

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	STATIO	n <u>НА</u>	WKESBL	JRY MTS			SUE DATE	
SUBSTATION ADDRESS	N	IAIN ST					COMPLE	TED DATE	2/24/2023
	WKSBURY 115KV		TEMPERATU	IDE -16	°C		D BY		QUE RIVET
		AIVIDIENT	IEMPERATO				D BY	DAVE	LEFEBVRE
WORK ORDER #	680819	_			TEST STA	TUS			
PROCEDURE									
FOLLOW WORK PROCE	DUDES EOD THE LI	STED INDIVID	IIAI INICOI	ECTIONS	AND CL			E POV	
CHECK ALL ITEMS SPEC					AND CI	ILUK AF	FRONIATE	БОХ	
✓ CALL INTO SYSTEM AN					ARTURE				
CONDITION	INSPECTION I					RI	EMARKS		
V G P C I N/A	YARD (fence, gate, ground	ds, stone)							
G P C I N/A	OVERALL BUILDING CON	NDITION							
G P C I N/A	PROTECTION RELAY PA	NELS							
G P C I N/A	OUTDOOR STRUCTURE	S							
G P C I N/A	STATION SERVICE TRAN	ISFORMERS							
G P C I N/A	SWITCHGEAR / RECLOS	ERS							
G P C I N/A	STATION IDENTIFICATIO	N SIGN							
G P C I N/A	PPE SIGN								
G P C I N/A	SITE SAFETY NOTICE SI	GN							
G P C I V N/A	CONTAINMENT PIT				_		_		
G P C I V N/A	SUMP PIT / OIL WATER S		CLEAN W	ATER	OIL SHE	EEN	SCADA S	STATUS OK	
G P C I V N/A	SMOKE DETECTOR VER	IFICATION							
G P C I V N/A	DGA SERVICE LIGHTS								
G P C I V N/A	VERIFY ATS OPERATION	l							
G = ITEMS FOUND IN SATISFACT									
P = ITEMS FOUND IN POOR CONC = ITEMS REPAIRED OR CORRE				ION					
I = ITEMS REQUIRING IMMEDIA			VDITION						
COMMENTS: - single fan not v	working on T3 motor ceased	d E-light needs to	be replaced	in battery ro	om. flashin	g at all time	es When fa	ns are put into r	manual on the T2 the
breaker trips. Ne	eed to investigate further F	Primary T2 switch I	ow on SF6 re	ading about	t 53PSI nan	ne plate m	entions minim	um operating p	ressure as 51PSI @
	anger low on oil. Could be of future inspections for sever		ig cola , to be	monitorea a	at next insp	ection Ev	vidence of an	oii leak at the of	fload tap changer. To
DEFICIENCIES:									
	-	ALARMS & GREE	N TAGS (SY	STEM OFF	ICE CHEC	K)			
ALARM OR GREEN TAG	AS FOUND	AS LE	FT				NOTI	ES	
		1							
		AUTOM	ATIC TRANS	EED SWIT	.cn				
OPERATION			ATIC TRAIN	JI EK OWII	<u> </u>		NOTES		
OPERATION		ASS / FAIL					NOTES		
VERIFY OPERTION BY OPENING N		PASS							
CONFIRM STATUS WITH SYSTEM	ONFIRM STATUS WITH SYSTEM OFFICE PASS								



			STATION	BATTERIES AN	ID CHARGER				
NUMBER OF CELLS	l	60	1						
SPECIFIED VOLTAGE PER CELL	•	2.25							
DC SYSTEM		PASS/	FAIL			NO	TES		
VERIFY NO ALARMS ON CHARGER		PAS	S						
VERIFY GROUNDING CONTINUITY		PAS	S						
VERIFY CORROSION		PAS	S						
/ERIFY WATER LEVELS (top-up if req	uired)	PAS	S						
DC VOLTAGE		Volts	5		ACCEPT	ABLE RANGE			
CHARGER DISPLAY VOLTAGE			125V to 130V						
MEASURED BANK VOLTAGE (disconn	nect charger)			> 90% OF (SPE	CIFIED CELL VO	LTAGE x NUMB	ER OF CELLS)		
				SUMP PUMI	•				
Operation		PASS /	FAIL	7					
CUIN FOR A MINITO CONFIRM ORF.	ATION	PAS	s						
CIRCUIT SWITCHER NOMENCLATURE	55T	3-L			RENT RATING		1200		
CIRCUIT SWITCHER		3-L			RENT RATING TAGE CLASS		1200 121		MPERES V
CIRCUIT SWITCHER IOMENCLATURE MANUFACTURER VISUAL IMSPECTION	55T SIEM	3-L ENS CONDITIO	DN .	VOL	TAGE CLASS	С кра	121 RED	WHITE	V BLUI
CIRCUIT SWITCHER IOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS	55T SIEM	3-L ENS CONDITION A	DN	VOL	TAGE CLASS		121	k	V
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX	55T SIEM	3-L ENS CONDITION A C A B C	DN D	VOL	TAGE CLASS	RESSURE	121 RED	WHITE	BLUE
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS	55T SIEM	CONDITION A C C A B C C A B C C	DN	VOL	FAGE CLASS PSI SF6 GAS PF	RESSURE	121 RED 61	WHITE	V BLUE
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM	SIEM	CONDITION CONDITION A C A B C A B C A B C A B C	DN	VOL	FAGE CLASS PSI SF6 GAS PF	RESSURE	121 RED 61	WHITE	V BLUE
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS FANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING	SIEM	CONDITION CONDITION A C A B C A B C A B C A B C	DN	VOL	FAGE CLASS PSI SF6 GAS PF	RESSURE	121 RED 61	WHITE	V BLUE
CIRCUIT SWITCHER MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION	SIEM	CONDITION CONDITION	DN	VOL	FAGE CLASS PSI SF6 GAS PF	RESSURE	121 RED 61	WHITE	V BLUE
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER	SIEM	CONDITION CONDITION	DN	VOL	FAGE CLASS PSI SF6 GAS PF	RESSURE	121 RED 61	WHITE 61	V BLUE
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION CIRCUIT SWITCHER	SIEM	CONDITION CONDITION A C A B C A C A	DN	VOL	PSI SF6 GAS PF OPERTION O	RESSURE	121 RED 61 72	WHITE 61	V BLUE 61
CIRCUIT SWITCHER IOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION CIRCUIT SWITCHER IOMENCLATURE	55T SIEM	CONDITION CONDITION A C A B C A C A	DN	VOL	PSI SF6 GAS PF OPERTION O	RESSURE	121 RED 61 72	WHITE 61	BLUI 61
CIRCUIT SWITCHER OMENCLATURE IANUFACTURER VISUAL IMSPECTION F6 LEAKS ANK & MECHANISM BOX FUSHINGS & INSULATORS FONTROL MECHANISM OUNDATION, FRAME, GROUNDING DIEATING BLANKET OPERATION CIRCUIT SWITCHER OMENCLATURE IANUFACTURER VISUAL IMSPECTION	55T SIEM	CONDITION CONDITION		VOL	PSI SF6 GAS PF OPERTION O RENT RATING TAGE CLASS	COUNTER	121 RED 61 72 1200 121 RED	WHITE 61 WHITE	BLUI 61 MPERES V
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS FANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION CIRCUIT SWITCHER MANUFACTURER VISUAL IMSPECTION SF6 LEAKS	55T SIEM	CONDITION CONDITION		VOL	PSI SF6 GAS PF OPERTION O	COUNTER	121 RED 61 72 1200 121	WHITE 61	BLUI 61
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER	55T SIEM	CONDITION CONDITION		VOL	PSI SF6 GAS PF OPERTION O RENT RATING TAGE CLASS	COUNTER	121 RED 61 72 1200 121 RED	WHITE 61 WHITE	BLUI 61 MPERES V
CIRCUIT SWITCHER NOMENCLATURE MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX BUSHINGS & INSULATORS CONTROL MECHANISM FOUNDATION, FRAME, GROUNDING HEATING BLANKET OPERATION CIRCUIT SWITCHER MANUFACTURER VISUAL IMSPECTION SF6 LEAKS TANK & MECHANISM BOX	55T SIEM 55T SIEM	CONDITION CONDITION		VOL	PSI SF6 GAS PF OPERTION O RENT RATING TAGE CLASS PSI SF6 GAS PF	COUNTER	121 RED 61 72 1200 121 RED 53	WHITE 61 WHITE	BLUE 61 61 WHERES V



