

**VISIT INFORMATION**

| Visit Ref : <b>JOB021262</b>                     | Engineer : <b>S - Kevin Hinson</b>    |
|--|---------------------------------------|
| Client Ref : <b>CONTRACT</b>                     | Date / Time : <b>31/01/2017 09:30</b> |
| SITE DETAILS                                     | SCOPE OF WORKS                        |
| Company : <b>STFC RUTHERFORD APPLETON LAB</b>    | <b>HEALTHCHECK</b>                    |
| Address : <b>HARWELL SCIENCE &amp; INOVATION</b> |                                       |
| <b>CAMPUS,DIDCOT</b>                             |                                       |
| <b>0</b>   |                                       |
| <b>OXFORDSHIRE</b>                               |                                       |
| Postcode: <b>OX11 0QX</b>                        |                                       |
| Contact : <b>Andy Gallagher</b>                  |                                       |
| Telephone : <b>07880 785703</b>                  |                                       |

**RISK ASSESSMENT**

| Hazard  | # of people affected | Level of risk | Can work proceed safely? | Detail safety measures put in place            |
|---|----------------------|---------------|--------------------------|--|
| Example   |                      |               |                          |  |
| Work at height  | 2                    | Medium        | Yes                      | Scaffolding in place with appropriate Scafftag |
| Site Induction  | N/A                  |               | Yes                      |  |
| Welfare Facilities  | N/A                  |               | Yes                      |  |
| Access/egress / Slips, trips and falls                        | N/A                  |               | Yes                      |  |
| Access to equipment & batteries                               | N/A                  |               | Yes                      |  |
| Lighting levels   | N/A                  |               | Yes                      |  |
| Working area / Overhead / Holes / Excavations / Noise / COSHH | N/A                  |               | Yes                      |  |
| Environmental Issues (dust, water, fumes, asbestos etc)       | N/A                  |               | Yes                      |  |
| Other trades / Hot work                                       | N/A                  |               | Yes                      |  |
| Work at height  | N/A                  |               | Yes                      |  |
| Tools/ Plant/ Equipment                                       | N/A                  |               | Yes                      |  |
| Battery condition (Damage, leaks etc)                         | 1                    | Medium        | Yes                      | PPE worn                                       |
| Manual Handling   | N/A                  |               | Yes                      |  |
| Electrical AC/DC (inc isolation)                              | 1                    | Low           | Yes                      | Safe isolations                                |
| Other detail below  | N/A                  |               | Yes                      |  |
|   |                      |               |                          |  |
|   |                      |               |                          |  |
|   |                      |               |                          |  |

**AUTHORISATION AND AGREEMENT**

I confirm that I have been briefed on the hazards on site and have discussed and agreed the above control measures

|                |                |      |            |
|----------------|----------------|------|------------|
| Engineers Name | Kevin Hinson   | Date | 31/01/2017 |
| Customer Name  | Andy Gallagher | Date | 31/01/2017 |

**Definition of risk level**

- ◆ **High:** Immediate action required to reduce risk to an acceptable level.
- ◆ **Medium:** Steps to reduce the risk to a more acceptable level are required where practicable.
- ◆ **Low:** No further action required at this stage. Monitor to ensure continued measures remain effective.



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| Client Ref : <b>CONTRACT</b>                     | Date / Time : <b>31/01/2017 09:30</b>           |
| Contract No: <b>CON-06442</b>                    | Contract Type : <b>CON-06442</b>                |
| Case Ref :                                       |   |
| SOP Number :                                     | Project Manager :                               |
| SITE DETAILS                                     | UNIT DETAILS                                    |
| Company : <b>STFC RUTHERFORD APPLETON LAB</b>    | Item : <b>MST 20-T4-1 (MM04UT303260001)</b>     |
| Address : <b>HARWELL SCIENCE &amp; INOVATION</b> | Serial Number : <b>MM04UT303260001</b>          |
| <b>CAMPUS,DIDCOT</b>                             | Battery Pack 1 : <b>BRO 480-090-1-6T1R</b>      |
| <b>0</b>   | Battery Pack 2 : <b>NONE</b>                    |
| <b>OXFORDSHIRE</b>                               | Battery Pack 3 : <b>NONE</b>                    |
| Postcode: <b>OX11 0QX</b>                        | Bypass Switch : <b>WBS 0125A-33H-T</b>          |
| Contact : <b>Andy Gallagher</b>                  | Manufacturer : <b>RIELLO</b>                    |
| Telephone : <b>07880 785703</b>                  | Accessories : <b>NETMAN 102 PLUS</b>            |
| SCOPE OF WORKS                                   | ASSET NOTES                                     |
| <b>HEALTHCHECK</b>                               | Accessories : <b>0</b>                          |
|  | Location : <b>Building R5.2,</b>                |
|  | Location : <b>HYDROGEN PROCESS CONTROL ROOM</b> |
|  | On Site Crash Kit <b>0</b>                      |

