °C
 HV BIL 250
 LV BIL 95

KVA 10,000 / 13,300 / 16,700
 PRIMARY VOLTAGE 44,000 / DELTA
 SECONDARY VOLTAGE 12,470 / 7,200 WYE
 OIL VOLUME L
 TOTAL WEIGHT 31397 KG
 # OF FANS 6
 TAP CHANGER INTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
OIL TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/> 50
TRANSFORMER OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND <input type="text"/> 60
BUSHING OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND <input type="text"/>
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND <input type="text"/>
GAS RELAY			AS FOUND <input type="text"/>

TAP CHANGER

MANUFACTURER _____ MODEL _____
 SERIAL NO. _____ YEAR _____ GALLONS _____

TAP CHANGER OIL TEMP	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
TAP CHANGER OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
TAP POSITION	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
COUNTER			AS FOUND <input type="text"/>
DIVERTOR OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TRANSFORMER

MANUFACTURER PIONEER TRANSFORMERS
 SERIAL NUMBER G16194-1
 YEAR 2012
 TYPE SEALED
 IMPEDANCE 6.91 %
 TEMPERATURE RISE 65 °C
 HV BIL _____
 LV BIL _____

KVA 10,000 / 13,330 / 16,670
 PRIMARY VOLTAGE 44,000 / DELTA
 SECONDARY VOLTAGE 12,470 / 7,200 DELTA
 OIL VOLUME _____ L
 TOTAL WEIGHT 28880
 # OF FANS 6
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN		Max		AS FOUND	30
OIL TEMPERATURE	MIN		Max		AS FOUND	30
TRANSFORMER OIL LEVEL	0%		100%		AS FOUND	50
BUSHING OIL LEVEL	0%		100%		AS FOUND	50
TRANSFORMER PRESSURE			<input type="checkbox"/> KPA <input checked="" type="checkbox"/> PSI		AS FOUND	0
GAS RELAY					AS FOUND	

TAP CHANGER

MANUFACTURER ABB MODEL UZERT 250/300
 SERIAL NO. 1ZSC 8714 910 YEAR 2013 GALLONS _____

TAP CHANGER OIL TEMP	MIN		Max		AS FOUND	30
TAP CHANGER OIL LEVEL	MIN		Max		AS FOUND	50
TAP POSITION	MIN	12	Max	12	AS FOUND	12
COUNTER					AS FOUND	2,895
DIVERTOR OIL LEVEL	MIN		Max		AS FOUND	
HEATER CONDITION		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	
RELIEF VENT		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

115KV Station (Main St. W.) - Q3 Inspection

Q1/Q2 Corrective Actions

- Crews replaced the battery pack in the emergency lighting in the P&C Shed.

Recommendations for Corrective Actions

- Crews did not report any new deficiencies during this inspection. No new recommendations to report at this time.



STATION INSPECTION

TYPE MAINTENANCE STATION _____ ISSUE DATE _____
 SUBSTATION ADDRESS _____ COMPLETED DATE 8/29/2022
 FEEDER/NOMENCLATURE HAWKSURRY 115KV AMBIENT TEMPERATURE _____ °C TESTED BY DOMINIQUE RIVET
 TESTED BY BEN BOILEAU
 WORK ORDER # 680819 TEST STATUS _____

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PROTECTION RELAY PANELS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	CONTAINMENT PIT	DRY
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: _____
 DEFICIENCIES: _____

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)			
ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES
N/A	N/A	N/A	

AUTOMATIC TRANSFER SWITCH		
OPERATION	PASS / FAIL	NOTES
VERIFY OPERATION BY OPENING NORMAL FEED	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	N/A
CONFIRM STATUS WITH SYSTEM OFFICE		

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	10
SPECIFIED VOLTAGE PER CELL	12

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	N/A

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE	135	125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

CIRCUIT SWITCHER

NOMENCLATURE _____ 55T3-L _____
 MANUFACTURER _____ SIEMENS _____

CURRENT RATING _____ 1200 _____ AMPERES
 VOLTAGE CLASS _____ 121 _____ kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	65	65	65

OPERATION COUNTER	60
--------------------------	----

HEATING BLANKET OPERATION	N/A
---------------------------	-----

CIRCUIT SWITCHER

NOMENCLATURE _____ 55T2-L _____
 MANUFACTURER _____ SIEMENS _____

CURRENT RATING _____ 1200 _____ AMPERES
 VOLTAGE CLASS _____ 121 _____ kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	63	63	63

