Ĩ	INSPECTION FORM	Page
Winnipèg	MOLDED CASE CIRCUIT BREAKER, < 1000V	ID:

Page 1 of 2

Project	Facility:	Project Name:				
	Area :	Bid Opportunity:				
	Location:	Panelboard/MCC:	Cell #:			

	ata							
Breaker D	Ō	Manufacturer:			Туре:		Serial #:	
	<u> </u>	Rated Voltage: V		Frame Size:		А	Trip Unit:	
	Interrupting Rating: k/		A	Comments:				

/ uo	Breaker Identification Tag Insta	lled:	☐ Yes	🗌 No	Visual Signs of Overhea	ating:	🗌 Yes	🗌 No
	Cleanliness (As Found):	Good 🗌	Acceptable	Poor	Cables Supported Appr	opriately:	🗌 Yes	🗌 No
Inspection eaning	Connections:	Good 🗌	Acceptable	Poor	Electro/Mechanical Interlock:	□ N/A □ Good □	Acceptable	Poor
Ca	Ground Connection:	Good 🗌	Acceptable	Poor	Exercise Circuit Breake	er:	🗌 Yes	
Visu	Door Mechanical:	Good	Acceptable	Poor	Other:			
	Comments:							

Settings	Trip Unit Rating: A	Trip Unit Ty	e: 🗌 None 🗌 Thermal Magnetic 🗌 Electronic 🗍 LI 🔤 LSI 🔲 LSIG							
	Breaker Setting (As Left)		Range	Setpoint	Delay	l <sup>2</sup> T				
	Long Time	🗌 Fixed 🔲 Adj.	-	X A = A	sec	🗌 On 🔲 Off				
Breaker	Short Time	🗌 Fixed 🔲 Adj.	-	X A = A	sec	🗌 On 🔲 Off				
Brea	Instantaneous	🗌 Fixed 🔲 Adj.	-	X A = A	N/A					
	Ground Fault	🗌 Fixed 🔲 Adj.	-	А	sec	🗌 On 🔲 Off				

	Perform in:	sulation res	istanc	ce measure	ements for brea	kers >= 250A	l, or as specif	fied.				
Test	Temperature:		°C	Source:	Disconnec	ted 🗌 Co	nnected (Sou	rce Isolated)		required, prior		
	remperatu	ire.	· ·	Load: Disconnected Connected (Load Isolated)						cables connected during the test.		
tanc	Test Voltage (VDC)		Insulation Resistance (MΩ)									
Resistance		Phase	Phase To GND (Breaker Closed)				Phase (Brea	ker Closed)	Line to Load (Breaker Open)			
_		Α		В	С	A – B	B – C	A - C	Α	В	С	
atio												
Insulation	Test Sumr	Test Summary  Test Passed   Test Inconclusive. Further Investigation Required.										
_	Comments	Comments:										

Contact Resistance	Perform contact measurements for breakers >= 250A, or as specified.								
		A B		С	Test Summary				
	Resistance (μΩ)				Test Passed				
	Comments:		<ul> <li>Further Investigation Required.</li> <li>☐ Test Failed</li> </ul>						

## INSPECTION FORM MOLDED CASE CIRCUIT BREAKER, < 1000V

Page 2 of 2

ID:

al 'sis	Returned to Service:	☐ Yes	🗌 No	Comments:
	Monitoring / Further Inspection Required:	🗌 Yes	🗌 No	
A	Repair / Replacement Required:	🗌 Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

	Ĩ			-						Page 1 of 3	
V	Vinnipeg			POW	ER C	ABLE, 41	60V			Cable ID:	
Project	Facility:				Projec	Project Name:					
Proj	Area :				Bid Op	oportunity:					
							-				
	Source:					Dest. / Load:					
ta	Manufactu	Manufacturer: Type						Conduc	tor:	Copper 🗌 Alu	minum
Cable Data	No. of Conductor	rs:	Size:			Lengt					us Data
Cal	Rated Vol	tage: V	e: V Operating Voltage:				V Date Installed:				
	Installation	n: Cable Trans		uit	Alum. C		Direct I	Buried ground Duct	Other:		
	Physical Damage on Exposed Ends:				□ No	Cable lo	dentification <sup>-</sup>	Tag Instal	lled:	☐ Yes	🗌 No
Visual Inspection	Visual Signs of Overheating/Corona:  Yes				🗌 No	Cable S	supported Ap	propriatel	ly:	🗌 Yes	🗌 No
Vis Inspe	Damage t	Damage to Splices/Terminations:				□ No Shield Grounded: □ Yes □ No				🗌 No	
	Bend Rad	ius Acceptable:		Yes	No Comments:						
		Source:			Cable	Dest. / Loa	4.		Note: Appro	val of City's Repr	esentative
st	Test Preparatio	Disconne	cted d with Source Is	olated	🗌 Dis	connected	h Load Isolat	ed	is required, p	prior to leaving ca uring the test.	
Insulation Resistance Test	Cable Ter	nperature:	°C Temperatu	ure Corr	rection F	Factor for 2	D°C:	-	ound all cond ch reading.	luctors not under	test for
sistaı	Test			Insu	Iation F	Resistance	(ΜΩ)		Test Summa	ary	
n Re	Voltage		A-GNI	D	E	B-GND	C-GI	ND	Test Pass		
ulatio	2500V	Reading							Test Inconclusive     Further Investigation Reg     Test Failed		uired.
Insu	2000 V	Corrected to 20°	C								
	Comment	s:									