| WORK COMPLETED  |            |
|---|------------|
| <p>UPS in normal operation on arrival. Input 235,235,236Vac Bypass 236,235,235Vac Output 230,230,230Vac Battery +272-272Vdc. All cooling fans running normally. Bypassed for inspection. Batteries are 40 x Yuasa SWL2500FR date code 10051334. Internal are 80 x CSB HRL1234W F2 date code 101129V23. All UPS checks ok. Upgraded firmware. Powered back to normal operation and carried out 5 min battery test ok. Left online with no alarms present</p> |            |
| History Log Start   | YES        |
| History Log End   | YES        |
| Service Alarm UPS   | YES        |
| Service Alarm BB  | YES        |
| Service Label   | YES        |
| Firmware Version  | 2.31 2.30  |
| Customer Loading  | 15,10,19   |
| Load Type   | IT         |
| Last Battery Change   | 01/05/2010 |
| Last Major Overhaul   | NONE       |
| TELENETGUARD (Please set up if on contract and have equipment required to do so)  |            |
| Installed   | NO         |
| Netman  | NO         |
| Dial In tested  | NO         |
| Telephone   | 0          |
| Modem   | NO         |
| Dial Out Tested   | NO         |

Notes

| PARTS/COMPONENTS USED |             | RECOMMENDATIONS |  |
|-----------------------|-------------|-----------------|--|
| Depot                 | Part Number | Quantity        | Major Overhaul / Battery Replacement       |
| VAN                   |             |                 | YES  |
| VAN                   |             |                 | Inverter Output card & Battery Replacement |
| VAN                   |             |                 |  |
| VAN                   |             |                 | Impedance Testing / Contract / Loadbank    |
| VAN                   |             |                 | NO   |
| VAN                   |             |                 |  |
| VAN                   |             |                 |  |

| FURTHER WORK REQUIRED   |                | RETURNS                            |              |
|---|----------------|------------------------------------|--------------|
| YES   |                | NO                                 |              |
| Recommend inverter output card replacement due to age. 6R_SU0054-07A. Unit may need to be de-cabled for RHS access. |                | RETURN NUMBER                      |              |
|   |                | MUST DETAIL LOCATION / ITEMS BELOW |              |
|   |                |                                    |              |
| Bypass Not Authorised By  | N/A            | Start Time                         | 12.00        |
| Bypass Authorised By  | Andy Gallagher | End Time                           | 13.30        |
| Customer Name   | Andy Gallagher | Engineer Name                      | Kevin Hinson |



# Preventative Maintenance Certificate



## VISIT INFORMATION

|              |                  |               |                         |
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## Comments / Issues / History

|                  |         |
|------------------|---------|
| Enviroment       | Good    |
| Air Conditioning | Yes     |
| Ambient Temp     | 21 degs |

## UPS Enviroment, Operation and Set Up

|                  |         |                                     |               |
|------------------|---------|-------------------------------------|---------------|
| Enviroment       | GOOD    | UPS Position                        | LIMITED SPACE |
| Air Conditioning | N/A     | UPS Access for Maintenance          | LIMITED SPACE |
| Ambient Temp     | 21 degs | Battery Pack(s) Position            | OK            |
| BEP Temp         | 21 degs | Battery Pack Access for Maintenance | OK            |
| <b>Comments:</b> |         |                                     |               |

## Firmware

|                          |           |                      |                       |
|--------------------------|-----------|----------------------|-----------------------|
| Firmware Update Required | Yes       | Update Authorised By | <b>Andy Gallagher</b> |
| Version Before Update    | 2.15 2.11 | Version After Update | 2.31 2.30             |
| <b>Comments:</b>         |           |                      |                       |

## Bypass Operation

|                      |                |                    |     |
|----------------------|----------------|--------------------|-----|
| Bypass Authorised By | Andy Gallagher | Bypass Locked      | No  |
| Bypass Not Auth By   | N/A            | Bypass Interlocked | Yes |
| Bypass Condition     | Good           |                    |     |
| <b>Comments:</b>     |                |                    |     |

## Breakers, Fuses, Cabling And Ribbon Cable Assembly

|                  |      |                              |      |
|------------------|------|------------------------------|------|
| Supply Cabling   | Pass | System Circuit Breakers      | Pass |
| Load Cabling     | Pass | Bypass Output Load Connected | Pass |
| System Fuses     | Pass | Ribbon Cable Assembly        | Pass |
| <b>Comments:</b> |      |                              |      |

## Relays And Contactors

|                       |      |                           |      |
|-----------------------|------|---------------------------|------|
| Input Contact/Relay   | Pass | Notices clear and present | YES  |
| Output Contact/Relay  | Pass | Others                    | Pass |
| Battery Contact/Relay | Pass |                           |      |
| <b>Comments:</b>      |      |                           |      |