OPERATION COUNTER	20
--------------------------	----

HEATING BLANKET OPERATION	N/A
---------------------------	-----

SWITCH

NOMENCLATURE 55T3-LBS

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

SWITCH

NOMENCLATURE 55T2-LBS

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

TRANSFORMER

MANUFACTURER MOLONEY ELECTRIC
 SERIAL NUMBER 213081
 YEAR 1965
 TYPE CONSERVATOR
 IMPEDANCE 8.9 %
 TEMPERATURE RISE _____ °C
 HV BIL 550
 LV BIL 110

KVA 3,500 / 10,000 / 13,500
 PRIMARY VOLTAGE 110,000 / DELTA
 SECONDARY VOLTAGE 12,480 / 7,200 WYE
 OIL VOLUME L
 TOTAL WEIGHT 94850 LBS
 # OF FANS 8
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN	Max	AS FOUND
OIL TEMPERATURE	MIN	Max	AS FOUND 54
TRANSFORMER OIL LEVEL	0%	100%	AS FOUND 60
BUSHING OIL LEVEL	0%	100%	AS FOUND
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND
GAS RELAY			AS FOUND

TAP CHANGER

MANUFACTURER MOLONEY ELECTRIC MODEL _____
 SERIAL NO. _____ YEAR 1965 GALLONS 400L

TAP CHANGER OIL TEMP	MIN	Max	AS FOUND
TAP CHANGER OIL LEVEL	MIN	Max	AS FOUND 25
TAP POSITION	MIN 5	Max 11	AS FOUND 9
COUNTER			AS FOUND 20,382
DIVERTOR OIL LEVEL	MIN	Max	AS FOUND
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		

OIL FILTRATION PUMP PSI: 1 FILTER TYPE: _____ FILTER CHANGE DATE: _____ HOURS: _____

TRANSFORMER

MANUFACTURER PENNSYLVANIA TRANSFORMER TECH
 SERIAL NUMBER C-09062-5-1
 YEAR 2014
 TYPE CONSERVATOR
 IMPEDANCE 10.2 %
 TEMPERATURE RISE 65 °C
 HV BIL 550
 LV BIL 110

KVA 15,000 / 20,000 / 25,000
 PRIMARY VOLTAGE 110,000 / DELTA
 SECONDARY VOLTAGE 12,480 / 7,205 WYE
 OIL VOLUME 18665 L
 TOTAL WEIGHT 54735 KG
 # OF FANS 8
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN		Max		AS FOUND	40
OIL TEMPERATURE	MIN		Max		AS FOUND	50
TRANSFORMER OIL LEVEL	0%		100%		AS FOUND	50
BUSHING OIL LEVEL	0%		100%		AS FOUND	50
TRANSFORMER PRESSURE			<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND	
GAS RELAY					AS FOUND	

TAP CHANGER

MANUFACTURER REINHAUSEN MODEL MD1-I
 SERIAL NO. 1400253 YEAR 2013 GALLONS _____

TAP CHANGER OIL TEMP	MIN		Max		AS FOUND	34
TAP CHANGER OIL LEVEL	MIN		Max		AS FOUND	50
TAP POSITION	MIN	9	Max	17	AS FOUND	15
COUNTER					AS FOUND	34,559
DIVERTOR OIL LEVEL	MIN		Max		AS FOUND	
HEATER CONDITION		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	
RELIEF VENT		<input checked="" type="checkbox"/> G	<input type="checkbox"/> P	<input type="checkbox"/> C	<input type="checkbox"/> I	

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

Hawkesbury Hydro

Q4 2023 Station Inspections

44KV Tessier M.S. & 115KV Main St. W. T.S.

Hydro Ottawa
Nov 23, 2023

Contents

1. 44KV Tessier St. - Station Inspection Report Q4
2. 115KV Main St. - Station Inspection Report Q4

Nov 23, 2023

Michel Poulin
General Manager
Hawkesbury Hydro
850 Tupper Street
Hawkesbury, Ontario
K6A 3S7

RE: Hawkesbury Hydro 2023 Q4 inspections performed by Hydro Ottawa

Mr Poulin;

On November 7, 2023, Hydro Ottawa performed inspections and IR scans of your 115kv and 44kv substations. During this time we also investigated the cooling fan issues that were encountered previously in your 115kv station.

