

# Appendix 'C' – Electrical Inspection Forms



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

Page 1 of 2

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area : Valve House	Tender No.: 553-2024

<b>Breaker Data</b>	Location:	Panelboard/MCC:	Cell #:
	Manufacturer:	Type:	Serial #:
	Rated Voltage: V	Frame Size: A	Trip Unit:
	Interrupting Rating: kA	Comments:	

<b>Visual Inspection / Cleaning</b>	Breaker Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Electro/Mechanical Interlock: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Exercise Circuit Breaker: <input type="checkbox"/> Yes
	Door Mechanical: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Other:
	Comments:	

<b>Breaker Settings</b>	Trip Unit Rating: A	Trip Unit Type: <input type="checkbox"/> None <input type="checkbox"/> Thermal Magnetic <input type="checkbox"/> Electronic <input type="checkbox"/> LI <input type="checkbox"/> LSI <input type="checkbox"/> LSIG					
	<b>Breaker Setting (As Left)</b>		<b>Range</b>	<b>Setpoint</b>		<b>Delay</b>	<b>I<sup>2</sup>T</b>
	Long Time	<input type="checkbox"/> Fixed <input type="checkbox"/> Adj.	-	X	A = A	sec	<input type="checkbox"/> On <input type="checkbox"/> Off
	Short Time	<input type="checkbox"/> Fixed <input type="checkbox"/> Adj.	-	X	A = A	sec	<input type="checkbox"/> On <input type="checkbox"/> Off
	Instantaneous	<input type="checkbox"/> Fixed <input type="checkbox"/> Adj.	-	X	A = A	N/A	
	Ground Fault	<input type="checkbox"/> Fixed <input type="checkbox"/> Adj.	-		A	sec	<input type="checkbox"/> On <input type="checkbox"/> Off

<b>Insulation Resistance Test</b>	<i>Perform insulation resistance measurements for breakers &gt;= 250A, or as specified.</i>									
	Temperature: °C	Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected (Source Isolated)				<i>Approval is required, prior to leaving cables connected during the test.</i>				
		Load: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected (Load Isolated)								
	<b>Test Voltage (VDC)</b>	<b>Insulation Resistance (MΩ)</b>								
		<b>Phase To GND (Breaker Closed)</b>			<b>Phase To Phase (Breaker Closed)</b>			<b>Line to Load (Breaker Open)</b>		
		A	B	C	A - B	B - C	A - C	A	B	C
<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed										
Comments:										

<b>Contact Resistance</b>	<i>Perform contact measurements for breakers &gt;= 250A, or as specified.</i>					
	<b>Resistance (μΩ)</b>	A	B	C	<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed	
Comments:						



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


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ID:

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

	<b>INSPECTION FORM</b> <b>POWER CABLE &lt; 1000V</b>		Page 1 of 1
			Cable ID:
Project	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade	
	Area : Valve House	Tender No.: 553-2024	

Cable Data	Source:		Dest. / Load:	
	Manufacturer:		Type:	Conductor: <input type="checkbox"/> Copper <input type="checkbox"/> Aluminum
	No. of Conductors:	Size: <input type="checkbox"/> AWG <input type="checkbox"/> MCM	Length: m	<input type="checkbox"/> Measured <input type="checkbox"/> Previous Data <input type="checkbox"/> Jacket Markings <input type="checkbox"/> TDR
	Rated Voltage: V	Operating Voltage: V	Date Installed:	
	Installation: <input type="checkbox"/> Cable Tray <input type="checkbox"/> Strapped	<input type="checkbox"/> EMT <input type="checkbox"/> Steel Conduit	<input type="checkbox"/> Alum. Conduit <input type="checkbox"/> PVC Conduit	<input type="checkbox"/> Direct Buried <input type="checkbox"/> Underground Duct


Visual Inspection	Physical Damage on Exposed Ends: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cable Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cable Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Bend Radius Acceptable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:

Insulation Resistance Test	Test Preparation: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated	Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Cable Dest. / Load: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Cable Temperature: °C		Temperature Correction Factor for 20°C:	Ground all conductors not under test for each reading.	
	Test Voltage	Insulation Resistance (MΩ)			Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
			A-GND	B-GND	
	V	Reading			
	Corrected to 20°C				
Utilize 1000VDC Test Voltage for 600V rated cables, 500VDC for cables rated <= 300V.					
Comments:					

Connection Resistance	Note: Torque check required for all cables. Connection Resistance Test required for cables 4/0 AWG or larger.					
	Termination	Connection Resistance (μΩ) - As Left				Torque Check
		A	B	C	N	
	Source					<input type="checkbox"/> OK
	Dest. / Load					<input type="checkbox"/> OK
Comments:						

Final Analysis	Cable Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

	<b>INSPECTION FORM</b> <b>CONTROL POWER TRANSFORMER, 600V</b>		Page 1 of 1
			ID:
<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade	
	Area: Valve House	Tender No.: 553-2024	

<b>PT Data</b>	Location:		Pri. Voltage Rating:	Sec. Voltage Rating:
	Manufacturer:		Pri. Fuse Size:	Sec. Fuse Size:
	Size:	Type:	Other:	

<b>Visual Inspection</b>	Physical Damage:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Defective Connections/Wiring:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual Signs of Overheating:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Grounding and Shorting Connections Provide Contact:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Verify Ground Connection:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Verify Withdrawal Mechanism Function:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Fuse Sizes Match Drawings:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:	

<b>Insulation Resistance Test</b>	Test Preparation: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated		Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	<b>Test</b>	<b>Voltage</b>	<b>Insulation Resistance (MΩ)</b>	Temperature: °C
	Primary To GND	1000 VDC		<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Secondary To GND	500 VDC		
	Primary To Secondary	1000 VDC		
Comments:				

<b>Final Analysis</b>	Returned to Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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## INSPECTION FORM CURRENT TRANSFORMER

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>CT Data</b>	Location:	Current Ratio: : A	Voltage Class: V
	Manufacturer:	Model No.:	Type: <input type="checkbox"/> Bar <input type="checkbox"/> Window (Solid) <input type="checkbox"/> Split Core
	Burden Rating:	BIL: kV	Accuracy Class:

<b>Visual Inspection</b>	Physical Damage: <input type="checkbox"/> Yes <input type="checkbox"/> No	Clean and Inspect Insulators: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No	Verify Connections are Correct: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Adequate Mounting Support: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:

<b>Insulation Resistance Test</b>	Test Preparation:	Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated	Cable Dest. / Load: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.		
	<b>Test</b>	<b>Voltage</b>	<b>Insulation Resistance (MΩ)</b>		Temperature: °C	
			<b>A</b>	<b>B</b>	<b>C</b>	<b>Test Summary</b>
	Primary To GND	1000 V				<input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Secondary To GND	500 V				
	Primary To Secondary	1000 V				
Comments:						

<b>Turns Ratio, Excitation, Saturation and Polarity Tests</b>	Note: Attach supporting data and saturation curve.						<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
		<b>Phase</b>					
		<b>A</b>	<b>B</b>	<b>C</b>	<b>N</b>		
	Calculated Ratio						
	Measured Ratio						
	Exciting Current (mA)						
Polarity Correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
CT Saturation Test Performed:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		

<b>Final Analysis</b>	CT Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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# INSPECTION FORM DIGITAL METER

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>Meter Data</b>	Location:	Cell #:
	Manufacturer:	Model:

<b>Visual Inspection / Cleaning</b>	Cover Gasket: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Cover Glass: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	General Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Cleanliness (as found) <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes
	Connections (as found) <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Connections Torqued: <input type="checkbox"/> Yes

<b>Test Meter</b>	Manufacturer:	Model:
	Calibration Date: <span style="float: right;">Meter calibration must be within one year, unless otherwise specified.</span>	

