



METHOD OF PROCEDURE

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| Section 01 MOP Schedule Information | MOP Title: Chiller-Quarterly Preventive Maintenance | | | | |
| MOP Information: | MOP Author: VDC TEAM | MOP Creation Date: | MOP Revision Date: | Document Number: CAP-MOP-MECH-002.02 | |
| Section 02 Site Information | Data Center Location: VDC, | | Service Ticket/ Project Number: | Level of Risk: 2 | MBM Required? N |
| Section 03 MOP Overview | MOP Description: JCI will conduct QPM on the facility's chillers. | | | | |
| Work Area: | | Affected Systems : | | | |
| Equipment Information: | Manufacturer: | Equipment ID: | Model #: | Serial #: | |
| Personnel Required: | Min. # of Facilities Personnel: 1 | # of Contractors #1 n/a | # of Contractors #2 n/a | Personnel from other departments n/a | |
| Qualifications Required: | | | | | |
| Tools Required: | | | | | |
| Advance notifications required: | Data Center Operations Manager, Facilities Director, Chief Engineer | | | | |
| Post notifications required: | Data Center Operations Manager, Facilities Director, Chief Engineer | | | | |
| Section 04 Effect of MOP on Critical Facility | Effect of MOP on Critical Facility | | | | |
| Facility Equipment or System | Yes | No | N/A | Details: | |
| Electrical Utility Equipment | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| Emergency Generator System | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| Critical Cooling System | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| Ventilation System | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | | |



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| <i>Mechanical System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Uninterruptible Power Supply (UPS)</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Critical Power Distribution System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Emergency Power Off (EPO)</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Fire Detection Systems</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Fire Suppression System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Disable Fire System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Monitoring System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Control System</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <i>Security System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>General Power and Lighting System</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Lockout/Tagout Required?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Work to be performed "hot" (live electrical equipment)?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| <i>Radio interference potential?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Section 05

MOP

Supporting Documentation

MOP Supporting Documentation

1.

Section 06

Safety

Requirements

Pre Work Conditions / Safety Requirements

1. None

Section 07

MOP Risks & Assumptions

MOP Risks and Assumptions

1. Risks/Assumptions:

- 1.1. Any deviation from this approved MOP must be reviewed, approved and accepted by the customer and Quality Assurance.
- 1.2. By utilizing this Method of Procedure, Customer agrees that the Critical Facilities Team has no responsibility or liability for the performance of, and any results or damages resulting from the use of, this Method of Procedure if it is not performed under the direct supervision of a Critical Facilities Team SOP Supervisor.
- 1.3. All personnel involved in the procedure have read and agree to adhere to the "Critical Facility Work Rules".
- 1.4. In the event of any critical equipment problem/failure resulting from procedure, procedure shall cease immediately and back-out procedures will commence. When the cause of problem/failure is determined and equipment is returned to operational status, an evaluation will be made to determine if the procedure will recommence or be rescheduled at a later date.



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| Section 08 MOP Details | Detailed Procedure | | |
| | Date performed: / / | Time Begun: : : | Time completed: : : |
| | Facilities personnel performing work: / | | |
| | Contractor/Vendor personnel performing work: / | | |
| Notify client Point(s) of Contact (POC) that the procedure is about to begin, what the procedure consists of, and the corresponding approved MOP title. Have all required signatures before procedure starts. | | | |

| Chiller, Variable Speed Drive (VSD), Low Voltage, >790 HPComprehensive | Initials | Time |
|--|----------|------|
| Use appropriate eye protection in work environment | | |
| Use appropriate Head protection on worksite | | |
| Use appropriate hand gloves on worksite | | |
| Use and follow the JCI Safety policy for Fall Protection while performing work | | |
| Use and follow the JCI Ladder Safety processes while performing work | | |
| Use and follow the JCI Lock-out Tag-out on all electrical machinery | | |
| Use appropriate Arc/Flash personal protective equipment on voltages over 240 volts | | |
| All work must be performed in accordance with Johnson Controls Safety policies | | |
| Check with appropriate customer representative for operational deficiencies | | |
| Review control panel for proper VSD operation and recorded fault histories | | |
| Visually inspect coolant circuit for leaks | | |
| Check condition of coolant hoses | | |
| Meg compressor motor | | |
| Check and tighten electrical connections | | |
| Inspect fuses for continuity | | |
| Check for heat damage | | |
| Replace coolant and ensure proper level | | |
| Clean inside the VSD cabinet | | |
| Clean and/or backflush heat exchanger and strainer | | |
| Check overall condition of unit | | |
| Remove and dispose any debris from any maintenance activity | | |