115kv Substation Results

- a) The Multilin protection relay is in alarm. This should be addressed with a manufacturer's representative.
- b) A total of 8 cooling fans were removed from the Moloney transformer. There were various issues with the fans, ranging from broken blades to seized bearings. We believe the seized bearings were causing the control breaker to trip in the panel. These fans are currently being repaired in Ottawa. The intent is to re-install these fans in Q2 of 2024, prior to the cooling season.
- c) The E-light in the battery room is faulty, it was not the battery as originally suspected. A complete new unit will be installed during the ?Q2 inspection in 2024.
- d) The 55T3 primary switch appears low on SF6 gas. Although this switch has not hit the low gas alarm, it should be monitored for gas level.
- e) There were 2 hot spots identified in the IR inspection, one on the 55F1 feeder on the structure and one on the 55F2 feeder on the structure. Please refer to the pictures in the report.

44kv Substation Results

- f) The silica beads require replacing on the T2 transformer tap changer. This will be completed when maintenance is performed on the T2 tap changer in 2024
- g) There was one hotspot identified in the IR scan. It was on the 43F2 feeder on the structure, please refer to the picture in the report

If you have any questions or concerns regarding the report please feel free contact me anytime.

Thanks Michel

A handwritten signature in black ink, appearing to read "John Fetzer".

John Fetzer
Hydro Ottawa
613-868-4080

44kv Substation Results

STATION INSPECTION

TYPE ROUTINE INSPECTION STATION HAWKESBURY MS ISSUE DATE _____
 SUBSTATION ADDRESS TESSIER ST COMPLETED DATE 11/8/2023
 FEEDER/NOMENCLATURE TESSIER AMBIENT TEMPERATURE °C TESTED BY DOMINIQUE RIVET
 WORK ORDER # 680819 TEST STATUS _____

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PROTECTION RELAY PANELS	
<input type="checkbox"/> G <input checked="" type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	One hot spot on one of the feeders see IR report.
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	CONTAINMENT PIT	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: _____
 DEFICIENCIES: Silica beads on the T2 tap changer need to be replaced.

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)

ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES

AUTOMATIC TRANSFER SWITCH

OPERATION	PASS / FAIL	NOTES
VERIFY OPERATION BY OPENING NORMAL FEED	PASS	
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	10
SPECIFIED VOLTAGE PER CELL	12

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE	132	125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

TRANSFORMER

MANUFACTURER FERRANTI-PACKARD
 SERIAL NUMBER 0308401001
 YEAR 1985
 TYPE SEALED
 IMPEDANCE 6.96 %
 TEMPERATURE RISE 65 °C
 HV BIL 250
 LV BIL 95

KVA 10,000 / 13,300 / 16,700
 PRIMARY VOLTAGE 44,000 / DELTA
 SECONDARY VOLTAGE 12,470 / 7,200 WYE
 OIL VOLUME L
 TOTAL WEIGHT 31397 KG
 # OF FANS 6
 TAP CHANGER INTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
OIL TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/> 35
TRANSFORMER OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND <input type="text"/> 55
BUSHING OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND <input type="text"/>
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND <input type="text"/>
GAS RELAY			AS FOUND <input type="text"/>

TAP CHANGER

MANUFACTURER _____ MODEL _____
 SERIAL NO. _____ YEAR _____ GALLONS _____

TAP CHANGER OIL TEMP	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
TAP CHANGER OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
TAP POSITION	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
COUNTER			AS FOUND <input type="text"/>
DIVERTOR OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND <input type="text"/>
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TRANSFORMER

MANUFACTURER PIONEER TRANSFORMERS
 SERIAL NUMBER G16194-1
 YEAR 2012
 TYPE SEALED
 IMPEDANCE 6.91 %
 TEMPERATURE RISE 65 °C
 HV BIL _____
 LV BIL _____

KVA 10,000 / 13,330 / 16,670
 PRIMARY VOLTAGE 44,000 / DELTA
 SECONDARY VOLTAGE 12,470 / 7,200 DELTA
 OIL VOLUME L
 TOTAL WEIGHT 28880
 # OF FANS 6
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
OIL TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
TRANSFORMER OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND	<input type="text"/>
BUSHING OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND	<input type="text"/>
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input checked="" type="checkbox"/> PSI		AS FOUND	<input type="text"/>
GAS RELAY			AS FOUND	<input type="text"/>

TAP CHANGER

MANUFACTURER ABB MODEL UZERT 250/300
 SERIAL NO. 1ZSC 8714 910 YEAR 2013 GALLONS _____

TAP CHANGER OIL TEMP	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
TAP CHANGER OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
TAP POSITION	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
COUNTER			AS FOUND	<input type="text"/>
DIVERTOR OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I			
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I			

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:



Hawkesbury Hydro 44KV station 43F2 white phase hot line clamp

Measurements

Sp1	22.2 °C
Sp2	6.8 °C

Parameters

Emissivity	0.95
Refl. temp.	20 °C

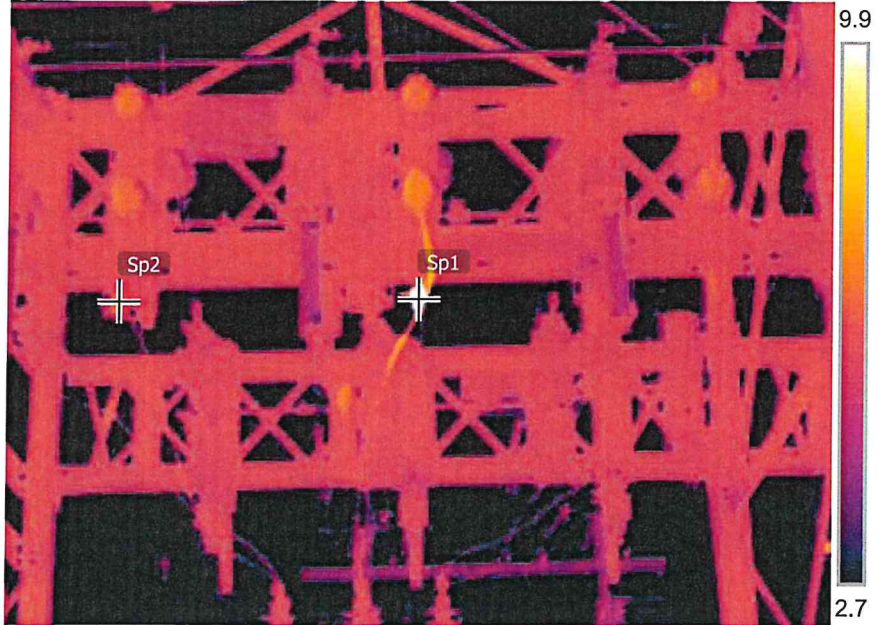
Geolocation

Location	N 45° 35' 58.72", W 74° 35' 26.44" http://maps.google.com?z=17&t=k&q=45.5996,-74.5907
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Note

43F2 white phase hot line clamp.
Temperature difference of 15.4°C. Hot line clamp should be taken apart and cleaned and re tightened. Once repair is complete it should be re-scanned to confirm repair worked.

11/7/2023 12:54:50 PM

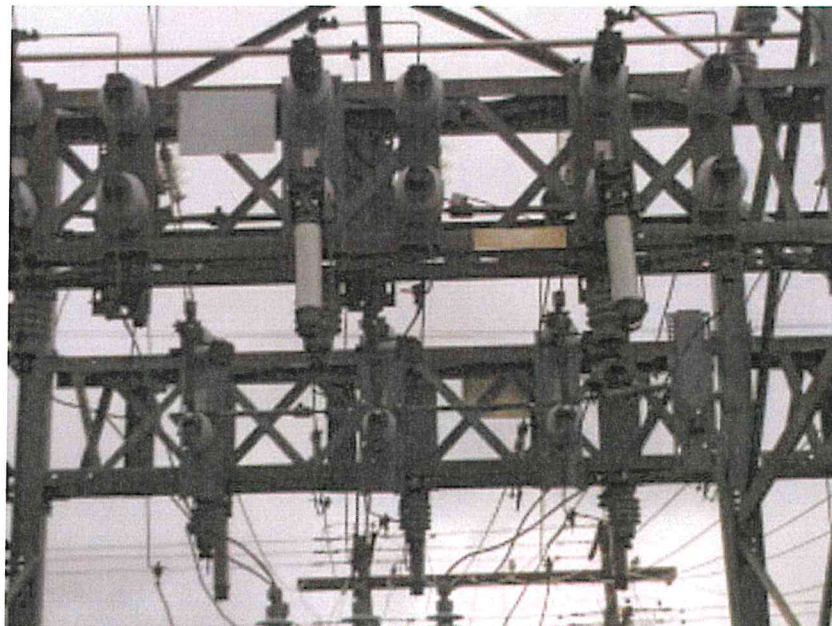


FLIR0114.jpg

FLIR E54

84508318

11/7/2023 12:54:50 PM



FLIR0114.jpg

FLIR E54

84508318

115kv Substation Results

TYPE	ROUTINE INSPECTION	STATION	HAWKESBURY MTS	ISSUE DATE	November 7, 2023
SUBSTATION ADDRESS	MAIN ST		TESTED BY	DOMINIQUE RIVET	
FEEDER/NOMENCLATURE	HAWKSBURY 115KV	AMBIENT TEMPERATURE	3 °C	TESTED BY	
WORK ORDER #	680819	TEST STATUS			

