

# ADDENDUM No. 1

ITB No. 4605

## WWTP Electrical Preventative Maintenance

**Bids Due: November 22, 2019 at 2:00 P.M. (Local Time)**

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum includes seventeen (17) pages.**

**Bidder is to acknowledge receipt of this Addendum No. 1, including all attachments (if any) in its Bid by so indicating on page ITB-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum may be considered nonconforming.**

The following forms provided within the ITB document must be included in submitted bids:

- City of Ann Arbor Prevailing Wage Declaration of Compliance
- City of Ann Arbor Living Wage Ordinance Declaration of Compliance
- Vendor Conflict of Interest Disclosure Form
- City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance

**Bids that fail to provide these forms listed above upon bid opening will be rejected as non-responsive and will not be considered for award.**

### I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

<b><u>Section/Page(s)</u></b>	<b><u>Change</u></b>
DS-1 – DS-14	As provided in ITB No. 4605 Bid Document: Detailed Specifications
	As updated herein: Updated Detailed Specifications

*Comment: The intent with this change is to replace the Detailed Specifications provided in the ITB Document with the Updated Detailed Specifications contained herein which adds four transformers as discussed in the mandatory pre-bid meeting and removes tasks associated with the generators and automatic transfer switches as they are performed under a contract with the generator manufacturer.*

## II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the ITB. Bidders are directed to take note in their review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: Do the bidders need to be a State of Michigan licensed electrical contractor?

Answer 1: Yes.

Question 2: Do the bidders need to be a NETA member?

Answer 2: They do not need to be a member but the qualified technician performing any testing needs to be NETA certified.

Question 3: Are the tasks on Page DS-5 associated with standby generators and automatic transfer switches supposed to be part of the scope?

Answer 3: See Updated Detailed Specifications attached hereto.

Question 4: Does the scope of work include VT, CPT, and fuse drawdown units?

Answer 4: Yes, regarding the 13,200V switchgear and generator switchgear.

Question 5: Can the City provide a copy of the sign-in sheet from the mandatory pre-bid meeting held on 11/5?

Answer 5: See attached.

Bidders are responsible for any conclusions that they may draw from the information contained in the Addendum.

## UPDATED DETAILED SPECIFICATIONS

**Any work requiring the de-energizing of system components will need to be coordinated with the WWTP operations staff at a minimum 2 day notice as it may affect the ability to operate the WWTP. This will be a topic during the mandatory pre-bid meeting.**

**Scope of work will include the following equipment:**

	Quantity	Item
13.2 Switchgear	1	5/15kV Switchgear Bus
	22	5/15kV Vacuum Breaker
	2	SEL 351
	20	SEL 551
	4	SEL 351A
	2	SEL 587Z
	1	Battery System
Unit Sub 1	2	5/15kV Switchgear Bus
	2	5/15kV Switchgear Bus
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	9	600V Air Power Breaker
Unit Sub 2	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	6	600V Air Power Breaker
Unit Sub 3	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	10	600V Air Power Breaker

	Quantity	Item
Unit Sub 4	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Relay 50/51 Overcurrent
	2	Relay Voltage
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	11	600V Air Power Breaker
	2	Dry type transformers
Unit Sub 5		
	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	22	600V Air Power Breaker
Unit Sub 6		
	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	9	600V Air Power Breaker
Unit Sub 7		
	2	5/15kV Switchgear Bus
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	2	600V Switchgear Bus
	11	600V Air Power Breaker
	2	Dry type transformers

Unit Sub 8	Quantity	Item
	4	5/15kV Switchgear Bus
	11	5/15kV Vacuum Breaker
	2	5/15kV Air Switch
	2	Unit Substation Transformer (Dry Type)
	3	5/15kV Motor Starter
	2	SEL 587Z
	9	Sepam 524

#### Generator Switchgear

1	5/15kV Switchgear Bus
3	5/15kV Vacuum Breaker
1	SEL 551
1	SEL587Z
2	SEL 300G

#### MCC Maintenance

4	Sub 1 Motor Control Centers
74	MCC Buckets
2	Sub 2 Motor Control Centers
82	MCC Buckets
4	Sub 3 Motor Control Centers
85	MCC Buckets
4	Sub 4 Motor Control Centers
53	MCC Buckets
6	Sub 5 Motor Control Centers
165	MCC Buckets
4	Sub 6 Motor Control Centers
124	MCC Buckets
2	Sub 7 Motor Control Centers
36	MCC Buckets