### INSPECTION FORM 4160V POWER CABLE

Page 2 of 3

Cable ID:

	Test Preparation:		Source: Disconnected Connected with Source Isolated	Cable Dest. / Load:	f City's Representative is required, prior to nnected during the test.				
	Frequency:	0.1 Hz	Waveform: sinus	soidal	Ground all conductors not under test for each reading.				
	Test Voltage	Elapsed Time	Pea	k Leakage Current (	uA)	Test Summary			
	(RMS)	(min)	A-GND	B-GND	C-GND	Test Passed     Test Inconclusive			
	7000V	0				Further Investigation Required.			
	7000V	1							
	7000V	2							
Test	7000V	3							
High Potential Very Low Frequency (VLF) Test	7000V	4							
tentia ency (	7000V	5							
High Potential v Frequency (V	7000V	6							
Hiç ow F	7000V	7							
ery L	7000V	8							
>	7000V	9							
	7000V	10							
	7000V	11							
	7000V	12							
	7000V	13							
	7000V	14							
	7000V	15							
	Comments:								

Cable Returned to Service:

Monitoring / Further Inspection

Repair / Replacement Required:

Comments:

Required:

Final Analysis

#### **INSPECTION FORM** 4160V POWER CABLE

Page 3 of 3

Cable ID:

	Frequency:	0.1 Hz	Waveform: si	inusoidal						
	Test Voltage		Α			В			С	
- <del>1</del>	(RMS) Tan Delta		Capacitance (nF)	Current (µA)	Tan Delta	Capacitance (nF)	Current (µA)	Tan Delta	Capacitance (nF)	Current (µA)
acto a) Tes	2400V									
ion F Delt	4800V									
Dissipation Factor (Tangent Delta) Test	Difference									
Dis (Tar	Test Summary		Comments:							
	<ul> <li>Test Passed</li> <li>Test Inconclust</li> <li>Further Invest</li> <li>Required.</li> <li>Test Failed</li> </ul>									
1	I		Γ							
	Termina	tion	Con	nection Res	istance (µ	Ω) - As Left		-	orque Check	
ion			Α		В	ВС				
Connection Resistance	Sourc	e							□ок	
Res	Dest. / L	oad							□ ОК	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

🗌 No

🗌 No

🗌 No

🗌 Yes

🗌 Yes

🗌 Yes

Comments:

v	Vinnipeg					V			Page	1 of 1			
	Facility:				Project	Jama:				Cable ID			
Project	Area :				Project I Bid Opp								
<u> </u>	Alea .				ый Орр								
	Source:				Dest. / Load:								
ø	Manufact	urer:		Туре	):			Conductor: Copper Aluminu					
Cable Data	No. of Conducto	rs:	Size:		AWG MCM	Lengt	ו:		m ☐ Mea □ Jack	sured et Markings			
Cat	Rated Vo		Operatino Voltage:	g	V	V Date Installed:							
	Installatio	n: Cable Tra	iy [	] EMT ] Steel Conc	Alum. Conduit								
	Physical I	Damage on Expose	ed Ends:	☐ Yes	🗌 No	Cable lo	dentific	cation T	ag Installed:		🗌 Yes 🗌 No		
Visual Inspection	Visual Sig	ns of Overheating	:	🗌 Yes	🗌 No	Cable S	uppor	ted App	propriately:		🗌 Yes 🔲 No		
N V	Bend Rad	🗌 No	Comme	nts:									
	Test       Source:       Cable Dest. / Load:       Note: Approval of City's Represental is required, prior to leaving cables         Preparation:       Disconnected with Source Isolated       Disconnected with Load Isolated       connected during the test.								to leaving cables				
Insulation Resistance Test	Cable Te	mperature:	°C Te	mperature C	orrection F	actor for 2	20°C:		Ground a reading.	all conducto	rs not under test for each		
tance	Test			Ins	ulation Re	sistance	(MΩ)		Test	Summary			
Resis	Voltage		A-G	ND B	-GND	C-GI	ID	N-C		est Passed			
ation	v	Reading				F				isive stigation Required.			
Insula	v	Corrected to 20°	С							est Failed			
_	Utilize 10	00VDC Test Voltag	ge for 600	V rated cabl	es, 500VD	C for cab	es rate	ed <= 3	300V.				
	Comment	S:											
6)	Note: Tor	que check required	l for all ca	ables. Conn	ection Res	stance Te	est req	uired fo	or cables 4/0 A	WG or larg	er.		
stance	Те	ermination		Connectio	on Resista	ince (μΩ)	- As	Left		То	rque Check		
Resis			Α		В	С		I	N				
Connection Resistance		Source									ОК		
onne	D	est. / Load									ОК		
ပ	Comment	s:											
	Cable Re	turned to Service:		□ Ye	s 🗌 No	Comm	ents:						
Final Analysis	Monitorin	g / Further Inspecti	on Requi										
Ana	Repair / F												
		Company		Name			Sign	ature			Date (yyyy/mm/dd)		
Perfor	med By	Sompany		Naille			Sign	ature					
Check	-												

Form CBL-LV Rev 00, Created by SNC-Lavalin Inc. M:\113099\4ENG\47ELE\RA - Misc Reports & Forms\Forms\F-CBL-LV.doc