PROCEDURE

- FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPROPRIATE BOX
- CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.
- CALL INTO SYSTEM ANY TARGETS OR FLAGGING AND RESET UPON DEPARTURE

CONDITION	INSPECTION ITEM	REMARKS
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	YARD (fence, gate, grounds, stone...)	Fence in good condition and grounding is sufficient.
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OVERALL BUILDING CONDITION	
<input type="checkbox"/> G <input checked="" type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PROTECTION RELAY PANELS	There is an error code on the relay panel. See attached photo
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	OUTDOOR STRUCTURES	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION SERVICE TRANSFORMERS	
<input type="checkbox"/> G <input checked="" type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SWITCHGEAR / RECLOSERS	2 hot spots on 2 different feeders. See attached IR report.
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	STATION IDENTIFICATION SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	PPE SIGN	
<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input type="checkbox"/> N/A	SITE SAFETY NOTICE SIGN	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	CONTAINMENT PIT	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SUMP PIT / OIL WATER SEPARATOR	<input type="checkbox"/> CLEAN WATER <input type="checkbox"/> OIL SHEEN <input type="checkbox"/> SCADA STATUS OK
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	SMOKE DETECTOR VERIFICATION	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	DGA SERVICE LIGHTS	
<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I <input checked="" type="checkbox"/> N/A	VERIFY ATS OPERATION	

- G = ITEMS FOUND IN SATISFACTORY CONDITION
- P = ITEMS FOUND IN POOR CONDITION AND REQUIRING FUTURE CORRECTIVE ACTION
- C = ITEMS REPAIRED OR CORRECTED AND LEFT IN SATISFACTORY CONDITION
- I = ITEMS REQUIRING IMMEDIATE CORRECTIVE ACTIONS

COMMENTS: Multiple faulty fans on the T2 which have been removed to be repaired. There are 2 hot spots on two of the feeders see attached IR report. E-Light in battery room is faulty. They did not have one at the store need to bring a new light with us next time we go. We tried changing the battery and it was not the issue.

DEFICIENCIES: T3 primary switch seems to be a little low on SF6. Nothing alarming yet but it is something to monitor.

ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)

ALARM OR GREEN TAG	AS FOUND	AS LEFT	NOTES

AUTOMATIC TRANSFER SWITCH

OPERATION	PASS / FAIL	NOTES
VERIFY OPERATION BY OPENING NORMAL FEED	PASS	
CONFIRM STATUS WITH SYSTEM OFFICE	PASS	

STATION BATTERIES AND CHARGER

NUMBER OF CELLS	10
SPECIFIED VOLTAGE PER CELL	12V

DC SYSTEM	PASS / FAIL	NOTES
VERIFY NO ALARMS ON CHARGER	PASS	
VERIFY GROUNDING CONTINUITY	PASS	
VERIFY CORROSION	PASS	
VERIFY WATER LEVELS (top-up if required)	PASS	

DC VOLTAGE	Volts	ACCEPTABLE RANGE
CHARGER DISPLAY VOLTAGE	135	125V to 130V
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)
MEASURED BANK VOLTAGE (disconnect charger)		> 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS)

SUMP PUMP

Operation	PASS / FAIL
RUN FOR 1 MIN TO CONFIRM OPERATION	PASS

CIRCUIT SWITCHER

NOMENCLATURE 55T3-L

MANUFACTURER SIEMENS

CURRENT RATING 1200 AMPERES

VOLTAGE CLASS 121 kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	63	63	63

OPERATION COUNTER	75
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HEATING BLANKET OPERATION	N/A
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CIRCUIT SWITCHER

NOMENCLATURE 55T2-L

MANUFACTURER SIEMENS

CURRENT RATING 1200 AMPERES

VOLTAGE CLASS 121 kV

VISUAL INSPECTION	CONDITION
SF6 LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> E
TANK & MECHANISM BOX	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONTROL MECHANISM	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

<input checked="" type="radio"/> PSI <input type="radio"/> KPA	RED	WHITE	BLUE
SF6 GAS PRESSURE	59	59	59

OPERATION COUNTER	21
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HEATING BLANKET OPERATION	N/A
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SWITCH

NOMENCLATURE _____ 55T3-LBS _____

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

SWITCH

NOMENCLATURE _____ 55T2-LBS _____

VISUAL INSPECTION	CONDITION
BUSHINGS & INSULATORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION, FRAME, GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
DISCONNECT LIVE PARTS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