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| Document tasks performed during visit and report any observations to appropriate customer representative | | |
| Operational | | |
| Use appropriate eye protection I work environment | | |
| Use appropriate Had protection on worksite | | |
| Use appropriate hand gloves on worksite | | |
| Use and follow the JCI safety policy for Fall Protection while performing work | | |
| Use and follow the JCI Ladder Safety processes while performing work | | |
| Use and follow the JCI Lock-out Tag-out on all electrical machinery | | |
| Use appropriate Arc/Flash personal protective equipment on voltages over 240 volts | | |
| All work must be performed in accordance with Johnson Controls safety policies | | |
| Check with appropriate customer representative for operational deficiencies | | |
| Review control panel for proper VSD operation and recorded fault histories | | |
| Visually inspect coolant circuit for leaks | | |
| Check for proper coolant level | | |
| Check condition of coolant hoses | | |
| Check overall condition of unit | | |
| Document tasks performed during visit and report any observations to appropriate customer representative | | |
| Chiller, Water Cooled, High Pressure Centrifugal, 1100-1499 Tons Comprehensive | | |
| Use appropriate eye protection I work environment | | |
| Use appropriate Had protection on worksite | | |
| Use appropriate hand gloves on worksite | | |
| Use and follow the JCI safety policy for Fall Protection while performing work | | |
| Use and follow the JCI Ladder Safety processes while performing work | | |
| Use and follow the JCI Lock-out Tag-out on all electrical machinery | | |
| Use appropriate Arc/Flash personal protective equipment on voltages over 240 volts | | |
| All work must be performed in accordance with Johnson Controls safety policies | | |
| Check with appropriate customer representative for operational deficiencies | | |
| Review control panel for proper operation and recorded fault histories | | |



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| Conduct refrigerant leak check | | |
| Check compressor oil level(s) | | |
| Change oil filters (isolation valves must be present and functional) | | |
| Change oil eductor filter dryer (isolation valves must be present and functional) | | |
| Lubricate and check capacity control and linkage | | |
| Verify oil heater operation | | |
| Check and tighten electrical connections | | |
| Perform preventative procedures to flow proving devices | | |
| Check for unusual noise and vibration | | |
| Check overall condition of unit | | |
| Remove and dispose any debris from any maintenance activity | | |
| Document tasks performed during visit and report any observations to appropriate customer representative. | | |

Section 09

Back-out Procedures

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| 1. Back-out procedures will commence immediately if any problem/failure occurs that affects the critical load. | | |
| 2. Any Issues Encountered, at any of the listed verification steps, will signal a STOP of work. Issues will be immediately identified for Root Cause. Corrections will be made. The system(s) will be returned to normal operating condition and allowed to stabilize. Evaluation will be conducted before a decision is to continue or stop work. The Emergency will be immediately notified and work will STOP. | | |
| Stop all work | | |
| If the nature of the problem includes flooding, fire, or threat to personnel safety, take immediate actions to correct. | | |
| MOP supervisor will inform the Customer POC immediately. | | |
| Safely clear all tools and personnel from the work area. | | |
| Corrective actions will be taken to restore the equipment and/or critical load with coordination from the Customer POC. | | |



METHOD OF PROCEDURE

| Section 10 MOP Approval | MOP Approvals | | |
|--|------------------------|-------------------------|--------------|
| <i>Tested for clarity:</i> | <i>Reviewers Name:</i> | <i>Reviewers Title:</i> | <i>Date:</i> |
| <i>Technical review:</i> | <i>Reviewers Name:</i> | <i>Reviewers Title:</i> | <i>Date:</i> |
| <i>JLL Chief Engineer approval</i> | <i>Approvers Name:</i> | <i>Approvers Title:</i> | <i>Date:</i> |
| <i>Contractor Review (if applicable)</i> | <i>Reviewers Name:</i> | <i>Reviewers Title:</i> | <i>Date:</i> |
| <i>Capital One approval</i> | <i>Approvers Name:</i> | <i>Approvers Title:</i> | <i>Date:</i> |
| Section 11 MOP Comments | MOP Comments | | |
| | | | |