						PAGE	
CWITCH							
SWITCH							
NOMENCLATURE	55T3-LBS						
VISUAL IMSPECTI	ION CONDITION						
BUSHINGS & INSULATORS	V A □ B □ C □	D F					
FOUNDATION, FRAME, GROUND	DING A B C	D 🔲 E					
DISCONNECT LIVE PARTS	✓ A B C	D F					
SWITCH							
NOMENCLATURE	55T2-LBS						
VISUAL IMSPECTI	ON CONDITION						
BUSHINGS & INSULATORS	V A □ B □ C □	D TE					
FOUNDATION, FRAME, GROUND	DING A B C	D 🔲 E					
DISCONNECT LIVE PARTS	V A □ B □ C □	D TE					
TRANSFORMER							
MANUFACTURER	MOLONEY ELECTRIC	KVA	3,500	/ 10,00	0 /	13,500	
ERIAL NUMBER	213081	PRIMARY VOLTAGE	110,000	/		DELTA	
EAR	1965	SECONDARY VOLTAGE	12,480	/ 7,20	0	WYE	
YPE C	ONSERVATOR	OIL VOLUME		L			
MPEDANCE	8.9 %	TOTAL WEIGHT	94850 LB	S			
EMPERATURE RISE	°C	# OF FANS	8				
IV BIL	550	TAP CHANGER	EXTERNA	AL			
V BIL	110						
VISUAL INSPECTION	CONDITION	GAUGES		NOTE: TRANS	SFORMER O	IL LEVEL = 50	0% @ 25C
BUSHINGS	□ A ▼ B □ C □ D □ E	WINDING TEMPERA	TURE MIN	Max		AS FOUND	
MAIN TANK	A B C D E	OIL TEMPERATU	RE MIN	Max		AS FOUND	21
OOLING		TRANSFORMER OIL		100%	4	AS FOUND	45
DIL TANK	A VB C D E	BUSHING OIL LEV		100%		AS FOUND	15
OUNDATION	VA DB DC DD DE	TRANSFORMER PRE GAS RELAY	SOURE		PA PSI	AS FOUND	0
ROUNDING	V A B C D E	SAG REEAT					
GASKET & SEALS	A B C D E	TAP CHANGE	R				
ONNECTORS	VA B C D E	MANUFACTURER	MOLONE	/ ELECTRIC	MODEL	·	
IL LEAKS		SERIAL NO.		YEAR	1965	GALLONS	400L
OIL LEVEL	VA B CD E	TAP CHANGER OIL		Max		AS FOUND	24
OVERALL		TAP CHANGER OIL I		Max		AS FOUND	30
JVLINALL	A B C D E	TAP POSITION	MIN	4 Max	11	AS FOUND	6
		COUNTER				AS FOUND	23,852
			/FI MINI	May		AS FOLIND	
		DIVERTOR OIL LE		Max		AS FOUND	

OIL FILTRATION PUMP PSI:

FILTER TYPE:

HOURS:

FILTER CHANGE DATE:



	ER										
MANUFACTURER	PENSYLVANIA TRAN	NSFORMER TECH	K	VA	15,0	000	/	20,000) /	25,000	
SERIAL NUMBER	C-09062	2-5-1	Р	RIMARY VOLTAGE	110,0	000	/			DELTA	
YEAR	2014		S	ECONDARY VOLTAGE	12,4	180	/	7,205	<u> </u>	WYE	
TYPE	CONSERVATOR		C	OIL VOLUME	186	65	L				
IMPEDANCE	10.2 %		Т	OTAL WEIGHT	5473	35 KC	3				
TEMPERATURE RISE	65 °C		#	OF FANS		8					
HV BIL	550		Т	AP CHANGER	EXTE	RNA	AL				
LV BIL	110										
VISUAL INSPECTION	ON CO	ONDITION		GAUGES			NOTE:	TRANS	FORMER (OIL LEVEL = 50	1% @ 250
BUSHINGS	Г А ГВ	CDDE		WINDING TEMPERAT	TURE N	ΛIN		Max		AS FOUND	
MAIN TANK	Г А ∏ В	CDDDE		OIL TEMPERATUR	RE N	ΛIN		Max		AS FOUND	
COOLING	V A □ B	C D D E		TRANSFORMER OIL L)%		100%		AS FOUND	
OIL TANK	Г А □ В	CDDDE		BUSHING OIL LEV TRANSFORMER PRES)%		100%	A \square PSI	AS FOUND	
FOUNDATION	V A □ B	CDDE		GAS RELAY	JOOKE			J NP	A J PSI	AS FOUND	
GROUNDING	Г А □ В	CDDDE		L						1	
GASKET & SEALS	Г А ГВ	CDDE		TAP CHANGE	R						
CONNECTORS	Г А ∏ В	CDDDE		MANUFACTURER		INH	AUSSEN		_	-)1-l
OIL LEAKS	Г А ГВ	CDDE		SERIAL NO.		AIN I	Y	AR	2013	GALLONS	
OIL LEVEL	Г А ∏ В	CDDDE		TAP CHANGER OIL T		ЛIN		Max Max		AS FOUND	6 45
OVERALL	V A □ B	C D D E		TAP POSITION		ΛIN	8	Max	16	AS FOUND	12
		, , , ,		COUNTER					1	AS FOUND	37,559
				DIVERTOR OIL LEV	/EL N	ΛIN		Max		AS FOUND	
				HEATER CONDITIO	N	V	G 🔲 1	P 🔲 '	C 🔲 I		



TYPE ROUTINE II	NSPECTION		STA	TION H	AWKESE	SURY MS		IS	SUE DATE	
SUBSTATION ADDRESS		TES	SIER ST						TED DATE	3/27/2023
FEEDER/NOMENCLATURE	TESSIEF			T TEMPERATI	JRE	°C			DOMIN	IIQUE RIVET
WORK ORDER #	680819					TEST STA				
PROCEDURE FOLLOW WORK PROCEI CHECK ALL ITEMS SPECI CALL INTO SYSTEM ANY CONDITION G P C I N/A	TARGETS INSPE YARD (fence, ga	STATION OR FLAC ECTION ITI ate, grounds	AND COME	PLETE ALL P	AGES.			RORIATE ARKS	E BOX	
G P C I N/A	OVERALL BUIL									
G P C I N/A	PROTECTION I									
	OUTDOOR STE									
G P C I N/A	SWITCHGEAR									
V G P C I N/A	STATION IDEN									
✓ G P C I N/A	PPE SIGN									
G P C I N/A	SITE SAFETY N	IOTICE SIG	N							
G P C I V N/A	CONTAINMENT	PIT								
G P C I V N/A	SUMP PIT / OIL	WATER SE	EPARATOR	CLEAN W	ATER	OIL SHE	EN	SCADA S	STATUS OK	
G P C I V N/A	SMOKE DETEC	TOR VERIF	FICATION							
G P C I V N/A	DGA SERVICE	LIGHTS								
G P C I V N/A	VERIFY ATS OF	PERATION								
P = ITEMS FOUND IN POOR CONC = ITEMS REPAIRED OR CORREI = ITEMS REQUIRING IMMEDIAT										
		Al	LARMS & GR	EEN TAGS (S)	STEM OF	FICE CHEC	K)			
ALARM OR GREEN TAG	AS FOUN	D	AS	LEFT				NOT	ES	
			AUTO	MATIC TRAN	SFER SWI	гсн				
OPERATION		PA	SS / FAIL				N	OTES		
VERIFY OPERTION BY OPENING NO	ORMAL FEED		PASS							
CONFIRM STATUS WITH SYSTEM (OFFICE		PASS							