**Scope of work to include the following procedures for the referenced items:**

<b>Electrical Preventative Maintenance Schedule and Procedures</b>			
<b>13.2kV Switchgear</b>			
<b>Task</b>	<b>Procedure</b>	<b>Recommended Time Interval (Months)</b>	<b>Reference</b>
1	Main Bus Compartment: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
2	Cable Compartment: <ul style="list-style-type: none"> <li>• Inspection and Cleaning</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
3	Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Inspection <ul style="list-style-type: none"> <li>- Moving Mechanisms</li> <li>- Shutter Hardware</li> <li>- Primary Contacts</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
4	Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Lubrication of Components</li> </ul>	Every 50 cycles of racking mechanism	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
5	Type VR Circuit Breaker: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Measuring E-Gap</li> <li>• Monitoring Contact Erosion</li> <li>• Hi-Pot (Dielectric) Testing</li> <li>• Resistance Measurement</li> <li>• Lubrication</li> <li>• General Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• 12</li> <li>• Every 1000 Operations</li> <li>• After severe fault operations</li> </ul>	Type VR Vacuum Circuit Breaker Instruction Bulletin 6055-31, Section 7
6	VT, CPT and Fuse Drawout Units: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Lubrication</li> <li>• Fuse Replacement</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>

## Electrical Preventative Maintenance Schedule and Procedures

### 13.2kV Switchgear

Task	Procedure	Recommended Time Interval (Months)	Reference
7	Unit Compartments: <ul style="list-style-type: none"><li>• Inspection of Dielectric Stress</li><li>• Corona</li><li>• Tracking</li><li>• Thermal Damage</li></ul>	12	2016 NFPA 70B Chapter 15.2 for Switchgear Assemblies
8	Vacuum Circuit Breakers: <ul style="list-style-type: none"><li>• Inspection</li><li>• Testing</li></ul>	12	2016 NFPA 70B Chapter 15.5 for Vacuum Circuit Breaker
9	Grounding: <ul style="list-style-type: none"><li>• Inspection</li><li>• General Maintenance</li></ul>	12	2016 NFPA 70B Chapter 15.9.9 for Grounding
10	Switchgear Assembly: <ul style="list-style-type: none"><li>• Visual and Mechanical Inspection</li><li>• Electrical Tests</li></ul>	<ul style="list-style-type: none"><li>• Visual and Mech: 12</li><li>• Visual, Mech, and Elect: 24</li></ul>	ANSI/NETA MTS 2015, Section 7.1

Notes:

1. Reference material found in Submittal 16272-0025-B.

## Electrical Preventative Maintenance Schedule and Procedures

### Direct-Current Systems/Batteries (Switchgear and Generators)

Task	Procedure	Recommended Time Interval (Months)	Reference
1	<b>Battery:</b> <ul style="list-style-type: none"><li>• Visual and Mechanical Inspection<ul style="list-style-type: none"><li>- Verify equipment</li><li>- Cleaning</li><li>- Neutralize acid</li></ul></li><li>• Electrical Tests</li><li>• Test Comparisons</li></ul>	<ul style="list-style-type: none"><li>• Visual: 1</li><li>• Visual and Mech: 12</li><li>• Visual, Mech, and Elect: 24</li></ul>	ANSI/NETA MTS 2015, Section 7.18.1.3
2	<b>Battery Charger:</b> <ul style="list-style-type: none"><li>• Visual and Mechanical Inspection</li><li>• Electrical Tests</li><li>• Test Comparisons</li></ul>	<ul style="list-style-type: none"><li>• Visual: 1</li><li>• Visual and Mech: 12</li><li>• Visual, Mech, and Elect: 24</li></ul>	ANSI/NETA MTS 2015, Section 7.18.2

Notes:



## Electrical Preventative Maintenance Schedule and Procedures

### 4160V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
1	Air-Disconnecting Switch Switchgear: <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Bus And Connections</li> <li>- Connections</li> <li>- Instruments, Relays, and other devices</li> <li>- Control Wiring</li> <li>- Mechanical Parts</li> <li>- Ventilation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• After circuit experiences a fault current or stressful condition</li> <li>• 12</li> </ul>	Metal-Enclosed Switchgear 2.4kV to 38kV Class 6040 Instruction Bulletin, Section 8- Inspection and Maintenance <sup>1</sup>
2	Switchgear Surge Arresters: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• General Maintenance</li> </ul>	12	2016 NFPA 70B Chapter 15.9.2 for Surge Arrestors
3	Transformer: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Replacement of corroded parts</li> <li>• Cleaning</li> </ul>	24	Power-Dry II Dry Type Transformers Class 7420 Instruction Bulletin, Section 8- Inspection and Maintenance <sup>1</sup>
4	Transformer: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Torque bolts</li> <li>• Start Up Procedures</li> </ul>	After a major fault	Power-Dry II Dry Type Transformers Class 7420 Instruction Bulletin, Section 8- Inspection and Maintenance <sup>1</sup>
5	Transformer: <ul style="list-style-type: none"> <li>• Inspection/Readings                             <ul style="list-style-type: none"> <li>- Current and Voltage</li> <li>- Temperature</li> <li>- Ventilation</li> <li>- Noise</li> </ul> </li> <li>• Cleaning</li> <li>• Insulation Test</li> </ul>	<ul style="list-style-type: none"> <li>• Inspections (while energized): 1</li> <li>• Major Maintenance (de-energized): 36-72</li> </ul>	<ul style="list-style-type: none"> <li>•2016 NFPA 70B Chapter 21.3 for Dry-Type Transformers</li> <li>•Table K.4(b)</li> </ul>
6	Transformer: <ul style="list-style-type: none"> <li>• Visual and Mechanical Inspection</li> <li>• Electrical Tests</li> <li>• Test Comparisons</li> </ul>	<ul style="list-style-type: none"> <li>• Visual: 1</li> <li>• Visual and Mech: 12</li> <li>• Visual, Mech, and Elect: 24</li> </ul>	ANSI/NETA MTS 2015, Section 7.2.1.2
7	Switchgear Main Bus Compartment: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>

## Electrical Preventative Maintenance Schedule and Procedures

### 4160V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
8	Switchgear Cable Compartment: <ul style="list-style-type: none"> <li>• Inspection and Cleaning</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
9	Switchgear Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Moving Mechanisms</li> <li>- Shutter Hardware</li> <li>- Primary Contacts</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
10	Switchgear Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Lubrication of primary and ground contacts, and all moving joints</li> </ul>	Every 50 cycles of racking mechanism	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>
11	Switchgear Type VR Circuit Breaker: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Measuring E-Gap</li> <li>• Monitoring Contact Erosion</li> <li>• Hi-Pot (Dielectric) Testing</li> <li>• Resistance Measurement</li> <li>• Lubrication</li> <li>• General Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• 12</li> <li>• Every 1000 Operations</li> <li>• After severe fault operations</li> </ul>	Type VR Vacuum Circuit Breaker Instruction Bulletin 6055-31, Section 7
12	Switchgear Vacuum Circuit Breakers: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Testing</li> </ul>	12	2016 NFPA 70B Chapter 15.5 for Vacuum Circuit Breaker
13	Switchgear VT, CPT and Fuse Drawout Units: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Lubrication</li> <li>• Fuse Replacement</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8-Inspection and Maintenance <sup>1</sup>

## Electrical Preventative Maintenance Schedule and Procedures

### 4160V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
14	Switchgear Unit Compartments: <ul style="list-style-type: none"><li>• Inspection of Dielectric Stress</li><li>• Corona</li><li>• Tracking</li><li>• Thermal Damage</li></ul>	12	2016 NFPA 70B Chapter 15.2 for Switchgear Assemblies
15	Switchgear Grounding: <ul style="list-style-type: none"><li>• Inspection</li><li>• General Maintenance</li></ul>	12	2016 NFPA 70B Chapter 15.9.9 for Grounding
16	Switchgear Assembly: <ul style="list-style-type: none"><li>• Visual and Mechanical Inspection</li><li>• Electrical Tests</li></ul>	<ul style="list-style-type: none"><li>• Visual and Mech: 12</li><li>• Visual, Mech, and Elect: 24</li></ul>	ANSI/NETA MTS 2015, Section 7.1

Notes:

1. Reference material found in Submittal 16272-0030-A.

## Electrical Preventative Maintenance Schedule and Procedures

### 480V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
1	Switchgear Main Bus Compartment: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>
2	Switchgear Cable Compartment: <ul style="list-style-type: none"> <li>• Inspection and Cleaning</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>
3	Switchgear Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Moving Mechanisms</li> <li>- Shutter Hardware</li> <li>- Primary Contacts</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>
4	Circuit Breaker Compartment: <ul style="list-style-type: none"> <li>• Lubrication of primary and ground contacts, and all moving joints</li> </ul>	Every 50 cycles of racking mechanism	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>
5	Switchgear Type VR Circuit Breaker: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Measuring E-Gap</li> <li>• Monitoring Contact Erosion</li> <li>• Hi-Pot (Dielectric) Testing</li> <li>• Resistance Measurement</li> <li>• Lubrication</li> <li>• General Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• 12 Months</li> <li>• Every 1000 Operations</li> <li>• After severe fault operations</li> </ul>	Type VR Vacuum Circuit Breaker Instruction Bulletin 6055-31, Section 7
6	VT, CPT and Fuse Drawout Units: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> <li>• Lubrication</li> <li>• Fuse Replacement</li> </ul>	12	Masterclad Metal-Clad Indoor Switchgear, 4.76-15.0kV Series 5 with Type VR Vacuum Circuit Breakers, Class 6055, Section 8- Inspection and Maintenance <sup>1</sup>

## Electrical Preventative Maintenance Schedule and Procedures

### 480V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
7	Switchgear Unit Compartments: <ul style="list-style-type: none"> <li>• Inspection of Dielectric Stress</li> <li>• Corona</li> <li>• Tracking</li> <li>• Thermal Damage</li> </ul>	12	2016 NFPA 70B Chapter 15.2 for Switchgear Assemblies
8	Switchgear Vacuum Circuit Breakers: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Testing</li> </ul>	12	2016 NFPA 70B Chapter 15.5 for Vacuum Circuit Breaker
9	Switchgear Grounding: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• General Maintenance</li> </ul>	12	2016 NFPA 70B Chapter 15.9.9 for Grounding
10	Switchgear Assembly: <ul style="list-style-type: none"> <li>• Visual and Mechanical Inspection</li> <li>• Electrical Tests</li> </ul>	<ul style="list-style-type: none"> <li>• Visual and Mech: 12</li> <li>• Visual, Mech, and Elect: 24</li> </ul>	ANSI/NETA MTS 2015, Section 7.1
11	Switchgear Surge Arresters: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• General Maintenance</li> </ul>	12	2016 NFPA 70B Chapter 15.9.2 for Surge Arrestors
12	Transformer: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Replacement of corroded parts</li> <li>• Cleaning</li> </ul>	24	Power-Dry II Dry Type Transformers Class 7420 Instruction Bulletin, Section 8-Inspection and Maintenance <sup>1</sup>
13	Transformer: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Torque bolts</li> <li>• Start Up Procedures</li> </ul>	After a major fault	Power-Dry II Dry Type Transformers Class 7420 Instruction Bulletin, Section 8-Inspection and Maintenance <sup>1</sup>
14	Transformer: <ul style="list-style-type: none"> <li>• Inspection/Readings                             <ul style="list-style-type: none"> <li>- Current and Voltage</li> <li>- Temperature</li> <li>- Ventilation</li> <li>- Noise</li> </ul> </li> <li>• Cleaning</li> <li>• Insulation Test</li> </ul>	<ul style="list-style-type: none"> <li>• Inspections (while energized): 1</li> <li>• Major Maintenance (de-energized): 36-72</li> </ul>	<ul style="list-style-type: none"> <li>•2016 NFPA 70B Chapter 21.3 for Dry-Type Transformers</li> <li>•Table K.4(b)</li> </ul>