	Winnipeg			INSPE							Page	1 of 1	
	winnipe	g		EMERGE	NCY L	IGH	TIN	G			ID:		
Project	Facilit	y:			Project N	Name	:						
Pro	Area				Bid Opportunity:								
Jnit	Locati				Fed From:						Circuit #:		
Battery Unit Data		acturer			Mode					al No:			
Batt	Input	/oltage	: V AC	Input Current:	A Output Voltage:			V D		attage:	W		
	Qty of	Interna	I Lamps:	Internal Lamp Wa	attage:		W		Type of Ir	nternal Lam	ps:		
ω v	Quant	ity:		Manufacturer:					Model:				
Remote Fixtures	Input	/oltage	V DC	Input Current:	Δ	Ą		Qty of	Lamps per	Fixture:			
Ϋ́Ε	Lamp Wattage: W Type of Lamps							Wire S	ize:		AWG		
			<b>—</b>										
) 'u	n Ide		on Tag Installed:	☐ Ye							□ No		
Visual	Vis		s of Moisture:	□ Ye						eptable 🗌 Poo			
Visual Inspection /	<del>ပ</del> ီ Cle	anlines	s (As Found):	Good C Accepta	otable Development Poor Ground Connection: G			Good 🗌		eptable 🗌 Poo	r		
		nments	:										
	Equipm	ent Ten	nperature:	Ĉ						Test Sum	mary		
sting	Test Re	sults								Test Pa			
Battery Testing	Stated I	)esian '	Time (From Drawing	s): Mi	in					Further	conclus r Investi	gation Required	d.
atter			ps Turn Off:	Mi						🗌 Test Fa	ailed		
	Comme	nts:											
	D.:					Com	mer	nts:					
al /sis		ed to Se	spection Required:	Yes [		0011	mei						
Final Analysis			_ No _ No										
	Repair / Replacement Required:												
		Со	mpany	Name				Signat	ture			Date (yyyy/m	ım/dd)
Perfo	rformed By												
Checl	ked By												

W	Winnipeg	 CTION FORM CONNECTION RESISTANCE	Page 1 of 1 Area:
roject	Facility:	Project Name:	
Proj	Area :	Bid Opportunity:	

	Point A	Point B	Resistance (mΩ)		Acce	eptable
				☐ Yes	🗌 No	Inconclusive
				☐ Yes	🗌 No	Inconclusive
				🗌 Yes	🗌 No	Inconclusive
				🗌 Yes	🗌 No	Inconclusive
cks				🗌 Yes	🗌 No	Inconclusive
Resistance Checks (Ductor Test)				🗌 Yes	🗌 No	Inconclusive
tance uctor				☐ Yes	🗌 No	Inconclusive
tesist (Du				🗌 Yes	🗌 No	Inconclusive
<b>–</b>				🗌 Yes	🗌 No	Inconclusive
				🗌 Yes	🗌 No	Inconclusive
				🗌 Yes	🗌 No	Inconclusive
				🗌 Yes	🗌 No	Inconclusive
	Comments:			-		
<u> </u>	1					

.0)	Monitoring / Inspection Required:	🗌 Yes	🗌 No	Comments:
Final	Repair / Replacement Required:	🗌 Yes	🗌 No	
Ā				

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

	<u> </u>		INSP	ECTION I	FORM			Page	1 of 3		
V	Vinnipeg		GROU	NDING S	YSTEM			ID:			
ect	Facility:		P	Project Name	):						
Project	Area :		В	3id Opportun	ity:						
ы	Connection to G Visible:	round Electrode is	☐ Yes	□ No	Facility C	contains a Main Gr		☐ Yes	□ No		
oecti	Connecting Con	ductor: Size:	Qty:	Torque Ground Connections:						🗌 No	
Visual Inspection	Visual signs of C	orrosion:	☐ Yes	🗌 No	No						
Visua	Soil Type:				Soil Cond	dition: 🗌 Dry 🗌	Damp 🗌	Wet			
	Comments:										
	Date of Test:				Time of T	Test:					
	Weather and Te	mperature:			Terrain:						
	Grounding Syste Connection Poin	m	UTM Coord		E	Ν					
	Current Probe Injection Point:	·	UTM Coord	GPS	E	N					
	Test Conditions:				Test La	yout:					
	Voltage Probe Distance (meters)	UTM GPS Cool	rdinate:		Current nA)	Test Voltage (mV)	Resistanc H (Ω)	ce @ Iz	Resista (Ω	Hz	
st #1		E	N	1							
al Te		E	N	1							
otenti		E	N	1							
Fall Of Potential Test #1		E	Ν	1							
Fall		E	N	1							
		E	N	1							
		E	N	1							
		E	N	1							
		E	N	1							
		E	Ν	1							
		E	Ν	1							
		E	N	1							
	Comments:			•				•			

	Date of Test:				Time of T	est:					
	Weather and Tempe	rature:			Terrain:						
	Grounding System Connection Point:		UTM GPS Coordinate	S e:	Е	E N					
	Current Probe Injection Point:		UTM GPS Coordinate		E	Ν					
	Test Conditions:				Test La						
	Voltage Probe Distance (meters)	UTM GPS Coor	dinate:	Test C (m		Test Voltage (mV)	Resistance @ Hz (Ω)	Resistance @ Hz (Ω)			
st #2		E	Ν								
Fall Of Potential Test #2		E	Ν								
otent		E	Ν								
Of P		E	Ν								
Fall		Е	Ν								
		E	Ν								
		Е	Ν								
		E	Ν								
		E	Ν								
		E	Ν								
		Е	Ν								
		Е	Ν								
	Comments:										

#### INSPECTION FORM GROUNDING SYSTEM

ID:

	Poir	nt A		Point B	Resistance (mΩ)	Test Summary	
	Facility Grou	nd Electrode	Ма	in Ground Bus		Further Investigati	ion Required.
	Facility Grou	nd Electrode	4160V S	witchgear GND	Bus	]	
	Facility Grou	nd Electrode	S	stem Neutral			
S)	Facility Grou	nd Electrode	600V Sv	witchgear GND E	Bus		
Resistance Checks (Ductor Test)	Facility Grou	nd Electrode	MCC	: GND Bu	5		
sistance Chec (Ductor Test)	Facility Grou	nd Electrode	MCC	: GND Bu	5		
sista (Duc	Facility Grou	nd Electrode	C	)ther :			
Re	Facility Grou	nd Electrode	C	)ther :			
	Facility Grou	nd Electrode	C	Other :			
	Comments:						
	Monitoring / Inc	pection Required		Yes 🗌 No	Comments:		
al /sis							
Final Analysis	Repair / Replac	ement Required:		Yes 🗌 No			
,							
		Company		Name		Signature	Date (yyyy/mm/dd)

Performed By		
Checked By		

	Ĩ				IN	SPE		FORM			Page	1 of 6	
V	Vinnipèg					Ν	ICC, 600	V			ID:		
Project	Facility:					Pr	oject Name	<b>)</b> :					
Pro	Area :					Bi	Bid Opportunity:						
	Location:										# of Ce		
ta											# 01 C	5115.	
MCC Data	Manufacturer:						Model:			Serial #:			
MCC	Rated Voltage	e: V		Main Bus	Rating:			А	Main Bus I	Neutral Ratin	g:	А	
	Bus Conducto	or: 🗌 Copp	er 🗌	Aluminun	n C	Curre	nt Withstan	d Rating:	А				
r	Identification	Tag Installes	1.						of Overboo	ting			
	Identification <sup>-</sup>		1:		☐ Ye	s L	No	Visual Signs		ung:		☐ Yes	□ No
	Visual Signs of	of Moisture:			🗌 Ye	s [	□ No	Visual Signs	of Corona:			🗌 Yes	🗌 No
	Fuse/Breaker	Sizes Match	n Drav	vings:	🗌 Ye	s [	] No	PT and CT ra	atios match	drawings:	□ N/A	🗌 Yes	🗌 No
bu	Elevation Dra	wings Corre	ct:		🗌 Ye	s [	No	Cables Supp	orted Appro	opriately:		🗌 Yes	🗌 No
leani	Cleanliness (A	As Found):		Good 🗌		eptab	le 🗌 Poor	Insulators Co	ndition:		Good 🗌	Acceptable	e 🗌 Poor
Visual Inspection / Cleaning	Connections:			Good 🗌		eptab	le 🗌 Poor	Electro/Mech Interlock Sys			Good 🗌	Acceptable	Poor
spect	Ground Conn	ection:	[	Good	Acce	ptabl	e 🗌 Poor	Vents/Filters:			Good 🗌	Acceptable	Poor
al Ins	Doors Mecha	nical:	[	Good		ptabl	e 🗌 Poor	Exercise Acti	ve Compon	ients:		🗌 Yes	□ No
Visu	Cell Fit and A	lignment:	[	Good		ptabl	e 🗌 Poor						
	Required Clea Met:	arances are	[	Good	Acce	ptabl	e 🗌 Poor			·			
	Indicating me	chanisms:	[	Good	🗌 Acce	ptabl	e 🗌 Poor	Unit Cleaned	: 🗌 Yes	s Photogra	ph Takei	n: 🗆 N	′es
	Comments:												
													]
	Туре:	Inspe	ection	l									

	Туре:	Inspection	Inspection									
er	🗌 Main Breaker	Complete appropriate	breaker inspection form	n.								
Power	Disconnect	Complete appropriate	Complete appropriate disconnect inspection form.									
Incoming	🗌 Main Lugs	Visual Inspection: Good Acceptable Poor										
Inco		Connections Torqued:	☐ Yes									
		Connection	Α	В	С	N						
		Resistance (μΩ) As Left										

# INSPECTION FORM MCC, 600V

	Test Preparation	n: 🗍 Co	ce: sconnected onnected wi solated		Cable Dest. / Load: Disconnected Connected with L	oad Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.		
Test	Temperatu	ire:	°C						
on Resistance T (Buswork)	Test Voltage			on Resistanc ase To Phas	· · ·	Test Summary			
	(dc)	A - B	3	B - C	C - A	Test Passed Test Inconclusive Further Investigation Required.			
	1000 V								
Insulation (B	Test Voltage -			on Resistanc nase To GND		Test Failed			
lns	voltage	A - GI	ND	B - GND	C - GND				
	1000 V								
	Comments	:	·						

d Resistance (Ductor Test)	Point A	Point B	Resistance (μΩ)	Test Summary □ Test Passed □ Test Inconclusive
esist	MCC GND Bus	Facility Ground Electrode		Further Investigation Required.
ound R cks (Dr	MCC GND Bus	MCC Enclosure		
Ground Checks (	MCC GND Bus	System Neutral		
	Comments:			

	Visual Inspect Requirements:	G=Good, A=Acceptable, P=Poor Comments are required for all items identified in Poor condition
	1.	Confirm identification tag / lamacoid is installed.
	2.	Look for visual signs of overheating.
	3.	Inspect and torque connections.
Feeder Breakers	4.	Inspect and test any electro/mechanical interlocks.
	5.	Confirm disconnect operation.
er B	6.	Check door mechanical condition.
Feed	7.	Exercise circuit breaker.
_	8.	Confirm cables are supported and routed appropriately.
	9.	Visually assess the general condition of the installation.
		plete an appropriate Breaker Inspection Form for all breakers with separate adjustable Long and trip settings, Ground trip settings, or > 250A frame size.
		Continued on next page