NUMBER OF CELLS												PAGE	
DC SYSTEM													
DC SYSTEM					TATION	BATTERIES AND CHAR	GER						
PASS FAIL	NUMBER OF CELLS												
PASS	SPECIFIED VOLTAGE PER C	ELL											
PASS	DC SYSTE	M		PASS / FA	IL				N	IOTES			
PASS	/ERIFY NO ALARMS ON CHA	RGER		PASS									
PASS	ERIFY GROUNDING CONTIL	NUITY		PASS									
DC VOLTAGE	ERIFY CORROSION			PASS									
	ERIFY WATER LEVELS (top-	-up if requ	uired)	PASS									
SUMP PUMP SUMP PUMP PUMP PUMP PUMP PUMP PUMP PUMP	DC VOLTA	GE		Volts		Α	CCEPT	ABLE	RANGE				
SUMP PUMP SUMP PUMP SAS FAIL	HARGER DISPLAY VOLTAG	iE				125V to 130V							
SUMP PUMP SUMP PUMP SUMP PUMP SUMP PUMP SUMP PUMP SUMP PUMP SEALED SECONDARY VOLTAGE 44,000		(disconn	nect charger)			> 90% OF (SPECIFIED C	ELL VC	LTAGI	E x NUM	IBER OF	CELLS)		
PASS FAIL PASS		•		<u> </u>		·							
RANSFORMER			1			JOWIF FOIVIF							
TRANSFORMER					NIL.	4							
NANUFACTURER	RUN FOR 1 MIN TO CONFIRM	/I OPERA	ATION	PASS									
NANUFACTURER													
PRIMARY VOLTAGE	RANSFORMER												
SECONDARY VOLTAGE 12,470 / 7,200 WYE YPE	IANUFACTURER	FE	ERRANTI-PA	CKARD	K'	VA	10	,000	/	13,300) /	16,700	
Max Max	ERIAL NUMBER		03084010	01	Pl	RIMARY VOLTAGE	44	,000	/			DELTA	
PEDANCE	EAR	198	5		SI	ECONDARY VOLTAGE	12	,470	/	7,200)	WYE	
# OF FANS 6 TAP CHANGER INTERNAL SERIAL SERIAL	YPE	SEALI	ED		0	IL VOLUME			L				
# OF FANS 6 TAP CHANGER INTERNAL SET WERALL SET SET	/PEDANCE	6.96	%		Т	OTAL WEIGHT	31:	397 KG					
V BIL 250							011						
VISUAL INSPECTION							INT						
VISUAL INSPECTION					17	AI CHANGER	1111	LINA					
WINDING TEMPERATURE MIN Max AS FOUND 30 MAIN TANK					_								
OIL TEMPERATURE MIN	VISUAL INSPECTION		CON	DITION		GAUGES			NOTE:	TRANS	FORMER C	DIL LEVEL = 50	0% @ 25C
TRANSFORMER OIL LEVEL 0% 100% AS FOUND 55 BUSHING OIL LEVEL 0% 100% AS FOUND 40 TRANSFORMER PRESSURE	USHINGS									4			
OOLING A	AIN TANK		А 🗸 В 🗌	CDDDE						4			
TRANSFORMER PRESSURE OUNDATION A V B C D E OUNDATION A V B C D E ASKET & SEALS ONNECTORS A V B C D E IL LEAKS A V B C D E IL LEVEL VERALL A V B C D E TAP CHANGER MANUFACTURER 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 DIVERTOR OIL LEVEL MIN MAX AS FOUND	OOLING		А 🗸 В 📗	CDDE						4			
COUNDATION A	IL TANK		А 🗸 В 🗌	CDDDE						+	A PSI		10
MASKET & SEALS A B C D E ONNECTORS A B C D E MIL LEAKS A B C D E MIL LEVEL A B C D E VERALL A B C D E 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	OUNDATION		A 🔽 B 🗍	CDDE		GAS RELAY				T		4	
MASKET & SEALS A B C D E ONNECTORS A B C D E MIL LEAKS A B C D E MIL LEVEL A B C D E VERALL A B C D E 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	ROUNDING		А 🗸 В	CDDE]								
MANUFACTURER 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	SASKET & SEALS		А 🗸 В	CDDE		TAP CHANGE	R	_					
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	ONNECTORS				1				-		MODE		
TAP CHANGER OIL TEMP MIN MAX AS FOUND TAP CHANGER OIL LEVEL MIN MAX AS FOUND TAP POSITION MIN MAX AS FOUND COUNTER DIVERTOR OIL LEVEL MIN MAX AS FOUND DIVERTOR OIL LEVEL MIN MAX AS FOUND	IL LEAKS				1				Y		-	-	
VERALL TAP POSITION MIN Max AS FOUND COUNTER AS FOUND DIVERTOR OIL LEVEL MIN MAX AS FOUND	IL LEVEL				1					4			
COUNTER AS FOUND DIVERTOR OIL LEVEL MIN Max AS FOUND					i		LVEL			4			
DIVERTOR OIL LEVEL MIN Max AS FOUND			.,, -,		1			AVIII N		IVIAA			
							ÆL.	MIN		Max			+
								П	G \square	" 	C [] I	11	<u>'</u>
RELIEF VENT ☐ G ☐ P ☐ C ☐ I						RELIEF VENT		〒		_=			
DIL FILTRATION PUMP PSI: FILTER TYPE: FILTER CHANGE DATE: HOURS:													



		PAGE
TRANSFORMER		
MANUFACTURER	PIONEER TRANSFORMERS	KVA 10,000 / 13,330 / 16,670
SERIAL NUMBER	G16194-1	PRIMARY VOLTAGE 44,000 / DELTA
YEAR	2012	SECONDARY VOLTAGE 12,470 / 7,200 DELTA
	SEALED	OIL VOLUME L
IMPEDANCE		TOTAL WEIGHT 28880
	65 °C	#OF FANS 6
HV BIL	<u> </u>	TAP CHANGER EXTERNAL
LV BIL		LATERNAL LATERNAL
VISUAL INSPECTION	CONDITION	GAUGES NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C
BUSHINGS	V A □ B □ C □ D □ E	WINDING TEMPERATURE MIN Max AS FOUND 18
MAIN TANK	V A □ B □ C □ D □ E	OIL TEMPERATURE MIN Max AS FOUND 20
COOLING	V A □ B □ C □ D □ E	TRANSFORMER OIL LEVEL 0% 100% AS FOUND 40
OIL TANK	VA B C D E	BUSHING OIL LEVEL 0% 100% AS FOUND 40 TRANSFORMER PRESSURE FIXED AS FOUND 0
FOUNDATION	V A □ B □ C □ D □ E	
GROUNDING	VA □ B □ C □ D □ E	5.16 (122 t) NO 100 (1)
GASKET & SEALS	V A □ B □ C □ D □ E	TAP CHANGER
CONNECTORS	VA B C D E	MANUFACTURER ABB MODEL UZERT 250/300
OIL LEAKS	V A □ B □ C □ D □ E	SERIAL NO. 1ZSC 8714 910 YEAR 2013 GALLONS
OIL LEVEL	V A B C D E	TAP CHANGER OIL TEMP MIN Max AS FOUND 15
OVERALL	V A □ B □ C □ D □ E	TAP CHANGER OIL LEVEL MIIN MAX AS FOUND 30
OVERALL	NA BICIDIE	THE CONTOCK NAME IS NOT SOME IS
		COUNTER AS FOUND 2,586 DIVERTOR OIL LEVEL MIN Max AS FOUND
		HEATER CONDITION
		RELIEF VENT
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
Α	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.
В	Normal signs of wear with respect to the above characteristics.
С	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
Α	Bushings are not broken and are free of chips, radial cracks, flashover burns, copper splash, and copper wash. Cementing and fasteners are secure.
В	Bushings are not broken, but minor chips and cracks are visible. Cementing and fasteners are secure.
С	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
Α	No rust, corrosion, or moisture evident on main tank.
В	No rust or corrosion on main tank, but some evidence of moisture ingress or condensation.
С	Some rust and corrosion on main tank.
D	Significant corrosion on main tank – repairable.
Е	Significant corrosion on main tank – degradation beyond repair.

Station transformer cooling equipment condition criteria

Condition	Visual Inspection Criteria – Cooling Equipment
Α	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.
В	Normal signs of wear with respect to the above characteristics.
С	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
Α	No rust, corrosion, or moisture evident on oil tank.
В	No rust or corrosion on oil tank, but some evidence of moisture ingress or condensation.
С	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

- 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.





TYPE MAINT	ENANCE	STATIO	DN	MS #	ŧ2		ISSUE DATE	
		_				COM	MPLETED DATE	8/29/2022
SUBSTATION ADDRESS					•	TESTED BY	DOMINIC	QUE RIVET
FEEDER/NOMENCLATURE	TESSIER	AMBIENT T	TEMPERATU	JRE <u>25</u>	°C	TESTED BY	BEN E	BOILEAU
WORK ORDER #	680819				TEST STA	TUS		
PROCEDURE								
FOLLOW WORK PROCE	OURES FOR THE LI	STED INDIVIDU	UAL INSPE	CTIONS	AND CH	ECK APPROR	NATE BOX	
CHECK ALL ITEMS SPECI	FIC TO THIS STATIO	N AND COMPLE	ETE ALL PA	AGES.				
CALL INTO SYSTEM ANY	/ TARGETS OR FLA	AGGING AND F	RESET UP	ON DEP	ARTURE			
CONDITION	INSPECTION	ITEM				REMARK	is	
G P C I N/A	YARD (fence, gate, groun	ids, stone)						
G P C I N/A	OVERALL BUILDING CO	NDITION						
G P C I V N/A	PROTECTION RELAY PA							
G P C I N/A	OUTDOOR STRUCTURE							
G P C I N/A	STATION SERVICE TRA							
G P C I N/A	SWITCHGEAR / RECLOS							
G P C I N/A	STATION IDENTIFICATION	JN SIGN						
G P C I N/A	PPE SIGN SITE SAFETY NOTICE S	IGN						
G P C I V N/A	CONTAINMENT PIT	IGN						
G P C I V N/A						EEN SC	ADA STATUS OK	
G P C I V N/A	SMOKE DETECTOR VER		CLEAN W	MEN	OIL OIL		ABACTATION OIL	
G P C I V N/A	DGA SERVICE LIGHTS							
G P C I V N/A	VERIFY ATS OPERATIO	N						
G = ITEMS FOUND IN SATISFACTP = ITEMS FOUND IN POOR CON		G FUTURE CORE	RECTIVE AC	TION				
C = ITEMS REPAIRED OR CORRE								
I = ITEMS REQUIRING IMMEDIA	TE CORRECTIVE ACTIO	NS						
	ON TRANSFORMER . B	REAKER WAS OF	F.					
DEFICIENCIES:								
	I	ALARMS & GREE	N TAGS (SY	STEM OF	FICE CHEC	CK)		
ALARM OR GREEN TAG	AS FOUND	AS LE	FT				NOTES	
N/A	N/A	N/A		N/A				
		AUTOM	ATIC TRANS	SFER SWIT	ГСН			
OPERATION	Р	ASS / FAIL				NOTE	ES .	
VERIFY OPERTION BY OPENING N	IORMAL 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							