TRANSFORMER

MANUFACTURER _____ MOLONEY ELECTRIC _____
 SERIAL NUMBER _____ 213081 _____
 YEAR _____ 1965 _____
 TYPE _____ CONSERVATOR _____
 IMPEDANCE _____ 8.9 _____ %
 TEMPERATURE RISE _____ °C _____
 HV BIL _____ 550 _____
 LV BIL _____ 110 _____

KVA _____ 3,500 / 10,000 / 13,500 _____
 PRIMARY VOLTAGE _____ 110,000 / _____ DELTA _____
 SECONDARY VOLTAGE _____ 12,480 / 7,200 _____ WYE _____
 OIL VOLUME _____ L _____
 TOTAL WEIGHT _____ 94850 LBS _____
 # OF FANS _____ 8 _____
 TAP CHANGER _____ EXTERNAL _____

VISUAL INSPECTION	CONDITION
BUSHINGS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="checkbox"/>	Max <input type="checkbox"/>	AS FOUND <input type="checkbox"/>
OIL TEMPERATURE	MIN <input type="checkbox"/>	Max <input type="checkbox"/>	AS FOUND 29
TRANSFORMER OIL LEVEL	0% <input type="checkbox"/>	100% <input type="checkbox"/>	AS FOUND 50
BUSHING OIL LEVEL	0% <input type="checkbox"/>	100% <input type="checkbox"/>	AS FOUND 50
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND <input type="checkbox"/>
GAS RELAY	AS FOUND <input type="checkbox"/>		

TAP CHANGER

MANUFACTURER _____ MOLONEY ELECTRIC _____ MODEL _____
 SERIAL NO. _____ YEAR _____ 1965 _____ GALLONS _____ 400L _____

TAP CHANGER OIL TEMP	MIN <input type="checkbox"/>	Max <input type="checkbox"/>	AS FOUND <input type="checkbox"/>
TAP CHANGER OIL LEVEL	MIN <input type="checkbox"/>	Max <input type="checkbox"/>	AS FOUND <input type="checkbox"/>
TAP POSITION	MIN 5	Max 7	AS FOUND 9
COUNTER			AS FOUND 28,626
DIVERTOR OIL LEVEL	MIN <input type="checkbox"/>	Max <input type="checkbox"/>	AS FOUND <input type="checkbox"/>
HEATER CONDITION	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I		

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:

TRANSFORMER

MANUFACTURER PENNSYLVANIA TRANSFORMER TECH
 SERIAL NUMBER C-09062-5-1
 YEAR 2014
 TYPE CONSERVATOR
 IMPEDANCE 10.2 %
 TEMPERATURE RISE 65 °C
 HV BIL 550
 LV BIL 110

KVA 15,000 / 20,000 / 25,000
 PRIMARY VOLTAGE 110,000 / DELTA
 SECONDARY VOLTAGE 12,480 / 7,205 WYE
 OIL VOLUME 18665 L
 TOTAL WEIGHT 54735 KG
 # OF FANS 8
 TAP CHANGER EXTERNAL

VISUAL INSPECTION	CONDITION
BUSHINGS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
MAIN TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
COOLING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL TANK	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
FOUNDATION	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GROUNDING	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
GASKET & SEALS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
CONNECTORS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEAKS	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OIL LEVEL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E
OVERALL	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E

GAUGES

NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C

WINDING TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text" value="27"/>
OIL TEMPERATURE	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text" value="22"/>
TRANSFORMER OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND	<input type="text" value="50"/>
BUSHING OIL LEVEL	0% <input type="text"/>	100% <input type="text"/>	AS FOUND	<input type="text" value="20"/>
TRANSFORMER PRESSURE	<input type="checkbox"/> KPA <input type="checkbox"/> PSI		AS FOUND	<input type="text"/>
GAS RELAY			AS FOUND	<input type="text"/>

TAP CHANGER

MANUFACTURER REINHAUSSEN MODEL MD1-I
 SERIAL NO. 1400253 YEAR 2013 GALLONS

TAP CHANGER OIL TEMP	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text" value="17"/>
TAP CHANGER OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text" value="50"/>
TAP POSITION	MIN <input type="text" value="8"/>	Max <input type="text" value="12"/>	AS FOUND	<input type="text" value="15"/>
COUNTER			AS FOUND	<input type="text" value="41,355"/>
DIVERTOR OIL LEVEL	MIN <input type="text"/>	Max <input type="text"/>	AS FOUND	<input type="text"/>
HEATER CONDITION	<input checked="" type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I			
RELIEF VENT	<input type="checkbox"/> G <input type="checkbox"/> P <input type="checkbox"/> C <input type="checkbox"/> I			

OIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:





Hawkesbury Hydro 115KV Station 55F1 feeder hot spot on Red phase

Measurements

Sp1	19.2 °C
Sp2	11.0 °C
Sp3	10.7 °C
Sp4	31.8 °C

Parameters

Emissivity	0.95
Refl. temp.	3 °C

Geolocation

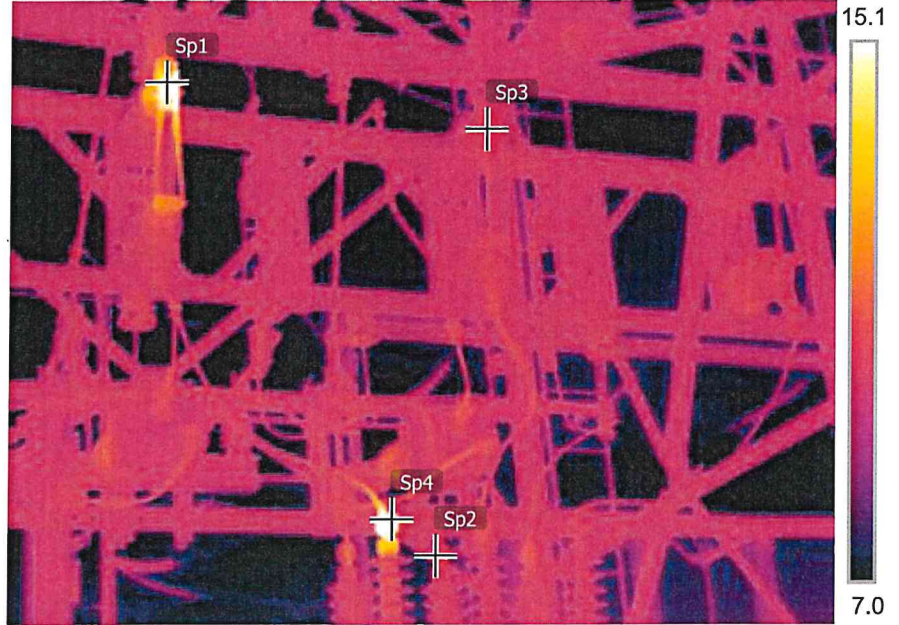
Location	N 45° 36' 56.27", W 74° 37' 53.28"
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<http://maps.google.com?z=17&l=k&q=45.6156,-74.6315>

Note

55F1 hot spot on red phase switch and connection. Temperature difference of 8.5°C on the switch. Temperature difference of 20.8°C on the recloser connection. Recommendation to clean troque and resistance test the switch and connection. Once repairs are completed there should be another IR scan performed to confirm the hot spot is resolved.