		Nominal Test Value (V)	Phase	Calibrated Meter Measurement (V)	Meter Under Test (V)	Difference (V)	Error (%)	Acceptable (See Specs)	
		<b>Accuracy</b>	<b>Voltage</b>	0					
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Current</b>	0			A					<input type="checkbox"/> Yes <input type="checkbox"/> No
				B					<input type="checkbox"/> Yes <input type="checkbox"/> No
				C					<input type="checkbox"/> Yes <input type="checkbox"/> No
				A					<input type="checkbox"/> Yes <input type="checkbox"/> No
				B					<input type="checkbox"/> Yes <input type="checkbox"/> No
				C					<input type="checkbox"/> Yes <input type="checkbox"/> No
Measurements Applicable To: <input type="checkbox"/> As-Found <input type="checkbox"/> As-Left <span style="float: right;">May check both boxes if applicable.</span>									
Unit Calibration Adjusted: <input type="checkbox"/> Yes <input type="checkbox"/> No <span style="float: right;">If calibration was adjusted, complete two forms, one for as-found, the other for as-left after calibration.</span>									



# INSPECTION FORM DIGITAL METER

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ID:

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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	<b>INSPECTION FORM EMERGENCY LIGHTING</b>		Page 1 of 1
<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade	
	Area: Valve House	Tender No.: 553-2024	

<b>Battery Unit Data</b>	Location:		Fed From:		Circuit #:
	Manufacturer:		Model:	Serial No:	
	Input Voltage: V AC	Input Current: A	Output Voltage: V DC	Wattage: W	
	Qty of Internal Lamps:	Internal Lamp Wattage: W	Type of Internal Lamps:		

<b>Remote Fixtures</b>	Quantity:	Manufacturer:	Model:		
	Input Voltage: V DC	Input Current: A	Qty of Lamps per Fixture:		
	Lamp Wattage: W	Type of Lamps:	Wire Size: AWG		

<b>Visual Inspection / Cleaning</b>	Identification Tag Installed:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Lamps Properly Aimed:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual signs of Moisture:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Connections:	<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Cleanliness (As Found):	<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Ground Connection:	<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Comments:			

<b>Battery Testing</b>	Equipment Temperature:	°C	<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive <input type="checkbox"/> Further Investigation Required. <input type="checkbox"/> Test Failed
	<b>Test Results</b>		
	Stated Design Time (From Drawings):	Min	
	Time Until Lamps Turn Off:	Min	
Comments:			

<b>Final Analysis</b>	Returned to Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Inspection Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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**INSPECTION FORM  
GROUNDING/BONDING CONNECTION RESISTANCE**

Area:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

Resistance Checks (Ductor Test)	Point A	Point B	Resistance (mΩ)	Acceptable
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
	Comments:			



**INSPECTION FORM  
GROUNDING/BONDING CONNECTION RESISTANCE**

ID: \_\_\_\_\_

Resistance Checks (Ductor Test)	Point A	Point B	Resistance (mΩ)	Acceptable
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Inconclusive
	Comments:			

<b>Final Analysis</b>	Monitoring / Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.



# INSPECTION FORM INTELLIGENT OVERLOAD

Page 1 of 2

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>O/L Data</b>	Location:	Cell #:
	Manufacturer:	Model:

<b>Visual Inspection / Cleaning</b>	General Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Cleanliness (as found) <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes
	Connections (as found) <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Connections Torqued: <input type="checkbox"/> Yes

<b>Communication Settings</b>	Static IP Address:	Subnet Mask
	Gateway:	Protocol:
	MAC Address:	

<b>Test Meter</b>	Manufacturer:	Model:
	Calibration Date:	Meter calibration must be within one year, unless otherwise specified.