PAGE 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 ACCEPTABLE RANGE Volts CHARGER DISPLAY VOLTAGE 132 125V to 130V MEASURED BANK VOLTAGE (disconnect charger) > 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS) > 90% OF (SPECIFIED CELL VOLTAGE x NUMBER OF CELLS) MEASURED BANK VOLTAGE (disconnect charger) SUMP PUMP Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS

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MANUFACTURER	FERRANTI-PACKARD	KVA	10,000 /	13,300 /	16,700	
SERIAL NUMBER	0308401001	PRIMARY VOLTAGE	44,000 /		DELTA	
YEAR	1985	SECONDARY VOLTAGE	12,470 /	7,200	WYE	
ΓΥΡΕ <u></u>	SEALED	OIL VOLUME	L			
MPEDANCE	6.96 %	TOTAL WEIGHT	31397 KG			
TEMPERATURE RISE	65 °C	# OF FANS	6			
HV BIL	250	TAP CHANGER	INTERNAL			
_V BIL	95		_			
VISUAL INSPECTION	CONDITION	GAUGES	NOTE:	TRANSFORMER C	OIL LEVEL = 50% (@ 25C
BUSHINGS	VA B B C D D	WINDING TEMPERATUR	RE MIN	Max	AS FOUND	
MAIN TANK	VA DB DC DD D	OIL TEMPERATURE	MIN	Max	AS FOUND	50
COOLING	V A □ B □ C □ D □	TRANSFORMER OIL LEV		100%	<u> </u>	60
OIL TANK	V A □ B □ C □ D □	BUSHING OIL LEVEL	0%	100%	AS FOUND	
FOUNDATION	VA DB CC DD	TRANSFORMER PRESSU GAS RELAY	KE	KPA PSI	AS FOUND AS FOUND	
GROUNDING	VA DB DC DD	ONO NEENT	<u>l</u>		ACTOCKE	
GASKET & SEALS	VA DB CC DD	TAP CHANGER				
CONNECTORS	VA DB DC DD	MANUFACTURER		MODE	L	
DIL LEAKS	VA DB DC DD	SERIAL NO.	Y	EAR	GALLONS	
		TAP CHANGER OIL TEM	IP MIN	Max	AS FOUND	
OIL LEVEL	V A B C D	TAP CHANGER OIL LEVE	EL MIN	Max	AS FOUND	
OVERALL	A B C D C	TAP POSITION	MIN	Max	AS FOUND	
		COUNTER			AS FOUND	
		DIVERTOR OIL LEVEL	MIN	Max	AS FOUND	
		HEATER CONDITION	ГБГ	РПСПІ		



PAGE TRANSFORMER MANUFACTURER PIONEER TRANSFORMERS **KVA** 10,000 13,330 16,670 PRIMARY VOLTAGE DELTA SERIAL NUMBER G16194-1 44,000 YEAR 2012 SECONDARY VOLTAGE 12,470 7,200 DELTA TYPE SEALED OIL VOLUME 6.91 **IMPEDANCE** % TOTAL WEIGHT 28880 TEMPERATURE RISE # OF FANS HV BIL TAP CHANGER **EXTERNAL** LV BIL **GAUGES** CONDITION VISUAL INSPECTION NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C WINDING TEMPERATURE MIN AS FOUND **BUSHINGS** VA B B C C D D E Max OIL TEMPERATURE MIN Max AS FOUND 30 MAIN TANK V A □ B □ C □ D □ E TRANSFORMER OIL LEVEL AS FOUND 0% 100% 50 COOLING VA B C C D E **BUSHING OIL LEVEL** 0% 100% AS FOUND 50 OIL TANK ✓ A ☐ B ☐ C ☐ D ☐ E TRANSFORMER PRESSURE AS FOUND KPA 🗸 PSI **FOUNDATION** V A □ B □ C □ D □ E **GAS RELAY** AS FOUND GROUNDING **V**A □B □C □D □E **TAP CHANGER GASKET & SEALS** MANUFACTURER MODEL UZERT 250/300 ABB CONNECTORS ▼A □B □C □D □E 1ZSC 8714 910 YEAR GALLONS SERIAL NO. 2013 OIL LEAKS VA B C C D E TAP CHANGER OIL TEMP AS FOUND MIN Max 30 OIL LEVEL **V**A □B □C □D □E TAP CHANGER OIL LEVEL Max AS FOUND MIN 50 OVERALL V A □ B □ C □ D □ E TAP POSITION MIN 12 Max 12 AS FOUND COUNTER AS FOUND 2.895 **DIVERTOR OIL LEVEL** MIN Max AS FOUND HEATER CONDITION **▽** G □ P □ C □ I RELIEF VENT **√** G □ P □ C □ I OIL FILTRATION PUMP PSI: 0 FILTER TYPE: FILTER CHANGE DATE: HOURS: 9:59



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.



TYPE MAIN	ΓENANCE		STATIO	ON				IS	SSUE DATE	
SUBSTATION ADDRESS								COMPLI	ETED DATE	8/29/2022
		=				_				QUE RIVET
FEEDER/NOMENCLATURE H/	AWKSBURY ?	115KV	AMBIENT	TEMPERATU	JRE	<u>°C</u>	TESTED	BY	BEN	BOILEAU
WORK ORDER #	680819		-			TEST STA	TUS			
PROCEDURE										
FOLLOW WORK PROCE						S AND CH	IECK API	PRORIAT	E BOX	
CHECK ALL ITEMS SPEC										
CALL INTO SYSTEM AN				RESET UP	ON DEF	PARTURE				
CONDITION		CTION ITE					RE	MARKS		
G P C I N/A		ARD (fence, gate, grounds, stone) /ERALL BUILDING CONDITION								
G P C I N/A	PROTECTION R									
G P C I N/A	OUTDOOR STR		LLO							
G P C I N/A	STATION SERV		FORMERS							
✓ G P C I N/A	SWITCHGEAR /	RECLOSE	RS							
G P C I N/A	STATION IDENT	SIGN								
V G □ P □ C □ I □ N/A	C I N/A PPE SIGN									
G P C I N/A	G P C I N/A SITE SAFETY NOTICE SIGN									
G □ P □ C □ I □ N/A	P C I N/A CONTAINMENT PIT									
☐ G ☐ P ☐ C ☐ I 🔽 N/A	SUMP PIT / OIL	WATER SE	PARATOR	CLEAN W	ATER	OIL SH	EEN	SCADA	STATUS OK	
G P C I V N/A	SMOKE DETECT	TOR VERIF	ICATION							
G P C I V N/A	DGA SERVICE L									
G P C I V N/A	VERIFY ATS OF	PERATION								
G = ITEMS FOUND IN SATISFAC										
P = ITEMS FOUND IN POOR COC = ITEMS REPAIRED OR CORF					TION					
I = ITEMS REQUIRING IMMEDIA				DINDITION						
COMMENTS:										
DEFICIENCIES:										
		AL	ARMS & GREE	EN TAGS (SY	STEM OF	FFICE CHE	CK)			
ALARM OR GREEN TAG	AS FOUN	D	AS LE	FT				NO	TES	
N/A	N/A		N/A							
			AUTOM	IATIC TRANS	SFER SWI	ITCH				
OPERATION		PAS	SS / FAIL					NOTES		
VERIFY OPERTION BY OPENING	NORMAL FEED	ı	PASS	N/A						
CONFIRM STATUS WITH SYSTEM	I OFFICE		PASS	N/A						
CONFIRM STATUS WITH SYSTEM	OFFICE	ı	PASS	N/A						
CONFIRM STATUS WITH SYSTEM										



								PAG	E
		ST	TATION E	BATTER	IES AND CHARGE	:R			
NUMBER OF CELLS		10							
SPECIFIED VOLTAGE PER CELL		12							
DC SYSTEM		PASS / FAII	L			NC	OTES		
VERIFY NO ALARMS ON CHARGER		PASS							
VERIFY GROUNDING CONTINUITY		PASS							
VERIFY CORROSION		PASS							
- VERIFY WATER LEVELS (top-up if rec	RIFY WATER LEVELS (top-up if required) PASS		1	N/A					
DC VOLTAGE		Volts	一		ACC	EPTABLE RANGE			
CHARGER DISPLAY VOLTAGE		135	1	25V to 1	30V				
//EASURED BANK VOLTAGE (disconnect charger) >		90% O	F (SPECIFIED CEL	L VOLTAGE x NUM	IBER OF CELLS)				
MEASURED BANK VOLTAGE (discon	ASURED BANK VOLTAGE (disconnect charger)		>	90% O	F (SPECIFIED CEL	LL VOLTAGE x NUM	IBER OF CELLS)		
				SUMP	PUMP			-	
Operation		PASS / FAI	IL	1					
RUN FOR 1 MIN TO CONFIRM OPER	ATION	PASS		1					
NOMENCLATURE MANUFACTURER	55T3 SIEME		<u> </u>		CURRENT RATI		1200		MPERES V
VISUAL IMSPECTION		CONDITION			PSI	C KPA	RED	WHITE	BLUE
SF6 LEAKS	✓ A		☐ E		SF6 GA	S PRESSURE	65	65	65
TANK & MECHANISM BOX BUSHINGS & INSULATORS	✓ A				OPERTI	ON COUNTER	60]	
CONTROL MECHANISM	, i		D E	1					
FOUNDATION, FRAME, GROUNDING	▼ A	ВПСП	D E						
HEATING BLANKET OPERATION		N/A							
CIRCUIT SWITCHER									
NOMENCLATURE	55T2	2-L			CURRENT RATI	NG	1200		MPERES
MANUFACTURER	SIEME	ENS			VOLTAGE CLAS	ss	121	k	V
VISUAL IMSPECTION		CONDITION		7	♠ PSI	C KPA	RED	WHITE	BLUE
SF6 LEAKS	√ A		E		SF6 GA	S PRESSURE	63	63	63
TANK & MECHANISM BOX	√ A	. 🗌 в 🔲 С 🔲	D 🔲 E		OPERT	ON COUNTED	- 00	1	
BUSHINGS & INSULATORS	▽ A	ВГСГ	D \prod E		OPERTI	ON COUNTER	20	J	
CONTROL MECHANISM	✓ A								
FOUNDATION, FRAME, GROUNDING	✓ A	ВСС	D E						
HEATING BLANKET OPERATION		N/A							



