

Attachment A - Scope of Service

SCOPE OF WORK PREVENTIVE MAINTENANCE (PM)

All electrical and mechanical systems will be thoroughly checked and scanned via infrared annually.

All planned disruptions to equipment usage must be scheduled with at least two (2) weeks written notice to the designated Rice University Representative. Coordination, scheduling, method of procedure document (MOP), test equipment and reporting, must all be included.

Equipment covered:

ATS

Interval: annual

Preventative maintenance (PM) services as determined by the manufacturer.

Medium Voltage Transformer

Interval: annual

Preventative maintenance (PM) services as determined by the manufacturer. Draw samples of the transformer's oil.

Maintenance to include wiping down all bushings and external surfaces, topping off fluids, tightening connections, reconditioning deteriorated oil, recharging gas blankets and checking gas bottles, touching-up the paint, fixing minor leaks, and doing any maintenance required for fan systems and tap changer systems.

UPS

Interval: semi-annual

Parts/labor/travel for remedial actions, firmware upgrades with each PM visit as determined by the manufacturer, and preventative maintenance (PM) services as determined by the manufacturer, must be included for all equipment comprising the UPS.

Stationary Battery Systems VRLA Sealed Battery

Interval: quarterly

Inspect the appearance and cleanliness of the battery and the battery room. Clean normal jar top dirt accumulation (to be done only with battery off line). Measure and record the total battery float voltage, charging current, the overall AC ripple voltage, and overall AC ripple current.

Visually inspect the jars and covers for cracks and leakage, and inspect for evidence of corrosion. Verify the integrity of the battery rack/cabinet. Measure and record 100% of the jar temperatures, the float voltage of all jars and all internal impedance readings. Provide a detailed written report noting any deficiencies and corrective action needed, taken and/or planned.

Back-up Generators

Interval: quarterly

Parts/labor/travel for remedial actions and preventative maintenance (PM) services, as determined by the manufacturer, must be included for all back-up generators.

Preventative maintenance (PM) services as determined by the manufacturer.

Load Bank Testing

Interval: annual

Perform two (2) hour resistive load bank test. Record all performance data in fifteen-minute intervals including: oil pressure, water temperature, voltage and frequency. Identify proper operation of fuel system, cooling system and overall condition of engine/generator set. Load bank testing should be performed with no interruption to the normal power.

Diesel Fuel Inspection

Interval: quarterly

Preventative maintenance (PM) services are for sampling and analysis of fuel.

Data Center Cooling Equipment

Parts/labor/travel for remedial actions and preventative maintenance (PM) services, as determined by the manufacturer, must be included for all cooling equipment listed.

AHU, HVAC, HVAC DX, CRAC, Condensers, and Chiller Units Maintenance

Interval: quarterly

The quarterly AHU, HVAC, HVAC DX, CRAC cooling units, condensers and chiller units PM will consist of visual inspection of the equipment and environment. Specified operating parameters will be confirmed, proactive replacement and/or cleaning of filters in each of the AHU, HVAC, HVAC DX and CRAC units, as well as identifying and reporting any discovered issues to the appropriate Rice University personnel. Coordination, scheduling, method of procedure document (MOP), standby equipment rental, detailed written reporting and chiller units coil cleaning must all be included.

Note: Chiller units coil cleaning will be performed twice a year.

Chilled Water Treatment

Interval: semi-annual

Provide water treatment chemicals for closed chilled water system, addition and transfer of chemicals, written reports of findings and performance of necessary adjustments as required. Monitor biological growth through dip slides or ATP testing. Provide testing on each visit for pH, conductivity and Nitrite. Maintain all sock filters, pot feeders, equipment, pumps, tubing, injectors and reagents. Provide certified lab services for water testing, metallurgy and deposit analysis

VFD

Interval: annual

Check VFD for physical damage and general condition. Clean interior and exterior of units to remove debris, dust, etc. Verify the drive operates properly in manual, auto and bypass modes if equipped. Check Control Wiring and Power Wiring Connections for Loose Terminals. Check VFD Fault History. Measure input and output voltage and current. Run an IR/ Thermal scan of power connections and re-torque as needed. Adjust programming as needed or requested by Rice University personnel. Back up VFD parameters in Keypad (if VFD is so equipped.) Provide a report of findings and any deficiencies that need additional attention

Data Center FM-200 Clean Agent and Sprinkler (Pre-action) Fire Suppression System Maintenance

Interval: semi-annual

Coordinated in conjunction with building wide annual fire suppression maintenance and recertification.