## Transformers And Conductors

|                      |      |                 |      |
|----------------------|------|-----------------|------|
| Input Transformers   | N/A  | Input Inductor  | Pass |
| Output Transformers  | N/A  | Output Inductor | Pass |
| Current Transformers | Pass | Area Clear      | YES  |
| <b>Comments:</b>     |      |                 |      |

## Capacitors And Heatsinks

|                      |      |   |      |
|----------------------|------|---|------|
| AC Capacitors        | Pass | Heatsinks   | Pass |
| DC Capacitors        | Pass | Thermal Image Taken Of Capacitors                 | YES  |
| Current Transformers | Pass | If no Thermal Image taken please detail why below |      |
| <b>Comments:</b>     |      |   |      |

## Ventilation Fans

|                  |     |       |     |
|------------------|-----|-------|-----|
| Free Running     | YES | Clean | YES |
| Quiet            | YES |       |     |
| <b>Comments:</b> |     |       |     |

## Semi Conductors

|                  |      |        |      |
|------------------|------|--------|------|
| IGBTS            | Pass | FETs   | Pass |
| Thyristors       | Pass | Diodes | Pass |
| <b>Comments:</b> |      |        |      |

| Assemblies         |      |                       |      |
|--------------------|------|-----------------------|------|
| Filter Assembly    | Pass | Booster Assembly      | Pass |
| Rectifier Assembly | Pass | Power Supply Assembly | Pass |
| Control Assembly   | Pass | Parallel Assembly     | N/A  |
| Inverter Assembly  | Pass |                       |      |
| <b>Comments:</b>   |      |                       |      |

| Display Panel    |      |           |      |
|------------------|------|-----------|------|
| Display Values   | Pass | Operation | Pass |
| Calibration      | Pass |           |      |
| <b>Comments:</b> |      |           |      |

| Communication Ports / Devices |      |                    |      |
|-------------------------------|------|--------------------|------|
| RS-232                        | Pass | Volt Free Contacts | Pass |
| USB                           | N/A  | Interfaces         | N/A  |
| <b>Comments:</b>              |      |                    |      |

| Auxiliary Devices |      |                       |     |
|-------------------|------|-----------------------|-----|
| Network Card      | Pass | Multicom              | N/A |
| Modem             | N/A  | Multi I/O             | N/A |
| Remote Panel      | N/A  | Environmental Sensors | N/A |
| Multiplexer       | N/A  |                       |     |
| <b>Comments:</b>  |      |                       |     |

| Batteries              |                     |                        |                      |
|------------------------|---------------------|------------------------|----------------------|
| Ups Batteries          |                     | Battery Pack Batteries |                      |
| <b>Model / Rating</b>  | CSB HRL1234W F2 9Ah | <b>Model / Rating</b>  | YUASA SWL2500FR 90Ah |
| <b>Qty</b>             | 80                  | <b>Qty</b>             | 40                   |
| <b>Battery Date</b>    | 101129V23           | <b>Battery Date</b>    | 10051334             |
| <b>Comments:</b>       |                     |                        |                      |
| Thermal Image Taken    | YES                 | Fuses                  | YES                  |
| Battery Damage/Leaking | NO                  | Terminal Corrosion     | NO                   |
| Impedance Checked      | N/A                 | Terminal/Links Secure  | YES                  |
| <b>Comments:</b>       |                     |                        |                      |

| Thermal Imaging            |     |                   |    |
|----------------------------|-----|-------------------|----|
| System Thermal Image Taken | YES | Any issues raised | NO |
| <b>Comments:</b>           |     |                   |    |

| Safety Check     |     |                         |     |
|------------------|-----|-------------------------|-----|
| Panels Secure    | YES | Notices Clear / Present | YES |
| Area Cleared     | YES | System Safe to Start    | YES |
| <b>Comments:</b> |     |                         |     |

| UPS reconnection And Restart |     |                        |     |
|------------------------------|-----|------------------------|-----|
| System Connected             | YES | All Operational Starts | YES |
| Restart                      | YES | Ready                  | YES |
| <b>Comments:</b>             |     |                        |     |

| Discharge Test       |     |                   |     |
|----------------------|-----|-------------------|-----|
| Discharge Test       | YES | System Recharging | YES |
| UPS Load Transferred | YES |                   |     |
| <b>Comments:</b>     |     |                   |     |

| UPS in Service and Handover |     |                     |     |
|-----------------------------|-----|---------------------|-----|
| UPS Output Connected        | YES | Documents Completed | YES |
| UPS supporting load         | YES | Customer Ok         | YES |
| UPS Operational             | YES | All waste removed   | N/A |
| <b>Comments:</b>            |     |                     |     |