							F	PAGE	
SWITCH									
NOMENCLATURE	55T3-LB	S	_						
VISUAL IMSPEC	TION	CONDITION	\neg						
BUSHINGS & INSULATORS	VA	ВСГО	E						
FOUNDATION, FRAME, GROU		ВПСПОГ	TE .						
DISCONNECT LIVE PARTS	✓ A		E						
	-								
SWITCH									
NOMENCLATURE	55T2-LB	S	-						
VISUAL IMSPEC	CTION	CONDITION							
BUSHINGS & INSULATORS	√ A	∏в ∏ с ∏ d ∏	E						
FOUNDATION, FRAME, GROU	INDING A	BCDD	E						
DISCONNECT LIVE PARTS	✓ A	 Гв	E						
	-								
TRANSFORME	₹								
MANUFACTURER	MOLONEY ELEC	TRIC	KVA	3,500	/	10,000	/ 13,500		
SERIAL NUMBER	213081		PRIMARY VOLTAGE	110,00	0 /		DELTA		
YEAR	1965		SECONDARY VOLTAGE	12,480) /	7,200	WYE		
TYPE _	CONSERVATOR		OIL VOLUME		L				
MPEDANCE	8.9 %		TOTAL WEIGHT	94850 I	BS				
TEMPERATURE RISE	°C		# OF FANS	8					
HV BIL	550		TAP CHANGER	EXTER	NAI				
LV BIL	110			EXTER	W.E				
	110								
VISUAL INSPECTION	CONDIT	ION	GAUGES		NOTE:	TRANSFORM	IER OIL LEVEL	_ = 50%	% @ 25C
BUSHINGS	V A □ B □ C	DFE	WINDING TEMPERAT			Max	AS FOL		
MAIN TANK	▼ A □ B □ C	DDE	OIL TEMPERATUR			Max	AS FOL		54
COOLING	Г А ГВ ГО	DFE	TRANSFORMER OIL LI BUSHING OIL LEVE			100%	AS FOL		60
OIL TANK	√ A ☐ B ☐ C	DDE	TRANSFORMER PRES				PSI AS FOL		
FOUNDATION	V A □ B □ C	DTE	GAS RELAY			1471	AS FOL		
GROUNDING	√ A ☐ B ☐ C	DDE		•			•		
GASKET & SEALS	Г А ГВ ГО	DDE	TAP CHANGER	₹					
CONNECTORS	V A □ B □ C	DDE	MANUFACTURER	MOLON	EY ELEC		MODEL		
OIL LEAKS	V A □ B □ C	DDE	SERIAL NO.			. —	965 GALLO		400L
OIL LEVEL	√ A □B □C		TAP CHANGER OIL T			Max	AS FOL		40
OVERALL	V A □ B □ C		TAP CHANGER OIL LE		N 5	Max 11	AS FOL		25 9
	, , , , ,	, , ,	COUNTER		- 15	IVION 11	AS FOL		20,382
			DIVERTOR OIL LEV	EL MIN	١ -	Max	AS FOL		
			HEATER CONDITION		G	Р 🗌 С 🗆			
			RELIEF VENT	- -	G	PCC	1		
OIL FILTRATION PUMP	PSI: 1 FILTER	₹TYPE:	l F	ILTER CHA	NGE DAT	ΓE:	HOL	JRS:	1



OIL FILTRATION PUMP

PSI:

FILTER TYPE:

PAGE TRANSFORMER MANUFACTURER PENSYLVANIA TRANSFORMER TECH 15,000 20,000 **KVA** 25,000 PRIMARY VOLTAGE DELTA SERIAL NUMBER C-09062-5-1 110,000 YEAR 2014 SECONDARY VOLTAGE 12,480 7,205 WYE TYPE CONSERVATOR OIL VOLUME 18665 **IMPEDANCE** 10.2 % TOTAL WEIGHT 54735 KG TEMPERATURE RISE °C # OF FANS HV BIL 550 TAP CHANGER **EXTERNAL** LV BIL 110 **GAUGES** CONDITION VISUAL INSPECTION NOTE: TRANSFORMER OIL LEVEL = 50% @ 25C WINDING TEMPERATURE MIN AS FOUND **BUSHINGS** VA B B C C D D E Max OIL TEMPERATURE MIN Max AS FOUND 50 MAIN TANK V A □ B □ C □ D □ E TRANSFORMER OIL LEVEL AS FOUND 0% 100% 50 COOLING VA B C C D E **BUSHING OIL LEVEL** 0% 100% AS FOUND 50 OIL TANK ✓ A ☐ B ☐ C ☐ D ☐ E TRANSFORMER PRESSURE AS FOUND KPA **FOUNDATION** V A □ B □ C □ D □ E **GAS RELAY** AS FOUND GROUNDING **V**A □B □C □D □E **TAP CHANGER GASKET & SEALS** MANUFACTURER REINHAUSSEN MODEL MD1-I CONNECTORS ▼A □B □C □D □E 1400253 YEAR GALLONS SERIAL NO. 2013 OIL LEAKS VA B C C D E TAP CHANGER OIL TEMP Max AS FOUND MIN 34 OIL LEVEL **V**A □B □C □D □E Max TAP CHANGER OIL LEVEL AS FOUND MIN 50 OVERALL V A □ B □ C □ D □ E MIN 9 TAP POSITION Max 17 AS FOUND COUNTER AS FOUND 34.559 **DIVERTOR OIL LEVEL** MIN Max AS FOUND HEATER CONDITION **▽** G □ P □ C □ I RELIEF VENT **√** G □ P □ C □ I

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



Michel Poulin Nov 23, 2023

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

John Fetzer Hydro Ottawa

613-868-4080



44kv Substation Results









TYPE ROUTIN	IE INSPECTION		ST.	ATIONF	IAWKESBL	JRY MS		ISSUE DATE	
SUBSTATION ADDRESS		TES	SSIER ST					COMPLETED DATE	11/8/2023
FEEDER/NOMENCLATURE	TESSIE	R	AMRIE	NT TEMPERAT	URE	°C		DOMIN	
·				IVI TEMI EIVI					
WORK ORDER #	680819					ESISIA	TUS		
PROCEDURE									
FOLLOW WORK PROC	EDURES FOR	THE LIS	STED INDI	VIDUAL INSP	ECTIONS A	AND CH	ECK APPR	ORIATE BOX	
CHECK ALL ITEMS SPE									
CALL INTO SYSTEM A	NY TARGETS	OR FLA	GGING AN	ID RESET U	ON DEPA	RTURE			
CONDITION	INSF	ECTION IT	ГЕМ				REMA	RKS	
VG P C C I N/A	YARD (fence,	gate, ground	ls, stone)						
G P C I V N/A	A OVERALL BU	LDING CON	IDITION						
G P C C I N/A	PROTECTION	RELAY PAI	NELS						
G V P C C I N/A	OUTDOOR ST	UTDOOR STRUCTURES C			n one of the fe	eeders se	e IR report.		
VG P C T I N/A	STATION SER	STATION SERVICE TRANSFORMERS							No. 14
G P C I N/A	SWITCHGEAF	/ RECLOSE	ERS						
V G T P T C T I T N/A	STATION IDE	STATION IDENTIFICATION SIGN							
G P C I N/A	A PPE SIGN	PPE SIGN							
VG P C C I N/A	SITE SAFETY	SITE SAFETY NOTICE SIGN							
G P C I V N/A	CONTAINMEN	CONTAINMENT PIT							
G P C I V N/A		WATER S	EPARATOR	CLEAN V	ATER	OIL SHE	EN :	SCADA STATUS OK	THE RESERVE
G P C I V N/A		CTOR VERI	FICATION						
G P C T I V N/A						1000			
G P C I V N/A	VERIFY ATS C	PERATION							
G = ITEMS FOUND IN SATISFA	CTORY CONDITI	NC							
P = ITEMS FOUND IN POOR CO					TION				
C = ITEMS REPAIRED OR CORI = ITEMS REQUIRING IMMEDI				CONDITION					
The contraction of the contracti	ATE CONNECTIV	LACTION							
COMMENTS: DEFICIENCIES: Silica beads o	n the T2 tap chan	ger need to	be replaced						
		AL	_ARMS & GF	REEN TAGS (S)	STEM OFFIC	CE CHEC	K)		
ALARM OR GREEN TAG	AS FOUR			LEFT				NOTES	
ALAKIII OK OKLEN IAO	70100		7.0						
			AUT	OMATIC TRANS	SFER SWITC	Н			
OPERATION		PAS	SS / FAIL	T			NO	TES	
VERIFY OPERTION BY OPENING	NORMAL FEED	1	PASS			a			
CONFIRM STATUS WITH SYSTEM	M OFFICE	ı	PASS						