As appropriate for each type of system, the annual fire suppression system PM will consist of inspecting gauges, system valves, components and signs, operating control valves, testing tamper and flow switches, local alarms and signals, opening main drain to record static and residual pressures, partial trip test, draining of low point drains, inspecting the fire department connection, and performing a building walkthrough to visually inspect- where possible; sprinklers, piping, fittings and hangers from the floor level. Fire alarm inspections and diagnostic tests will be performed on accessible peripheral devices that are currently connected to the facility fire alarm system.

Selected vendor would coordinate the scheduling of this semi-annual work with Rice University personnel and ensure that the systems are tested to method of procedure document, specific for the data center fire suppression systems.

Data Center Cleaning

Interval: annual

Remove all dust and debris from floor surface using an approved vacuum with the proper attachments. Remove dust from the surfaces of cabinets, equipment, etc., using an approved vacuum cleaner and treated disposable dust wipes (for non-equipment surfaces). Vacuum dust and debris from underneath and around all equipment, cabinets, etc. Remove unsightly spots, scuffs, adhesives and marks from floor surfaces. Damp mop floor using anti-static cleaner specifically designed to eliminate static electrical charges in critical environments. Apply with a low lint mop.

Building Management System

Interval: semi-annual

Equipment field inspections and zone equipment field inspection by a factory trained technician. Annual Implementation and/or review of the latest manufacturers' software revisions, alert notifications, system programming, graphics and database backup. Provide 8 hours standard operator training classes semi-annually. Provide on-line technical support, priority service response and 24 hours emergency service.

IR Scan of Critical Panels

Interval: annual

Infrared scan of all critical panels and terminations. Produce report documenting all findings from scan.

Data Center Electric Panel Maintenance

Interval: annual.

The annual maintenance procedure will consist of: Electric Circuit Breaker Panel PM--involves a visual inspection of internal panel components, operation of all breakers, and a full cleaning of the panel interior and components and checking the torque of all wire connections.

Replacement Parts

If there are replacement parts or vendor equipment technician labor that are required by Rice University for items above and beyond the contracts and parts warranties in place, please indicate how you will bill Rice University - at vendor cost plus (x) % markup or subtracting (x)% discount, to cover all vendor third party vendor management costs and expenses (indicate the (x) % in Appendix C). Documentation for these efforts will include vendor invoices showing the parts and labor charges.

If replacement part involves disposal of existing equipment, involving disposal costs, line item the disposal costs as a separate line item in the equipment replacement quote.

Equipment Removal

Only equipment covered under the scope of this agreement and approved in writing by an authorized Rice University employee will be removed by the Selected Vendor or their Subcontractor(s). A written or electronic record must be created by the selected vendor for all work performed by the vendor or their subcontractor(s) and made available to designated Rice University personnel.

Power Safety--All equipment to be removed must be powered down before removal. All breakers must be turned off--any equipment shut-down must be approved by Rice University designated personnel prior to shutting it off. Lock-out/Tag-out practices will be implemented when appropriate.

The PDU (Server Room Power Distribution Unit) and Wall Breaker Panel map/floor plans must be updated in response to any changes and changes must be approved by and verified with designated Rice University personnel prior to any work being done.

Equipment Disposal-The disposition of equipment after removal must be documented and approved by an authorized Rice University representative before the disposition process starts. All components must be inventoried and a list created for the history file and if applicable turned over to client for disposal in accordance with Rice University procedure. Equipment disposal costs/fees associated with equipment replacement (provided by vendor) should be included as a line item in the replacement equipment price.

Block of Labor Hours

- Requests for work outside of PM maintenance will utilize labor hours from the quoted block of hours.
- If requests for work, outside the PM maintenance scope, can be accommodated within the PM maintenance period, no quoted block of hours would be used.
- Once the quoted block of hours has been used, requested labor would be billed at the same per hour rate of the quoted block of labor hours.
- Block of hours used during overtime would convert to 1.5 regular hours and Holiday hours would convert to 2.0 regular hours.
- Rice University, if Provider is in agreement, can utilize block of hours for specific projects which Provider has expertise.
- Provider and Rice University will communicate regularly to ensure both parties are in agreement on labor hour balances.