<b>CTs</b>	Type: <input type="checkbox"/> Internal to O/L <input type="checkbox"/> External	External CT Ratio:
	External Ground CT: <input type="checkbox"/> Yes <input type="checkbox"/> No	Ground CT Ratio:



## INSPECTION FORM INTELLIGENT OVERLOAD


ID:

Verify accuracy of Intelligent O/L Measurements with the use of software via the communication network.									
Accuracy	Current	Nominal Test Value (A)	Phase	Calibrated Meter Measurement (A)	Intelligent O/L Measurement (A)	Difference (A)	Error (%)	Acceptable (See Specs)	
		0	A						<input type="checkbox"/> Yes <input type="checkbox"/> No
			B						<input type="checkbox"/> Yes <input type="checkbox"/> No
			C						<input type="checkbox"/> Yes <input type="checkbox"/> No
			A						<input type="checkbox"/> Yes <input type="checkbox"/> No
			B						<input type="checkbox"/> Yes <input type="checkbox"/> No
	C							<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Measurements Applicable To: <input type="checkbox"/> As-Found <input type="checkbox"/> As-Left <span style="float: right;">May check both boxes if applicable.</span>								
	Unit Calibration Adjusted: <input type="checkbox"/> Yes <input type="checkbox"/> No <span style="float: right;">If calibration was adjusted, complete two forms, one for as-found, the other for as-left after calibration.</span>								

Final Analysis	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

	<b>INSPECTION FORM MCC, 600V</b>			Page 1 of 6	
					ID:
<b>Project</b>	Facility: MacLean RPS		Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade		
	Area: Valve House		Tender No.: 553-2024		

<b>MCC Data</b>	Location:			# of Cells:	
	Manufacturer:		Model:		Serial #:
	Rated Voltage: V	Main Bus Rating: A		Main Bus Neutral Rating: A	
	Bus Conductor: <input type="checkbox"/> Copper <input type="checkbox"/> Aluminum		Current Withstand Rating: A		

<b>Visual Inspection / Cleaning</b>	Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No		Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Visual Signs of Moisture: <input type="checkbox"/> Yes <input type="checkbox"/> No		Visual Signs of Corona: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Fuse/Breaker Sizes Match Drawings: <input type="checkbox"/> Yes <input type="checkbox"/> No		PT and CT ratios match drawings: <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Elevation Drawings Correct: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Insulators Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Electro/Mechanical Interlock System: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Vents/Filters: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Doors Mechanical: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Exercise Active Components: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Cell Fit and Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor				
	Required Clearances are Met: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor				
	Indicating mechanisms: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Unit Cleaned: <input type="checkbox"/> Yes	Photograph Taken: <input type="checkbox"/> Yes	
	Comments:				

<b>Incoming Power</b>	<b>Type:</b>	<b>Inspection</b>			
	<input type="checkbox"/> Main Breaker	Complete appropriate breaker inspection form.			
	<input type="checkbox"/> Disconnect	Complete appropriate disconnect inspection form.			
	<input type="checkbox"/> Main Lugs	Visual Inspection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor			
		Connections Torqued: <input type="checkbox"/> Yes			
	Connection Resistance ( $\mu\Omega$ ) As Left	<b>A</b>	<b>B</b>	<b>C</b>	<b>N</b>



**INSPECTION FORM  
MCC, 600V**

ID:

<b>Insulation Resistance Test (Buswork)</b>	Test Preparation:	Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated	Cable Dest. / Load: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Temperature: _____ °C				
	<b>Test Voltage (dc)</b>	<b>Insulation Resistance (MΩ) Phase To Phase</b>			<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
		A - B	B - C	C - A	
	1000 V				
	<b>Test Voltage</b>	<b>Insulation Resistance (MΩ) Phase To GND</b>			
	A - GND	B - GND	C - GND		
1000 V					
Comments:					

<b>Ground Resistance Checks (Ductor Test)</b>	<b>Point A</b>	<b>Point B</b>	<b>Resistance (μΩ)</b>	<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	MCC GND Bus	Facility Ground Electrode		
	MCC GND Bus	MCC Enclosure		
	MCC GND Bus	System Neutral		
Comments:				