## Electrical Preventative Maintenance Schedule and Procedures

### 480V Unit Substation (Primary Switch, Transformer, and Switchgear)

Task	Procedure	Recommended Time Interval (Months)	Reference
15	Transformer: <ul style="list-style-type: none"> <li>• Visual and Mechanical Inspection</li> <li>• Electrical Tests</li> <li>• Test Comparisons</li> </ul>	<ul style="list-style-type: none"> <li>• Visual: 1</li> <li>• Visual and Mech: 12</li> <li>• Visual, Mech, and Elect: 24</li> </ul>	ANSI/NETA MTS 2015, Section 7.2.1.2
16	LV Switchgear: <ul style="list-style-type: none"> <li>• General Inspection and Cleaning                             <ul style="list-style-type: none"> <li>- Enclosure Interior</li> <li>- Enclosure Exterior</li> </ul> </li> <li>• General Maintenance</li> </ul>	12	Power-Zone 4 Low Voltage, Metal-Enclosed Drawout Switchgear with Masterpact Low Voltage Power Circuit Breakers Class 6037 Instruction Bulletin 80298-002-06, Section 7-Inspection and Maintenance <sup>1</sup>
17	LV Switchgear Bus Bar Joints, Lug Terminations, and Insulating Materials: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> </ul>	12	Power-Zone 4 Low Voltage, Metal-Enclosed Drawout Switchgear with Masterpact Low Voltage Power Circuit Breakers Class 6037 Instruction Bulletin 80298-002-06, Section 7-Inspection and Maintenance <sup>1</sup>
18	LV Switchgear Traveling Lifter: <ul style="list-style-type: none"> <li>• Lubrication</li> <li>• Inspection</li> <li>• General Maintenance</li> </ul>	12	Power-Zone 4 Low Voltage, Metal-Enclosed Drawout Switchgear with Masterpact Low Voltage Power Circuit Breakers Class 6037 Instruction Bulletin 80298-002-06, Section 7-Inspection and Maintenance <sup>1</sup>
19	LV Switchgear Breaker: <ul style="list-style-type: none"> <li>• Level II</li> <li>• Level III</li> <li>• Level IV</li> </ul>	<ul style="list-style-type: none"> <li>• 12</li> <li>• 24</li> <li>• 60</li> </ul>	See attached Maintenance and Field Testing Guide for Masterpact NT and NW Circuit Breaker document for level procedure descriptions.

**Notes:**

1. Reference material found in Submittal 16272-0025-B.

## Electrical Preventative Maintenance Schedule and Procedures

### Motor Control Center

Task	Procedure	Recommended Time Interval (Months)	Reference
1	Enclosure: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> </ul>	12	Model 6 Motor Control Centers, Class 8898, Section 6 - Maintaining the MCC <sup>1</sup>
2	Bus Bars and Incoming Line Compartments: <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Bus bars</li> <li>- Bus connections</li> <li>- Insulators, braces, and barriers</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> <li>• Resistance measurements</li> </ul>	12	Model 6 Motor Control Centers, Class 8898, Section 6 - Maintaining the MCC <sup>1</sup>
3	Control Units (Buckets): <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Stab Assemblies</li> <li>- Circuit breaker or disconnect switch</li> <li>- Operator mechanism</li> <li>- Fuses, contacts, control devices</li> <li>- Insulators, braces, and barriers</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> <li>• Lubrication</li> </ul>	12	Model 6 Motor Control Centers, Class 8898, Section 6 - Maintaining the MCC <sup>1</sup>

**Notes:**

1. Reference material found in Submittal 16423-0022-A.

### Automatic Transfer Switch

Task	Procedure	Recommended Time Interval (Months)	Reference
1	Enclosure: <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Cleaning</li> </ul>	12	7000 Series, Automatic Delayed-Transition Transfer Switches Operator's Manual, Section 2 - Preventive Maintenance <sup>2</sup>
2	Internal Components: <ul style="list-style-type: none"> <li>• Inspection                             <ul style="list-style-type: none"> <li>- Cable connections</li> <li>- Contacts</li> <li>- Insulators, braces, and barriers</li> </ul> </li> <li>• Cleaning</li> <li>• General Maintenance</li> <li>• Lubrication</li> </ul>	12	7000 Series, Automatic Delayed-Transition Transfer Switches Operator's Manual, Section 2 - Preventive Maintenance <sup>2</sup>

## Dry-Type Transformers

Task	Procedure	Recommended Time Interval (Months)	Reference
1	<p>Transformer:</p> <ul style="list-style-type: none"><li>• Inspection/Readings<ul style="list-style-type: none"><li>- Current and Voltage</li><li>- Temperature</li><li>- Ventilation</li><li>- Noise</li></ul></li><li>• Cleaning</li><li>• Insulation Test</li></ul>	<ul style="list-style-type: none"><li>• Inspections (while energized): 1</li><li>• Major Maintenance (deenergized): 36-72</li></ul>	<ul style="list-style-type: none"><li>• 2016 NFPA 70B Chapter 21.3 for Dry-Type Transformers</li><li>• Table K.4(b)</li></ul>