11/7/2023 9:43:41 AM

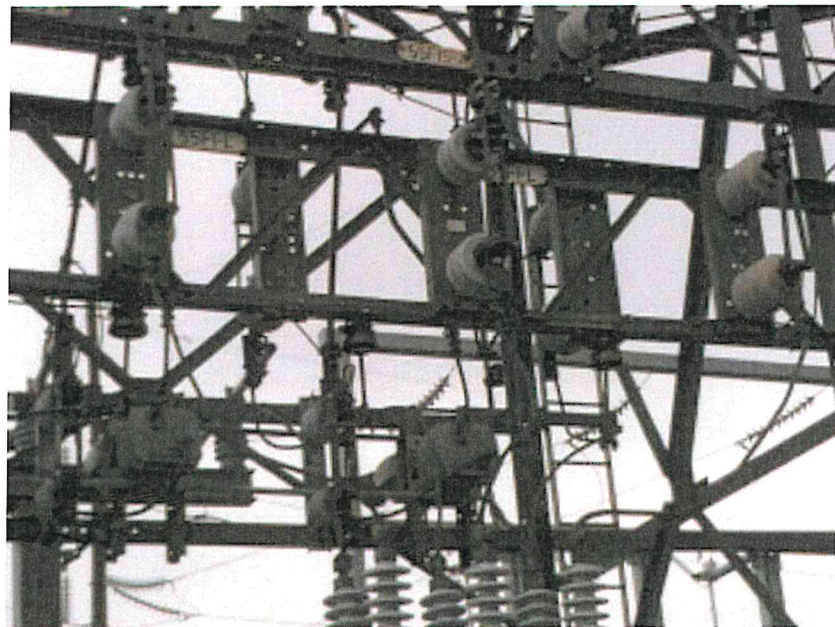


FLIR0112.jpg

FLIR E54

84508318

11/7/2023 9:43:41 AM



FLIR0112.jpg

FLIR E54

84508318



Hawkesbury Hydro 115KV station 55F2 blue phase hot spot on switch

Measurements

Sp1	19.3 °C
Sp2	13.7 °C

Parameters

Emissivity	0.95
Refl. temp.	5 °C

Geolocation

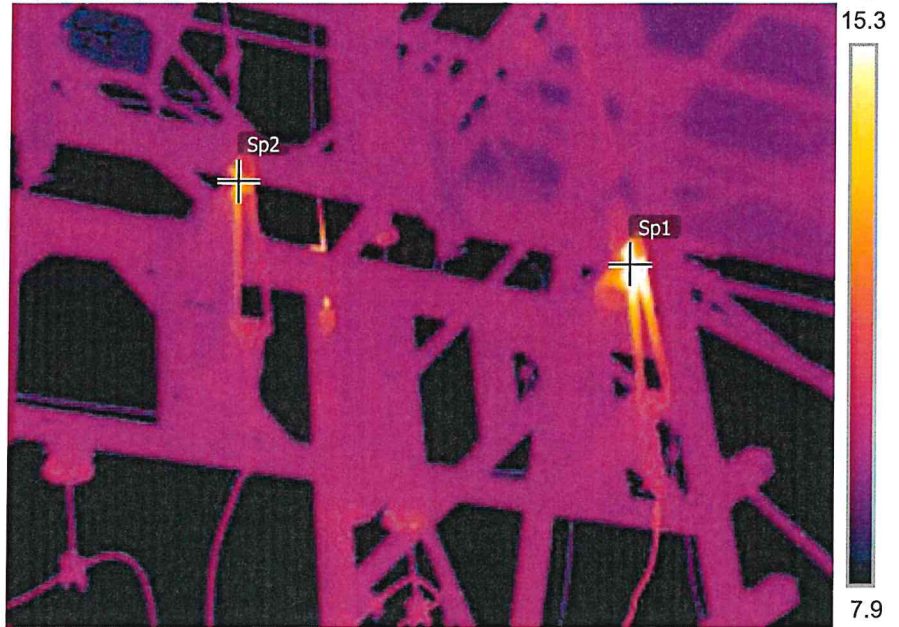
Location	N 45° 36' 56.41", W 74° 37' 53.38"
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<http://maps.google.com?z=17&t=k&q=45.6157,-74.6315>

Note

55F2 switch blue phase hot spot.
Temperature difference of 5.6. This is a minor temperature difference. Repair not needed immediately but it's a spot to monitor.

11/7/2023 9:44:24 AM

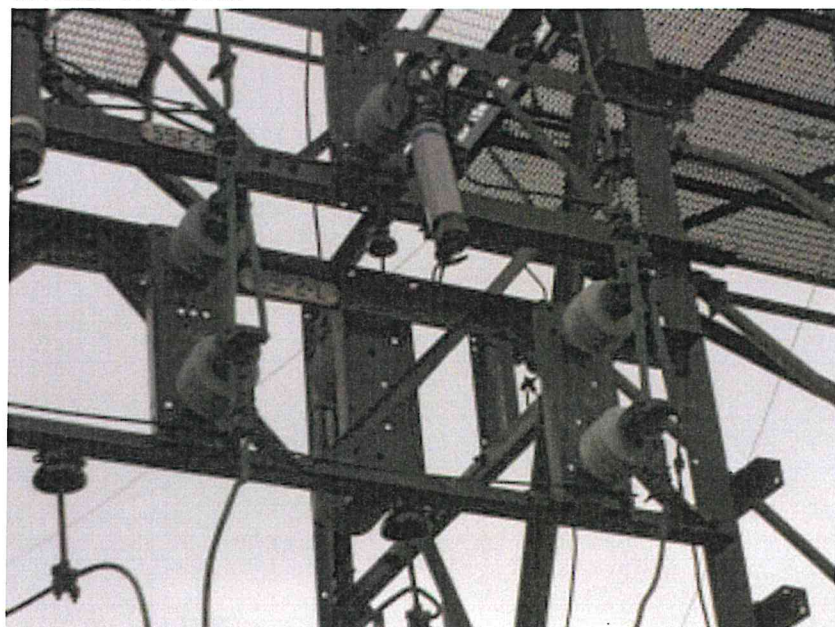


FLIR0113.jpg

FLIR E54

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11/7/2023 9:44:24 AM



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FLIR E54

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