					PAGE
			STATIO	ON BATTERIES AND CHARGER	The second secon
NUMBER OF CELLS		10			
SPECIFIED VOLTAGE PER CELL		12			
DC SYSTEM		PASS / F	AIL	NOTES	
VERIFY NO ALARMS ON CHARGER	ERIFY NO ALARMS ON CHARGER PASS		í		
VERIFY GROUNDING CONTINUITY		PASS	i		
VERIFY CORROSION		PASS	í		
VERIFY WATER LEVELS (top-up if rec	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 / F	AIL		
RUN FOR 1 MIN TO CONFIRM OPERA	ATION	PASS		7	



TRANSFORMER									
MANUFACTURER	FERRANTI-PACKARD	ŀ	KVA	10,000	1	13,300	1	16,700	
SERIAL NUMBER	0308401001		PRIMARY VOLTAGE	44,000	1			DELTA	
YEAR	1985		SECONDARY VOLTAGE	12,470	1	7,200		WYE	
YPE	SEALED	(OIL VOLUME		L				
MPEDANCE	6.96 %	7	TOTAL WEIGHT	31397 K	G				
EMPERATURE RISE	65 °C	#	# OF FANS	6					
HV BIL	250	7	TAP CHANGER	INTERN	AL.				
	95		_						
VISUAL INSPECTION	CONDITION		GAUGES		NOTE:	TRANSFO	ORMER (OIL LEVEL = 50°	% @ 25C
BUSHINGS	VA B C C D C	E	WINDING TEMPERATUR	E MIN		Max		AS FOUND	
IAIN TANK	VA B C D	E	OIL TEMPERATURE	MIN		Max		AS FOUND	35
COOLING	VALB C C D I	E	TRANSFORMER OIL LEVI			100%		AS FOUND	55
DIL TANK	VA B C D	TE	BUSHING OIL LEVEL	0%		100%		AS FOUND	
OUNDATION	VA CB CC D	E	GAS RELAY	RE		KPA	PSI	AS FOUND	
GROUNDING	VA B C D	TE	GAS KELAT					TAS I COND	
GASKET & SEALS	VA B C C D C	E	TAP CHANGER						
CONNECTORS	VA B C D	TE	MANUFACTURER				MODE	L	
		and the second	SERIAL NO.		YI	EAR _		GALLONS _	
OIL LEAKS	VA B C D	E	TAP CHANGER OIL TEM	P MIN		Max		AS FOUND	
IL LEVEL	VA B C D	E	TAP CHANGER OIL LEVE	L MIN		Max		AS FOUND	
VERALL	VA B C D	E	TAP POSITION	MIN		Max		AS FOUND	
			COUNTER					AS FOUND	
			DIVERTOR OIL LEVEL	MIN		Max		AS FOUND	
			HEATER CONDITION		G 🗌	Р 🗌 С			
			RELIEF VENT		GГ	РГС			



									PAG	E
TRANSFORMER	R									
MANUFACTURER	PIONEER TRANSFORMERS	. K	VA _	10	0,000	1	13,330		16,670	
SERIAL NUMBER	G16194-1	. Р	RIMARY VOLTAGE	44	1,000	1			DELTA	
YEAR	2012	S	ECONDARY VOLTAGE	12	2,470	1	7,200		DELTA	
TYPE	SEALED	0	IL VOLUME			<u>L</u>				
IMPEDANCE	6.91 %	T	OTAL WEIGHT	2	28880					
TEMPERATURE RISE	65 °C	#	OF FANS		6					
HV BIL		T	AP CHANGER	EX	TERNAL					
LV BIL										
VISUAL INSPECTION	CONDITION	1	GAUGES		N	OTE: T	RANSF	ORMER (OIL LEVEL = 5	0% @ 25C
BUSHINGS	VA B C D E		WINDING TEMPERATU	JRE	MIN [Max		AS FOUND	16
MAIN TANK	VA B C D E	1	OIL TEMPERATURE		MIN		Max		AS FOUND	16
COOLING	VA B C D E		TRANSFORMER OIL LE	200000 30 20	0%		100%		AS FOUND	40
OIL TANK	VA B C D E		BUSHING OIL LEVE TRANSFORMER PRESS		0%		10075	17 pg	AS FOUND	+
FOUNDATION	VA B C D E		GAS RELAY	,OILE			J IN	1 10	AS FOUND	
GROUNDING	VA B C D E	ĺ '								
GASKET & SEALS	VA B C D E		TAP CHANGER							
CONNECTORS	VA B C D E		MANUFACTURER					_ MODE		250/300
OIL LEAKS	VA B C D E	1	SERIAL NO. 1ZSC				AR _	2013	_ GALLONS	
OIL LEVEL	VA B C D E		TAP CHANGER OIL TE		MIN MIN	_	Max [AS FOUND	25
OVERALL	VA B C D E		TAP POSITION		MIN 12		Max [12	AS FOUND	12
	•	'	COUNTER						AS FOUND	2,586
			DIVERTOR OIL LEVE	:L	MIN		Max		AS FOUND	
			HEATER CONDITION		G	□Р	, [c			
			RELIEF VENT	\perp	☐ G	□ P	· 🗌 c			
OIL FILTRATION PUMP PS	SI: FILTER TYPE:		Fil	LTER (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

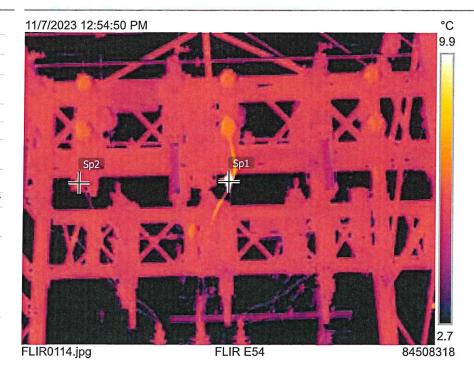
Geolocation

Location	N 45° 35' 58.72", W 74° 35' 26.44"

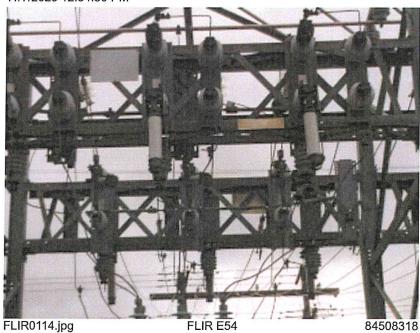
http://maps.google.com?z=17&t=k&q=45.5996,-74.5907

Note

43F2 white phase hot line clamp. Tempurature 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





115kv Substation Results



TYPEROUTIN	ROUTINE INSPECTION STA			ON H	AWKESBU	RY MTS		ISSUE DATE	
SUBSTATION ADDRESS	MAIN ST							OMPLETED DATE	November 7, 2023
	HAWKSBURY	/ 115KV	AMBIENT	TEMPERAT	URE 3	°C	TESTED BY		IQUE RIVET
			WIDIE! T	· Lim Liv (i				-	
WORK ORDER #	WORK ORDER # 680819 TEST STATUS								
PROCEDURE									
FOLLOW WORK PROCEDURES FOR THE LISTED INDIVIDUAL INSPECTIONS AND CHECK APPRORIATE BOX									
CHECK ALL ITEMS SPECIFIC TO THIS STATION AND COMPLETE ALL PAGES.									
✓ CALL INTO SYSTEM A						RTURE			
CONDITION		PECTION ITEM					REMAR	:KS	
VG P C C I C N/		gate, grounds, ston	e) Fe	nce in good	condition and	grounding	g is sufficient.		
VG P C I N/	A OVERALL BU	ILDING CONDITION	u						
TG TP TC TIT N/	PROTECTION	RELAY PANELS	Th	ere is an err	or code on the	e relay par	nel. See attache	ed photo	
VG P C I N/	OUTDOOR ST	RUCTURES							
VG P C C I N/A	STATION SER	RVICE TRANSFORM	MERS						
G V P C C I N/A	SWITCHGEAR	R / RECLOSERS	2 h	ot spots on :	2 different fee	eders, See	attached IR rep	port.	
VG P C T I N/A	STATION IDE	NTIFICATION SIGN							
VG P C C I N/A	PPE SIGN								
VG P C C I N/A	SITE SAFETY	NOTICE SIGN							
G P C I V N/A	CONTAINMEN	IT PIT							
G G P C C I V N/A	SUMP PIT / OI	L WATER SEPARA	TOR	CLEAN W	/ATER	OIL SHE	EN S	CADA STATUS OK	
G P C I V N/A	SMOKE DETE	CTOR VERIFICATION	ON						
□G □ P □ C □ I ▼ N/A	DGA SERVICE	LIGHTS							
G P C I V N/A	VERIFY ATS C	PERATION						***	
G = ITEMS FOUND IN SATISFA	CTORY CONDITI	ON							
P = ITEMS FOUND IN POOR CO		TION							
C = ITEMS REPAIRED OR COR			TORY CO	NDITION					
I = ITEMS REQUIRING IMMED									
						Telephone In Sec. 1999		s see attached IR repo ing the battery and it w	ort. E-Light in battery room vas not the issue.
	itch seems to be								
ALARMS & GREEN TAGS (SYSTEM OFFICE CHECK)									
ALARM OR GREEN TAG	AS FOU	AS FOUND AS		FT				NOTES	
AUTOMATIC TRANSFER SWITCH									
OPERATION PASS / FAIL			AIL				NOT	ES	
VERIFY OPERTION BY OPENING	NORMAL FEED	PASS							
CONFIRM STATUS WITH SYSTEM OFFICE PASS									