# INSPECTION FORM MCC, 600V

Page 3 of 6

	ID	Loc./ Cell	Frame Rating (A)	Trip Rating (A)	Manuf.	Model	from previous Trip Unit Type	Inst Setting	Visual Inspection	Cleaned	Comments
Feeder Breakers											
ם D											

	Overcurrent Protection Type:	B=Breaker (Thermal Magnetic), M=Motor Circuit Protector, F=Fuse
	Overload Protection Type:	T=Thermal, SS=Solid State, I=Intelligent
	Visual Inspect Requirements:	G=Good, A=Acceptable, P=Poor Comments are required for all items identified in Poor condition.
s	1.	Confirm identification tag / lamacoid is installed.
acto	2.	Look for visual signs of overheating.
Contactors	3.	Inspect and torque connections.
	4.	Inspect and test any electro/mechanical interlocks.
Starters	5.	Confirm disconnect operation.
	6.	Check door mechanical condition.
Motor	7.	Exercise circuit breaker.
	8.	Confirm cables are supported and routed appropriately.
	9.	Visually assess the general condition of the installation.
		nplete a Motor Starter Inspection Form for all Motor Starters Size 4 or larger, with VFDs, or with Soft ters.

				Overcu	urrent Prof	tection	Contactor		Overload		
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Cleaned	Comments
Motor Starters / Contactors											
ntac											
/ Co											
rters											
Sta											
lotoi											
2											
	General Comments:										

# INSPECTION FORM MCC, 600V

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				Overcu	rrent Prof	tection	Contactor		Overload			
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Visual Insp.	Cleaned	Comments
ers												
Start												
<b>Motor Starters</b>												
ĕ												
	General Comments:											



## INSPECTION FORM MCC, 600V

ID:

al sis	Returned to Service:	🗌 Yes	🗌 No	Comments:
	Monitoring / Inspection Required:	🗌 Yes	🗌 No	
Ā	Repair / Replacement Required:	🗌 Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed	Ву			
Checked By	/			

٢
Winnipeg

Area :

### **INSPECTION FORM** MOTOR STARTER, FVNR, 600V

ID:

ject	Facility:
Pro	Area :

Project Name:

Bid Opportunity:

	Load:						Starter Lo	ca	tion:							Cell #:		
	Manufacturer	r:		Ту	/pe:								Serial #	:				
	Size:		Ra	ted V	/oltage:		V	Сι	urrent	Rating:		A	\ \	Control Volta	age:		V	
		□ Eu	sed D	isc	Rating:		А	Fi	use Si	ize.	А	Fus	e Mfg.					
	Circuit		JCU D	100.	rtating.		~		100 01	20.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mod	del:					
Starter Data	Protection:		eaker		Rating:		А		ist.		А	Mar	ufacturer:					
ter			CP		i tating.		~	Se	etting:			Mod	lel:					
Star	Overload		ermal ectroni	ia	Class:		10 20	Sr	etting	/	А	Mar	ufacturer:					
	Protection:		elliger		Class.		30 Jnknown	Ra	ating:		A	Мос	lel:					
	Control Pow Transformer		Size:			VA	Sec. Volta	age	e:	V	Prima	y Fu	se:	A Second	dary	Fuse:	Д	١.
	Current Transformer	's:	Phas	es:	□ A □ B □ C		□ None		Ratio	D:			Fround ault CT:	Present     Not Pres	ent	Ratio:		
1								_										_
Motor Data	ID:						Size:		ł	kW /		F	IP	Voltage:				V
Mo Da	Full Load Am	ips:		A	Service Fa	ctor:		0	ther:									
								_										
	Starter Identif	ficatior	n Tag I	nstal	led:	ו 🗆	Yes 🗌 N	٩		Visual	Signs o	of Ove	erheating:			🗌 Yes		С
bu	Cleanliness (	As Fou	und):		Good [		ceptable	] [	Poor	Suppor	t Insula	ators:		🗌 Good		Acceptable	D P	oor
al Inspection / Cleaning	Connections				Good [		ceptable	] [		Electro. Interloc		anical		I/A □ Good		Acceptable	D P	oor
tion /	Ground Conn	nection	:		Good [		ceptable	] F	Poor	Contac	tor Cor	nditio	n:	🗌 Good		Acceptable	D P	oor
spect	Door Mechan	nical			Good [		ceptable		Poor	Contac	t Aligni	ment:		Good Good		Acceptable	D P	oor
al In:	Verify O/L ele	ement i	s corr	ectly	sized for		☐ Yes		] No	Exercis	e Circu	uit Br	eaker/MCF	P/Disconnect				/es

Visual the load: Cables Supported Appropriately: ☐ Yes ☐ No Unit Cleaned: 🗌 Yes Photograph Taken: 🗌 Yes Comments:

	Test	Α	В	С	Test Summary
<sup>o</sup> ole ients	Contact Resistance ( $\mu\Omega$ )				Test Passed Test Inconclusive
Contact/Pole Measurements	Disconnect / Breaker / MCP Resistance (μΩ)				Further Investigation Required.
Mea	Fuse Resistance ( $\mu\Omega$ )				
	Comments:				