<b>Feeder Breakers</b>	Visual Inspect Requirements:	G=Good, A=Acceptable, P=Poor Comments are required for all items identified in Poor condition.
		<ol style="list-style-type: none"> <li>1. Confirm identification tag / lamacoid is installed.</li> <li>2. Look for visual signs of overheating.</li> <li>3. Inspect and torque connections.</li> <li>4. Inspect and test any electro/mechanical interlocks.</li> <li>5. Confirm disconnect operation.</li> <li>6. Check door mechanical condition.</li> <li>7. Exercise circuit breaker.</li> <li>8. Confirm cables are supported and routed appropriately.</li> <li>9. Visually assess the general condition of the installation.</li> </ol>
	Note:	Complete an appropriate Breaker Inspection Form for all breakers with separate adjustable Long and Short trip settings, Ground trip settings, or > 250A frame size.
Continued on next page		







## INSPECTION FORM MCC, 600V

ID:

<b>Motor Starters / Contactors</b>	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. <ol style="list-style-type: none"> <li>1. Confirm identification tag / lamacoid is installed.</li> <li>2. Look for visual signs of overheating.</li> <li>3. Inspect and torque connections.</li> <li>4. Inspect and test any electro/mechanical interlocks.</li> <li>5. Confirm disconnect operation.</li> <li>6. Check door mechanical condition.</li> <li>7. Exercise circuit breaker.</li> <li>8. Confirm cables are supported and routed appropriately.</li> <li>9. Visually assess the general condition of the installation.</li> </ol>
	Note:                                    Complete a Motor Starter Inspection Form for all Motor Starters Size 4 or larger, with VFDs, or with Soft Starters.

<b>Motor Starters / Contactors</b>	ID	Loc./ Cell	Overcurrent Protection			Contactor	Overload		Visual Insp.	Cleaned	Comments
			Type	Rating (A)	Manuf.	Model	Size / Rating	Type			
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
										<input type="checkbox"/>	
General Comments:											





# INSPECTION FORM MCC, 600V

ID:

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.



## INSPECTION FORM MOTOR STARTER, FVNR, 600V

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>Starter Data</b>	Load:		Starter Location:			Cell #:		
	Manufacturer:		Type:			Serial #:		
	Size:		Rated Voltage: V		Current Rating: A		Control Voltage: V	
	<b>Circuit Protection:</b>	<input type="checkbox"/> Fused Disc.	Rating: A	Fuse Size: A		Fuse Mfg. Model:		
		<input type="checkbox"/> Breaker <input type="checkbox"/> MCP	Rating: A	Inst. Setting: A		Manufacturer: Model:		
	<b>Overload Protection:</b>	<input type="checkbox"/> Thermal	Class: <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> Unknown	Setting / Rating: A		Manufacturer:		
		<input type="checkbox"/> Electronic <input type="checkbox"/> Intelligent				Model:		
	<b>Control Power Transformer:</b>		Size: VA	Sec. Voltage: V	Primary Fuse: A		Secondary Fuse: A	
<b>Current Transformers:</b>		Phases: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> None	Ratio:	Ground Fault CT: <input type="checkbox"/> Present <input type="checkbox"/> Not Present	Ratio:		

<b>Motor Data</b>	ID:		Size: kW / HP		Voltage: V	
	Full Load Amps: A		Service Factor:		Other:	

<b>Visual Inspection / Cleaning</b>	Starter Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No		Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Support Insulators: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Electro/Mechanical Interlock: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Contactor Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Door Mechanical: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Contact Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		
	Verify O/L element is correctly sized for the load: <input type="checkbox"/> Yes <input type="checkbox"/> No		Exercise Circuit Breaker/MCP/Disconnect: <input type="checkbox"/> Yes		
	Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No		Unit Cleaned: <input type="checkbox"/> Yes	Photograph Taken: <input type="checkbox"/> Yes	
	Comments:				

<b>Contact/Pole Measurements</b>	Test	A	B	C	<b>Test Summary</b>	
	Contact Resistance ( $\mu\Omega$ )					<input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive <input type="checkbox"/> Test Failed Further Investigation Required.
	Disconnect / Breaker / MCP Resistance ( $\mu\Omega$ )					
	Fuse Resistance ( $\mu\Omega$ )					
Comments:						



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

ID:

<b>Insulation Resistance Test</b>	Test Preparation: Source: <input type="checkbox"/> Isolated    Cable Dest. / Load: <input type="checkbox"/> Disconnected    Note: Approval of City's Representative is required, prior to leaving cables connected during the test. Contactor: <input type="checkbox"/> Open <input type="checkbox"/> Connected with Load Isolated					
	<b>Test</b>	<b>Voltage</b>	<b>Insulation Resistance (MΩ)</b>			Ground all phases not under test!
			<b>A</b>	<b>B</b>	<b>C</b>	
	Contactor Line To GND	1000 VDC				<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Contactor Load To GND	1000 VDC				
Contactor Line to Load	1000 VDC					
Comments:						

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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## INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 1 of 2

ID: \_\_\_\_\_

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>Motor Data</b>	Size: kW / HP	Voltage: V	R.P.M:
	Manufacturer:	Model:	Serial Number:
	Frame Type:	Service Factor:	Other:
	Cooling: <input type="checkbox"/> Air <input type="checkbox"/> Fan	# Cooling Fans:	Winding Material:

<b>Visual Inspection / Cleaning</b>	Motor Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Air Baffles: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Paint: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Filter Media: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Cooling Fans: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Fan Controls: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Anchorage/Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Mechanical/Electrical Noise During Operation: <input type="checkbox"/> Yes <input type="checkbox"/> No	Lubrication Required: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes <input type="checkbox"/> No      Photograph Taken: <input type="checkbox"/> Yes <input type="checkbox"/> No

<b>Winding Insulation Resistance</b>	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°C)	Resistance (MΩ)			Dielectric Absorption Ratio	Polarization Index (a)
				30 Sec	1 min.	10 min. (a)		
		500					-	-
			40					
		500					-	-
			40					
		500					-	-
			40					
Notes:								
(a) Testing to 10 minutes and calculation of Polarization Index is only required for motors > 150 kW (200 HP)								
<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed								

<b>Winding Resistance</b>	<b>Resistance (μΩ)</b>			<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	<b>A - B</b>	<b>B - C</b>	<b>A - C</b>	
Comments:				



## INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 2 of 2

ID: \_\_\_\_\_

<b>Bearing Insulation Resistance</b>	<input type="checkbox"/> Not Applicable				
	<b>Bearing</b>	<b>Test Voltage (Vdc)</b>	<b>Bearing Temperature (°C)</b>	<b>Resistance (MΩ)</b>	
				<b>1 min.</b>	<b>Corrected to 40°C</b>
		500			
		500			
<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed					

<b>RTD Resistance</b>	<input type="checkbox"/> Not Applicable					
	Actual Winding Temperature: _____ °C			Actual Bearing Temperature _____ °C		
	<b>RTD</b>	<b>Resistance (Ω)</b>	<b>Calculated Temperature (°C)</b>	<b>RTD</b>	<b>Resistance (Ω)</b>	<b>Calculated Temperature (°C)</b>
<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed						

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

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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## INSPECTION FORM NON-FUSIBLE DISCONNECT SWITCH, 600V

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area : Valve House	Tender No.: 553-2024

<b>Disconnect Data</b>	Manufacturer:		Model:	
	Rated Voltage:        V	Current Rating:        A	Interrupting Rating:        A	

<b>Visual Inspection / Cleaning</b>	Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Support Insulators: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Blade Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Verify Blade Mechanical Operation: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Door Mechanical: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes
	Fit Plumb & Square: <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Lubricated: <input type="checkbox"/> Yes
	Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No	Other:

<b>Switchblade Resistance</b>	<b>Resistance (<math>\mu\Omega</math>) (As Left)</b>			<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	<b>A</b>	<b>B</b>	<b>C</b>	
Comments:				