Section Sect									PAG	E
NUMBER OF CELLS 10		Charactery of Secretary	STATIO	N BATT	ERIES AND C	HARGER				
SPECIFIED VOLTAGE PER CELL 12V	ANIMPED OF SELLS	<u> </u>	200000							
PASS FAIL NOTES										
VERIFY NO ALARMS ON CHARGER PASS VERIFY GROUNDING CONTINUITY PASS VERIFY CORROSION PASS DC VOLTAGE Volts ACCEPTABLE RANGE CHARGER DISPLAY VOLTAGE 135 125V to 130V MEASURED BANK VOLTAGE (disconnect charger) PASS / SPOK (SPECIFIED CELL VOLTAGE × NUMBER OF CELLS) MEASURED BANK VOLTAGE (disconnect charger) SUMP PUMP Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS CIRCUIT SWITCHER SIEMENS VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 GAS PRESSURE 63 63 63 63 63 63 63 63 63 6										
VERIFY GROUNDING CONTINUITY PASS VERIFY CORROSION PASS DC VOLTAGE Voits ACCEPTABLE RANGE CHARGER DISPLAY VOLTAGE 135 125V to 130V MEASURED BANK VOLTAGE (disconnect charger) > 90% OF (SPECIFIED CELL VOLTAGE × NUMBER OF CELLS) MEASURED BANK VOLTAGE (disconnect charger) > 90% OF (SPECIFIED CELL VOLTAGE × NUMBER OF CELLS) SUMP PUMP Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS CIRCUIT SWITCHER SIEMENS VOLTAGE CLASS 121 KV VOLTAGE CLASS 121 KV SF6 GAS PRESSURE 63 63 63 S3 OPERTION COUNTER 75 WHITE BLUI SF6 GAS PRESSURE 63 63 63 CONDITION NA SIEMCUIT SWITCHER COURSEAL DE CONDITION NA SIEMCUIT SWITCHER SIEMENS VOLTAGE CLASS 121 KV OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 5512L CURRENT RATING 1200 AMPERES VOLTAGE CLASS 121 KV OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 5512L VOLTAGE CLASS 121 KV OPERTION COUNTER 75 OPERTION COUNTER 75 OPERTION COUNTER 550 59 59 59 S8 OPERTION COUNTER 21	DC SYSTEM		PASS / FAIL	_			NO.	OTES		
VERIFY CORROSION	VERIFY NO ALARMS ON CHARGER		PASS							
VERIFY WATER LEVELS (lop-up if required)	VERIFY GROUNDING CONTINUITY		PASS							
DC VOLTAGE Volts ACCEPTABLE RANGE CHARGER DISPLAY VOLTAGE 135 125V to 130V MEASURED BANK VOLTAGE (disconnect charger) MEASURED BANK VOLTAGE (disconnect charger) NEASURED BANK VOLTAGE (disconnect charger) VOLTAGE (DELL VOLTAGE x NUMBER OF CELLS) SUMP PUMP Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS CIRCUIT SWITCHER NOMENCLATURE SIEMENS VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SPE LEAKS VOLTAGE CLASS 121 KV VOLTAGE CLASS 121 KV VOLTAGE CLASS TO D E OPERTION COUNTER TO D E OPERTION COUNTER TO D E OPERTION COUNTER TO A B C D E OPERTION COUNTER VOLTAGE CLASS 121 KV VISUAL IMSPECTION N/A CIRCUIT SWITCHER COUNCATION, FRAME, GROUNDING VA B C D E OPERTION COUNTER TO A B C D E AMUFACTURER SIEMENS VOLTAGE CLASS 121 KV VISUAL IMSPECTION N/A CIRCUIT SWITCHER SIEMENS VOLTAGE CLASS 121 KV VISUAL IMSPECTION AMPERES VOLTAGE CLASS 121 KV VISUAL IMSPECTION OPERTION COUNTER TO SPE CLASS TO D E OPERTION COUNTER SF6 GAS PRESSURE 59 59 59 59 59 59 59 59 59 59 59 59 59	VERIFY CORROSION		PASS							
CHARGER DISPLAY VOLTAGE 135	VERIFY WATER LEVELS (top-up if rec	quired)	PASS							
Section Sect	DC VOLTAGE		Volts			ACCEPT	TABLE RANGE			
SUMP PUMP SUMP PUMP PUMP PUMP PUMP PUMP PUMP PUMP	CHARGER DISPLAY VOLTAGE		135	125V 1	to 130V		1			
SUMP PUMP Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS CIRCUIT SWITCHER NOMENCLATURE 55T3-L VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 LEAKS OPERTION COUNTER 75 HEATING BLANKET OPERATION N/A CIRCUIT SWITCHER SIEMENS OPERTION COUNTER 75 CURRENT RATING 1200 AMPERES VOLTAGE CLASS 121 KV WHITE BLUI SF6 GAS PRESSURE 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 6	MEASURED BANK VOLTAGE (disconn	nect charger)	,	> 90%	OF (SPECIFIE	D CELL V	OLTAGE x NUM	BER OF CELLS))	
Operation PASS / FAIL RUN FOR 1 MIN TO CONFIRM OPERATION PASS CIRCUIT SWITCHER NOMENCLATURE 55T3-L VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 LEAKS	MEASURED BANK VOLTAGE (disconn	nect charger)		> 90%	OF (SPECIFIE	ED CELL V	OLTAGE × NUM	BER OF CELLS))	
CIRCUIT SWITCHER NOMENCLATURE				SUI	MP PUMP					
CIRCUIT SWITCHER NOMENCLATURE 5573-L CURRENT RATING VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 LEAKS VA C E BUSHINGS & INSULATORS CONTROL MECHANISM VA B C D E FOUNDATION, FRAME, GROUNDING CIRCUIT SWITCHER MANUFACTURE SIEMENS CURRENT RATING VOLTAGE CLASS 121 KV SF6 GAS PRESSURE 63 63 63 63 63 63 63 63 63 6	Operation		PASS / FAIL							
CIRCUIT SWITCHER NOMENCLATURE 5573-L VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 LEAKS	RUN FOR 1 MIN TO CONFIRM OPERA	ATION	PASS	7						
SF6 LEAKS SF6 LEAKS SF6 LEAKS SF6 GAS PRESSURE SF6 GAS PRESSUR										
TANK & MECHANISM BOX	VISUAL IMSPECTION				● F	PSI	C KPA	RED	WHITE	BLUE
OPERTION COUNTER 75 OPERTION COUNTER 21				100	s	F6 GAS PI	RESSURE	63	63	63
CONTROL MECHANISM N/A B C D E CONTROL MECHANISM CONTROL MECHANISM N/A B C D E CONTROL MECHANISM CONTROL MECHANISM CONTROL MECHANISM N/A B C D E CONTROL MECHANISM CONTROL M		-		nachron.	0	PERTION (COUNTER	75	1	
CIRCUIT SWITCHER NOMENCLATURE 55T2-L CURRENT RATING 1200 AMPERES MANUFACTURER SIEMENS VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION SF6 LEAKS PRESSURE 59 59 59 TANK & MECHANISM BOX A B C D E SUSHINGS & INSULATORS A B C D E OPERTION COUNTER 21		Charles and the Control of the Contr							_	
CIRCUIT SWITCHER NOMENCLATURE 55T2-L CURRENT RATING 1200 AMPERES MANUFACTURER SIEMENS VOLTAGE CLASS 121 kV VISUAL IMSPECTION CONDITION SF6 LEAKS	FOUNDATION, FRAME, GROUNDING			E						
VISUAL IMSPECTION CONDITION SF6 LEAKS FANK & MECHANISM BOX SUSHINGS & INSULATORS CURRENT RATING 1200 AMPERS VOLTAGE CLASS 121 KV FAND B C D E OPERTION COUNTER 21	HEATING BLANKET OPERATION		N/A							
VISUAL IMSPECTION CONDITION SF6 LEAKS TANK & MECHANISM BOX SUSHINGS & INSULATORS VOLTAGE CLASS 121 KV VISUAL IMSPECTION CONDITION PSI KPA RED WHITE BLUE SF6 GAS PRESSURE 59 59 59 OPERTION COUNTER 21	CIRCUIT SWITCHER									
VISUAL IMSPECTION CONDITION SF6 LEAKS FANK & MECHANISM BOX SUSHINGS & INSULATORS VISUAL IMSPECTION CONDITION FOR PSI KPA RED WHITE BLUE SF6 GAS PRESSURE SP6 GAS PRESSURE SP6 GAS PRESSURE SP6 GAS PRESSURE OPERTION COUNTER 21	IOMENCLATURE	L		CURRENT	RATING		1200	A	MPERES	
SF6 LEAKS	MANUFACTURER SIEMENS			VOLTAGE	CLASS		121	k	V	
SF6 LEAKS	VISUAL IMSPECTION		CONDITION	\neg	⑥ P	SI	C KPA	RED	WHITE	BLUE
SUSHINGS & INSULATORS	SF6 LEAKS \ \(\subseteq A \ \C \ \E		E	S	F6 GAS PR		59	59	59	
SUSHINGS & INSULATORS A B C D E	ANK & MECHANISM BOX	√ A	□B □ C □ D □			DEDTION O	COUNTED	04	1	
CONTROL MECHANISM	SUSHINGS & INSULATORS	√ A		E	L0	-EKIION (JOUNTER	21	J	
COUNDATION, FRAME, GROUNDING 🗸 A 🕒 B 🖺 C 🖺 D 🖺 E	ONTROL MECHANISM	✓ A		SERVICE STREET						
	EATING BLANKET OPERATION		N/A							