# INSPECTION FORM MOTOR STARTER, FVNR, 600V

Page 2 of 2

Test	Test Preparation: Source Conta	ce: Isolated Disc	est. / Load onnected nected with	d: h Load Isol	prior to lo		presentative is required, ected during the test.	
	Test	Valtara		Insula	tion Resistance	e (MΩ)	Ground all phases not	
sistaı	Test	Voltage		Α	В	с	under test!	
n Re	Contactor Line To GND	1000 VDC					Test Summary	
Insulation Resistance	Contactor Load To GND	1000 VDC					Test Inconclusive Further Investigation	
lns	Contactor Line to Load	1000 VDC					Required.	
	Comments:		•					
	-			-				
ø	Returned to Service:	☐ Yes	🗌 No	Comment	s:			
Final Analysis	Monitoring / Further Inspe Required:	ction 🗌 Yes	🗌 No					
A	Repair / Replacement Rec	quired: 🗌 Yes	🗌 No	]				

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

# INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 1 of 2

Project	Facility:			l	Project Nam	e:				
Proj	Area :				Bid Opportu	nity:				
	0:			1.1				D D M		
ŋ	Size: kW	//	HP		tage:	V		R.P.M:		
Motor Data	Manufacturer:				odel:			Serial Nu	mber:	
Moto	Frame Type:			Fac	vice ctor:			Other:		
	Cooling:	☐ Air ☐ Fan	# Cooling Fans:			Vinding Aaterial:				
	Motor Identification	n Tag Install	ed:	Yes	🗌 No	Visual Signs of O	verhea	ating:		Yes 🗌 No
ing	Connections:		Good A	ccept	table 🗌 Po	or Air Baffles:			Good Ac	ceptable 🗌 Poor
Clean	Paint:		Good A	ccept	table 🗌 Po	or Filter Media:		🗌 N/A	Good Ac	ceptable 🗌 Poor
Visual Inspection / Cleaning	Cooling Fans:	□ N/	A 🗌 Good 🗌 Ad	ccept	table 🗌 Po	or Fan Controls:		🗆 N/A		ceptable 🗌 Poor
pecti	Anchorage/Alignm	ent:	Good A	ccept	table 🗌 Po	or				
al Ins	Ground Connectio	n:	Good A	ccept	table 🗌 Po	or				
Visu	Mechanical/Electri Operation:	cal Noise D	uring	Yes	🗌 No	Lubrication Requi	ired:		□ Ye	es 🗌 No
	Cleanliness (As Fo	ound):	🗌 Good 🔲 A	ccep	otable 🗌 Po	or Unit Cleaned:	🗌 Ye	es Photo	graph Taken:	☐ Yes
		Test	Winding			Resistance (MΩ)			Dielectric	Polarization
	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°	C)	30 Sec	Resistance (MΩ) 1 min.		min. (a)	Dielectric Absorption Ratio	Polarization Index (a)
ance	Stator Winding	Voltage	Winding Temperature (°(	C)	30 Sec			min. (a)	Absorption	
esistance	Stator Winding	Voltage (Vdc)	Winding Temperature (°( 40	C)	30 Sec			min. (a)	Absorption Ratio	Index (a)
ion Resistance	Stator Winding	Voltage (Vdc)	Temperature (°	c)	30 Sec			min. (a)	Absorption Ratio	Index (a)
sulation Resistance	Stator Winding	Voltage (Vdc) 500	Temperature (°	c)	30 Sec			min. (a)	Absorption Ratio -	Index (a)
ng Insulation Resistance	Stator Winding	Voltage (Vdc) 500	Temperature (°     40	C)	30 Sec			min. (a)	Absorption Ratio -	Index (a)
Vinding Insulation Resistance	Stator Winding	Voltage (Vdc) 500 500	Temperature (°     40		30 Sec			min. (a)	Absorption Ratio - -	Index (a)
Winding Insulation Resistance	Notes:	Voltage (Vdc)           500           500           500	Temperature (°           40           40           40           40           40			1 min.	10		Absorption Ratio - -	Index (a)
Winding Insulation Resistance	Notes:	Voltage (Vdc) 500 500 500 500	Temperature (°       40       40       40       40       40       and calculation of	f Pola	arization Ind		10	ors > 150 k	Absorption Ratio - -	Index (a) 
Winding Insulation Resistance	Notes: (a) Testing to	Voltage (Vdc) 500 500 500 0 10 minutes	Temperature (°         40         40         40         40         40         5 and calculation of         Test Passed	f Pola	arization Ind	1 min.	r moto	ors > 150 k	Absorption Ratio	Index (a) 
Wind	Notes: (a) Testing to <b>Test Summary</b>	Voltage (Vdc) 500 500 500 0 10 minutes	Temperature (°         40         40         40         40         40         sand calculation of         Test Passed         sistance (μΩ)	f Pola	arization Ind st Inconclus	1 min.	10	ors > 150 k	Absorption Ratio	Index (a) 
Winding Winding Insulation Resistance	Notes: (a) Testing to	Voltage (Vdc) 500 500 500 0 10 minutes	Temperature (°         40         40         40         40         40         5 and calculation of         Test Passed	f Pola	arization Ind	1 min.	r moto ation R <b>Y</b> ed clusive vestiga	ors > 150 k Required.	Absorption Ratio	Index (a) 

#### INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 2 of 2

ID:

_	Not Applicable				
lation ce	Bearing	Test Voltage	Bearing	Resi	stance (MΩ)
sulat ance	Dearing	(Vdc)	Temperature (°C)	1 min.	Corrected to 40°C
ng In esista		500			
Bearing Insula Resistanc		500			
	Test Summary	Test Passed	Test Inconclusiv	e. Further Investigation Require	red. 🗌 Test Failed