<b>Insulation Resistance Test</b>	Test Preparation:    Source: <input type="checkbox"/> Isolated    Cable Dest. / Load: <input type="checkbox"/> Disconnected		Note: Approval of City's Representative is required, prior to leaving cables connected during the test.			
	Disconnect: <input type="checkbox"/> Open <input type="checkbox"/> Connected with Load Isolated					
	<b>Test</b>	<b>Voltage</b>	<b>Insulation Resistance (<math>M\Omega</math>)</b>			Ground all phases not under test!
			<b>A</b>	<b>B</b>	<b>C</b>	
	Disconnect Line To GND	1000 VDC				<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
Disconnect Load To GND	1000 VDC					
Disconnect Line to Load	1000 VDC					
Comments:						





**INSPECTION FORM**  
**NON-FUSIBLE DISCONNECT SWITCH, 600V**

Page 2 of 2

ID

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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	<b>INSPECTION FORM PANELBOARD, LOW VOLTAGE</b>		Page 1 of 2
			ID:
<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade	
	Area: Valve House	Tender No.: 553-2024	

<b>Panelboard Data</b>	Location:		Fed From:		No. of Circuits:	
	Manufacturer:			Model:	Serial No:	
	Rated Voltage:	V	Current Rating:	A	Withstand Rating:	A
	<input type="checkbox"/> Single Phase		<input type="checkbox"/> 3 Phase, 3 Wire	<input type="checkbox"/> 3 Phase, 4 Wire	Neutral Bonded to Ground	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Main Lugs					
	<input type="checkbox"/> Main Breaker:		Rating: A	Manufacturer:	Model:	Inst. Setting:
	<i>Complete separate inspection form (F-BKR-MC-LV) for main breaker if &gt;= 250A, or has long, short, or ground fault settings.</i>					

<b>Visual Inspection / Cleaning</b>	Identification Tag Installed:		<input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating:		<input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual signs of Moisture:		<input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Corona:		<input type="checkbox"/> Yes <input type="checkbox"/> No
	Fuse/Breaker Sizes Match Drawings:		<input type="checkbox"/> Yes <input type="checkbox"/> No	Cables Supported Appropriately:		<input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found):		<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Connections:		<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Door Mechanical:		<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Ground Connection:		<input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Exercise All Circuit Breakers:		<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:		

<b>Insulation Resistance Test</b>	Test Preparation:		Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.				Equipment Temperature: °C		
							Temperature Correction Factor to 20°C:			
	<b>Test Voltage</b>	<b>Insulation Resistance (MΩ)</b> <b>Ground all Phases not under test!</b>								<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
		<b>A-GND</b>		<b>B-GND</b>		<b>C-GND</b>		<b>N-GND</b>		
	RDG	20°C	RDG	20°C	RDG	20°C	RDG	20°C		
Test Voltages: 120-300V → 500 VDC Test Voltage		301-600V → 1000 VDC Test Voltage								
Comments:										

<b>Load/Feeder Breakers</b>	<b>Breakers &lt; 100A and Without Inst. Setting</b>					
	<i>List by model of breaker. Multiple breakers of varying ampacity may be listed per line.</i>					
	<b>Type</b>	<b>Manufacturer</b>	<b>Model Series</b>	<b>Interrupting Rating (kA)</b>	<b>Positions/Circuits</b>	<b>Notes</b>
	A					
	B					
	C					
	D					



**INSPECTION FORM  
PANELBOARD, LOW VOLTAGE**

ID:

Breakers >= 100A or with Inst. Setting									
<i>List each breaker individually. Complete separate inspection form (F-BKR-MC-LV) for breaker if &gt;= 250A, or has long, short, or ground fault settings.</i>									
Load/Feeder Breakers	ID	Pos.	Manufacturer	Model	Trip Rating (A)	Int. Rating (kA)	Inst. Setting	Separate Form	Notes
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	

Final Analysis	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

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## INSPECTION FORM POTENTIAL TRANSFORMER, 600V

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	Tender No.: 553-2024

<b>PT Data</b>	PT Location or Designation:		Pri. Voltage Rating:	Sec. Voltage Rating:
	Manufacturer:	Catalogue #:	Pri. Fuse Size:	Sec. Fuse Size:
	Size: VA	Type:	Other:	