					PAGE
SWITCH					
NOMENCLATURE	55T3-LBS				
VISUAL IMSPECTION	ON CONDITION				
BUSHINGS & INSULATORS	VA B C C	DFE			
FOUNDATION, FRAME, GROUND	ING A B C C	DΕ			
DISCONNECT LIVE PARTS	VA B C C	DE			
SWITCH					
NOMENCLATURE	55T2-LBS	_			
VISUAL IMSPECTION	ON CONDITION				
BUSHINGS & INSULATORS	VA B C C D	E			
FOUNDATION, FRAME, GROUND	ING ABCCD	Ε			
DISCONNECT LIVE PARTS	VA B C C D	ΓE			
	•				
TRANSFORMER					
		10.0	0.500	40.000	40.500
MANUFACTURER	MOLONEY ELECTRIC	KVA	3,500 /	10,000 /	13,500
ERIAL NUMBER	213081	PRIMARY VOLTAGE	110,000 /		DELTA
EAR	1965	SECONDARY VOLTAGE	12,480 /	7,200	WYE
YPE <u>CO</u>	NSERVATOR	OIL VOLUME	L		
MPEDANCE	8.9 %	TOTAL WEIGHT	94850 LBS		
EMPERATURE RISE	°C_	# OF FANS	8		
IV BIL	550	TAP CHANGER	EXTERNAL		
V BIL	110				
VISUAL INSPECTION	CONDITION	GAUGES	NOTI	E: TRANSFORMER (OIL LEVEL = 50% @ 25C
USHINGS	TAVB C D D E	WINDING TEMPERAT	TURE MIN	Max	AS FOUND
IAIN TANK	A V B C D E	OIL TEMPERATUR	RE MIN	Max	AS FOUND 29
OOLING	TATB V C T D T E	TRANSFORMER OIL L		100%	AS FOUND 50
IL TANK	TA VB C D D E	BUSHING OIL LEVE		100%	AS FOUND 50
OUNDATION	TAVB C D D E	TRANSFORMER PRES	SURE	KPA PSI	AS FOUND AS FOUND
ROUNDING	TA VB C D E	OAS RELAT			THOTOGRE
		TAP CHANGER	₹		
ASKET & SEALS		MANUFACTURER	MOLONEY ELEC	TRIC MODE	iL.
ONNECTORS	A V B C D E	SERIAL NO.		YEAR 1965	GALLONS 400L
IL LEAKS	A B C D E	TAP CHANGER OIL T	EMP MIN	Max	AS FOUND
IL LEVEL	A B C D E	TAP CHANGER OIL LE	EVEL MIN	Max	AS FOUND
VERALL	TA VB C C D C E	TAP POSITION	MIN 5	Max 7	AS FOUND 9
		COUNTER			AS FOUND 28,626
		DIVERTOR OIL LEV		Max	AS FOUND
		HEATER CONDITION	N G G	PCCI	
		RELIEF VENT	G	PCCI	
IL EU TRATION DUMB. DOL	FILTER TYPE:		ILTER CHANGE DA	TE:	HOURS:



											PAGE	
TRANSFORM	ER											
MANUFACTURER	PENS	YLVANIA TRANSFORMER TECH	ŀ	(VA	15,0	000	1	20,000) /		25,000	
SERIAL NUMBER		C-09062-5-1	_ F	PRIMARY VOLTAGE	110,	000	1				DELTA	
YEAR		2014	- 5	SECONDARY VOLTAGE	12,4	480	1	7,20	5		WYE	
TYPE	CONS	SERVATOR	C	DIL VOLUME	186	65	L					
MPEDANCE	10	0.2 %	Т	OTAL WEIGHT	547	35 KG	i					
TEMPERATURE RISE	6	5 °C	#	OF FANS		8						
HV BIL		550	Т	AP CHANGER	EXT	ERNA						
_V BIL		110										
,			7									
VISUAL INSPECTI	ON	CONDITION	_	GAUGES			NOTE:	_	FORME	RC	OIL LEVEL = 50	
BUSHINGS		VA B C D E		WINDING TEMPERAT		MIN		Max			AS FOUND	27
MAIN TANK		VA B C D E		OIL TEMPERATUR		MIN [Max		_	AS FOUND	22
COOLING		VA B C C D C E		TRANSFORMER OIL LEVI)% [)%		100%			AS FOUND	50 20
DIL TANK		VA B C C D C E	1	TRANSFORMER PRES		7/0		□ KP	<u>, П</u>	PSI	AS FOUND	20
OUNDATION		VALBCCDLE		GAS RELAY	OUIVE			J N	<u> </u>	31	AS FOUND	
ROUNDING	Market grant	VADBCCDCE	1	0,101,1201,1							L 10 1 10 10 10 10 10 10 10 10 10 10 10 1	
SASKET & SEALS		VA B C C D C E	1	TAP CHANGE	₹							
			4	MANUFACTURER	RE	INHA	USSEN		_ мс	DE	L MC)1-l
ONNECTORS		VA B C D E	1	SERIAL NO. 1	400253		Y	EAR .	201	3	GALLONS	
IL LEAKS		VA B C D E		TAP CHANGER OIL T	EMP N	ΛIN [Max		\exists	AS FOUND	17
DIL LEVEL		VA B C D E]	TAP CHANGER OIL LE	EVEL N	ΛIN [Max			AS FOUND	50
VERALL		VA B C D E		TAP POSITION	V	NIN [8	Max	12		AS FOUND	15
		<u> </u>	_	COUNTER							AS FOUND	41,355
				DIVERTOR OIL LEV	EL N	ΛIN [Max			AS FOUND	
				HEATER CONDITION	N	V	G 🔲			Į		
				RELIEF VENT			G 🔲 I	- []		l)		
NI EU TRATION DUMP	nei. F	EIL TER TYPE:			II TED C	LANC	E DATE				HOURS:	
OIL FILTRATION PUMP	PSI: _	FILTER TYPE:			ILTER C	HANG	DEDAIL	- L				





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

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

Parameters

Emissivity	0.95
Refl. temp.	3 °C

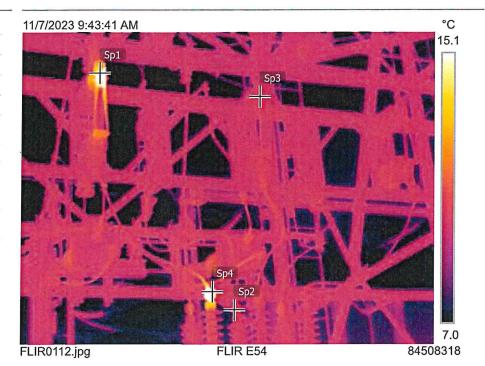
Geolocation

Committee of the Commit	The second secon
Location	N 45° 36' 56.27", W 74° 37' 53.28"

http://maps.google.com?z=17&t=k&q=45.6156,-74.6315

Note

55F1 hot spot on red phase switch and connection. Tempurature difference of 8.5'C on the switch. Tempurature diference 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





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″
----------	---------------------------------------

http://maps.google.com?z=17&t=k&q=45.6157,-74.6315

Note

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



11/7/2023 9:44:24 AM