	Not Applicable					
	Actual Winding Ter	nperature:	°C	Actual Bearing Temperature		°C
	RTD	Resistance (Ω)	Calculated Temperature (°C)	RTD	Resistance (Ω)	Calculated Temperature (°C)
ince						
sista						
RTD Resistance						
<u>بح</u>						
	Test Summary	Test Passed	Test Inconclusiv	e. Further Investigation Requi	red. 🗌 Test	Failed

Note: Test connection resistance of bolted connections. Report on cable inspection sheet.

is	Returned to Service:	☐ Yes	□ No	Comments:
Final nalysi	Monitoring / Further Inspection Required:	☐ Yes	□ No	
A	Repair / Replacement Required:	☐ Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

	٩		I	NSPE		ORM	Page 1	of 2	
Ň	Winnipèg	V	OLTA	GE MO	NITOR	, SSAC-WVM	ID:		
Project	Facility:		Pro	oject Nan	ne:				
Pro	Area :		Bid	I Opportu	unity:				
	Location:				Cell #:				
Data	Manufacturer:				Model:				
>	Туре:				Serial No	).:			
ш	Comments:								
			1	1	1			1	
			Α	В	С		Α	В	С

		~	D	C		~	D	C
tion	Moisture/Rust:				Relay Cleaned:			
Inspecti	Over-heating:				Screws Tightened:			
a	Cover/Case:							
Visu	Legend: A-Acceptal	ole C-Co	rrected	N-Needs	s Repair NA-Not Applicable			
	Comments:							

	Parameter	Setting (As Found)	Setting (As Left)
gs	Line Voltage		
Settin	Unbalance		
Relay Settings	Trip Delay		
Re	Restart Delay		
	Mode Switch		

	Desire	d Phase	Voltage	Ac	tual Volt	age	Delay State	Time to Change	OK
	Α	В	С	Α	В	С	Relay State	Time to Change	ок
	600	600	600						
Tests	0	600	600						
Voltage 1	600	600	600						
: Volt	600	0	600						
Basic	600	600	600						
	600	600	0						
	600	600	600						
	Comme	nts:							

# INSPECTION FORM VOLTAGE MONITOR, SSAC-WVM

ID:

s	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final nalysi	Monitoring / Further Inspection Required:	☐ Yes	🗌 No	
A	Repair / Replacement Required:	☐ Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

	Ĩ								ON FO						Page	1 c	of 2	
V	Vinnipèg			RANS	FORM	/IER,	, DR`	Υ.	TYPE,	LO	w vo	OLTA	GE		ID:			
Project	Facility:						Proj	ect	Name:									
Pro	Area :						Bid (	Op	portunity	y:								
														Seconda	arv			
	KVA:		Ph	ase:		Primary Voltage: V					Voltage:							
Data	Manufacturer:						Тур	e:						Serial N	umber:			
Transformer Data	Primary Winding:			Secondar Winding:	У		r Y	npe	edance:			%Z	Tem	p Rise:	q	C ł	K Factor:	
ansfc	Winding Mater	rial: 🗌	Сор	per 🗌 Al	luminur	m												
Ē	No Load Tap	Тар		1	2		3		4 5						p Setting			
	Changer	Voltage														(AS	s Found):	
	Transformer Io	former Identification Tag Installed:					Yes	Γ	No	Visu	al Sigr	ns of C	Dverh	eating:			□ Yes □	No
ning	Bushings:	hings: Good							] Poor	Sup	oort In	sulato	rs:		Good	d 🗆	Acceptable	Poor
/ Clea	Paint:	aint: 🗌 Good						Acceptable Poor No Load Tap Changer:					□ N/2	A 🗌 Good			Poor	
ection	Fans: N/A Good Acc								] Poor		<u> </u>	ols:		□ N/.	A 🗌 Good		Acceptable	Poor
Inspe	Temp. Gauge:								] Poor	Con	nectior	ns:			Good 🗌		Acceptable	Poor
Visual Inspection / Cleaning	Ground Connection:			🗌 Go	od 🗌	Accep	otable		] Poor	Neu	tral Bo	nded 1	to Gro	ound:		N/A	A 🗌 Yes 🔲	No
	Cleanliness (A	s Found)	):	🗌 Go	od 🗌	Acceptable Poor Unit Cleaned: Yes Pr					otograph Ta	aken	n: 🗌 Yes					
	Operational C	onditions	/ No	tes:														
ion	Primary Voltag		H1:H		V	H2:	H3:			V H3:H1:			V Measured at:					
nal Inspection	Secondary Vo	ltage:	X1:	_:	V	X2:_	_:			V X3:: V			V Measured at:					
nal In	Current:		Ph A	:	A	Ph I	B:			A P	n C:			A Meas	ured at:			
Operatio	Tap Setting:	Appears Satis				g Reco		end	led.		Тар	o Setti	ng (A	s Left):				
	Thermographi Performed:	ermographic Inspection				Attach separa		rt	Results	s: [	] No Is ] Potei			d dentified.				
۵											R	esista	ance	(MQ)			Dielectric	
stanc	Winding				1	Fest V (V	/oltag dc)	je		30	sec				sec.		Absorption Ra 60s/30s	atio
Insulation Resistance	Primary to Gr	ound, Se	econd	lary Guar	ded											+		
llatio	Secondary to	Ground,	Prim	ary Guar	ded													
Insu	Primary to Se	econdary	Gro	und Guar	ded													