<b>Visual Inspection</b>	Physical Damage: <input type="checkbox"/> Yes <input type="checkbox"/> No	Verify Connections are Correct: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No	Grounding and Shorting Connections Provide Contact: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Verify Ground Connection: <input type="checkbox"/> Yes <input type="checkbox"/> No	Verify Withdrawal Mechanism Function: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Fuse Sizes Match Drawings: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:

<b>Insulation Resistance Test</b>	Test Preparation: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated		Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated			Note: Approval of City's Representative is required, prior to leaving cables connected during the test.
	<b>Test</b>	<b>Voltage</b>	<b>Insulation Resistance (MΩ)</b>			Temperature: °C
			<b>PT 1</b>	<b>PT 2</b>	<b>PT 3</b>	<b>Test Summary</b>
	Primary To GND	1000 V				<input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Secondary To GND	500 V				
	Primary To Secondary	1000 V				
Comments:						

<b>Turns Ratio and Polarity Tests</b>	Test Preparation: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated		Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated			<b>Test Summary</b> <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
			<b>Phase</b>			
			<b>PT 1</b>	<b>PT 2</b>	<b>PT 3</b>	
	Calculated Ratio					
	Measured Ratio					
Polarity Correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Comments:						

<b>Final Analysis</b>	PT Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

	<b>Company</b>	<b>Name</b>	<b>Signature</b>	<b>Date (yyyy/mm/dd)</b>
--	----------------	-------------	------------------	--------------------------

<b>Performed By</b>				
<b>Checked By</b>				

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## INSPECTION FORM TRANSFORMER, DRY TYPE, LOW VOLTAGE

Page 1 of 2

ID:

<b>Project</b>	Facility: MacLean RPS	Project Name: MacLean Regional Pumping Station Valve House Electrical Upgrade
	Area: Valve House	ITender No.: 553-2024

<b>Transformer Data</b>	KVA:	Phase:	Primary Voltage: V	Secondary Voltage: V						
	Manufacturer:		Type:	Serial Number:						
	Primary Winding: <input type="checkbox"/> Δ <input type="checkbox"/> Y	Secondary Winding: <input type="checkbox"/> Δ <input type="checkbox"/> Y	Impedance: %Z	Temp Rise: °C	K Factor:					
	Winding Material: <input type="checkbox"/> Copper <input type="checkbox"/> Aluminum									
	No Load Tap Changer	Tap Voltage	1	2	3	4	5			

<b>Visual Inspection / Cleaning</b>	Transformer Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Bushings: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Support Insulators: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Paint: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	No Load Tap Changer: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Fans: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Fan Controls: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Temp. Gauge: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Neutral Bonded to Ground: <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes      Photograph Taken: <input type="checkbox"/> Yes

<b>Operational Inspection</b>	Operational Conditions / Notes:					
	Primary Voltage:	H1:H2: V	H2:H3: V	H3:H1: V	Measured at:	
	Secondary Voltage:	X1:__: V	X2:__: V	X3:__: V	Measured at:	
	Current:	Ph A: A	Ph B: A	Ph C: A	Measured at:	
	Tap Setting:	<input type="checkbox"/> Appears Satisfactory <input type="checkbox"/> Further Monitoring Recommended. <input type="checkbox"/> Recommend Changing Tap.			Tap Setting (As Left):	
	Thermographic Inspection Performed:	<input type="checkbox"/> Yes	Attach report separately	Results:	<input type="checkbox"/> No Issues Found <input type="checkbox"/> Potential Issue Identified.	

<b>Insulation Resistance</b>	<b>Winding</b>	<b>Test Voltage (Vdc)</b>	<b>Resistance (MΩ)</b>		<b>Dielectric Absorption Ratio 60s/30s</b>
			30 sec	60 sec.	
	Primary to Ground, Secondary Guarded				
	Secondary to Ground, Primary Guarded				
	Primary to Secondary, Ground Guarded				



**INSPECTION FORM  
TRANSFORMER, DRY TYPE, LOW VOLTAGE**

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ID: \_\_\_\_\_

<b>Final Analysis</b>	Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

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

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.