## INSPECTION FORM TRANSFORMER, DRY TYPE, LOW VOLTAGE

ID:

al sis	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final nalysi	Monitoring / Further Inspection Required:	🗌 Yes	🗌 No	
A	Repair / Replacement Required:	🗌 Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

	<u> </u>					стю							Page:	1 of 3	
N	Vinnipèg	TRA	NSFOR	MER, LI	QUI	ID-FII	LED	, MEDIUM	VO	LTA	GE		ID:		
Project	Facility:				Project Name:										
Pro	Area :				В	Bid Opportunity:									
	10.44	, ,	5.												
	KVA:		Phas	se:			Primar	y Voltage:			V Sec	conda	ary Volta	ge:	V
	Manufacturer:		Мос	del:					Serial N	lumb	ber:				
er Data	Primary Winding:	Δ □ Υ	Secondary							Tem	o Rise: °C			K Factor:	
Transformer Data	Cooling:	□ ONAN □ ONAF	Fans:				nding aterial:				Oil	Type:			
Trans	BIL Rating Primary:					Rating	Secon	dary:				Oil	Capacit	y:	
	No Load Tap	Тар	1	2	3	3	4	5						Tap Setting	
	Changer	Voltage												(As Found):	
	Transformer lo	dentification -	Fag Installe	ed: □ \	'es	🗌 No	C	Visual Signs	s of C	verhe	eating:			🗌 Yes	🗌 No
bu	Bushings:		🗌 Go	ood 🗌 Ac	cepta	able 🗌	Poor	Support Inst	ulator	s:		[	Good	Acceptab	le 🗌 Poor
on / Cleaning	Paint:		🗌 Go	ood 🗌 Ac	cepta	able 🗌	Poor	No Load Ta Changer:	р		□ N	/A [	Good	Acceptabl	e 🗌 Poor
on /	Fans:		N/A □ Go	od 🗌 Acc	ceptal	ble 🗌	Poor	Fan Control	s:		ΠN		Good	Acceptabl	e 🗌 Poor

. <u> </u>							
Inspectio	Temp. Gauge:	N/A Good Acceptable Poor	Connections:		Good Acce	eptable 🗌 Poor	
_	Ground Connection:	Good Acceptable Poor	Liquid Level Corr	ect:		Yes 🗌 No	
Vis	Ground Conductor Size	e:	Radiators:		Good Acceptable Poo		
	Cleanliness (As Found	I): Good Acceptable Poor	Unit Cleaned:	🗌 Yes	Photograph Taken:	☐ Yes	
	Operational Conditions	A / Notoo:					

	Operational Condition	s / Notes:							
	Primary Voltage:	H1:H2:	V	H2:H3:	V	H3:H	H3:H1:		Measured at:
ы	Secondary Voltage:	X1::	V	X2::	V	V X3::		V	Measured at:
pecti	Current:	Ph A:	А	Ph B:	А	Ph C	):	A	Measured at:
Operational Inspection	Tap Setting:	Furthe	ars Satisfacto er Monitoring nmend Char	Recommend	led.	Tap Setting (As Left):			.eft):
Operat	Gauges:	Cooling T Current	emperature: °C	: Maximum: °C			Coolant Level:		
		Pressure	/Vacuum:				Other:		
	Thermographic Inspection Performed:			' Posuite —			No Issues Found Potential Issue Identified.		



### TRANSFORMER INSPECTION FORM TRANSFORMER, LIQUID-FILLED, MEDIUM VOLTAGE

		Winding	Femperature:	°C Tempera	ture Correction Fact	or (20°C):		
				Resistar	nce (MΩ)			
		PRI-	GND	SEC-	GND	PRI-SEC		
	Time	Test Volta	ige:	Test Volta	ge:	Test Volta	ge:	
	-	Reading	Corrected to 20°C	Reading	Corrected to 20°C	Reading	Corrected to 20°C	
	1 min.							
ance	2 min.							
Insulation Resistance	3 min.							
ion R	4 min.							
sulat	5 min.							
5	6 min.							
	7 min.							
	8 min.							
	9 min.							
	10 min.							
	Polarization Index							

е		Winding Temperature: °C										
istanc	Winding	Winding Resistance (m $\Omega$ )	Winding	Winding Resistance (m $\Omega$ )								
g Res	H2 – H1		X0 – X1									
Winding	H3 – H2		X0 – X2									
Wi	H3 – H1		X0 – X3									

ns Test	Тар	Primary	Secondary	Calculated	Measured Ratios				
Turns atio To	(Designated)	Voltage (V)	Voltage (V)	Ratio	H3 H1 / X0 X1	H1 H2 / X0 X2	H2 H3 / X0 X3		
Ra									

Connection Resistance	Note: Torque check required for all cables. Connection Resistance Test required for cables 250MCM or larger.						
	Termination	Connection Resistance ( $\mu\Omega$ ) - As Left				Torque Check	
		A	В	С	N	Torque oneck	
	Source					Пок	
	Dest. / Load					Пок	

e	
Winnipe	g

#### TRANSFORMER INSPECTION FORM TRANSFORMER, LIQUID-FILLED, MEDIUM VOLTAGE

ID:

lid	Dielectric Breakdown Voltage:	Colour:	
g Liqu sts	Acid Neutralization Number:	Visual Condition:	
nsı	Specific Gravity:	Power Factor or Dissipation Factor:	
	Dissolved Gas Analysis:	Other:	

is	Returned to Service:	🗌 Yes	🗌 No	Comments:
	Monitoring / Further Inspection Required:	🗌 Yes	🗌 No	
A	Repair / Replacement Required:	Yes	🗌 No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				