**IOH SPECIFIC MOP**

«titlemop»



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| --- | --- | --- | --- |
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# Description of Change (Background)

## Description of Site

As requirement to improve backup time and life cycle of battery, required swap VRLA battery to Lithium battery

## Purpose and Requirements (Preliminary / objective result)

Swap battery from Old VRLA battery to New VRLA battery, required swap method step-by-step each bank/group

## Description Of Site

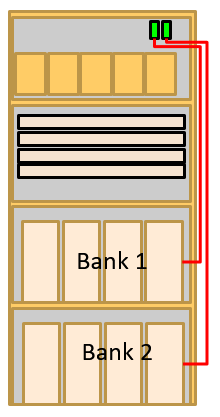
|  |  |  |  |
| --- | --- | --- | --- |
| **DUID** | **Qty** | **Dependency List** | **Data Source** |
| «duid» | «qty» | «list» | «source» |

|  |  |
| --- | --- |
| **Basic Requirement** | **Description** |
| **Change scenario** | Swap Old VRLA battery to New VRLA battery |
| **Change purpose\*** | Expand battery backup & life cycle capability |
| **Change solution category** | Swap Battery |
| **Change scope** | Change Scope :  Battery Swap & Integration to NetEco for monitoring |
| **Change time\*** | **«date»** – **«date»**, **«time»** |
| **Requirement** | * Battery Cabinet (if more than 4 pcs lithium battery) * SCC800-S1 (if existing rectifier is not SMU02B/SMU02C & RAN non-Huawei * SIM Card (if existing RAN is non-Huawei) * Load with new battery charging <85% from total installed PSU |

## Description of Change and Change Influence

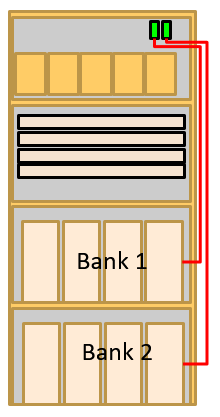
1. BEFORE :

Existing rectifier used Old VRLA Battery



1. AFTER :

Swap to New VRLA Battery



**Change Influence:** Rectifier will not backup while swap battery and in case grid power is down also

# 2. Preparations for Change

## Change Period

The cut over will be execute on **«date»** – **«date»**, **«time»**

## Composition of Change Team and Responsibility of Team Members

Introduce the composition of the change team, specify the owner for each change action, and clarify work contents and responsibilities.

### Change Team of Huawei

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Responsibility | Dept. | Telephone No. |
| Dimas Arum P | Leader | HW RO | +62 89651613399 |
| Hermadi Gunawan | Technical issue | HW RO | +62-899-022-0706 |

### Huawei On-site Change Team

| Name | Responsibility | Telephone No. |
| --- | --- | --- |
| Beni Setyo | PM | +62 896-0300-3782 |
| Hermadi Gunawan | Technical issue | +62-899-022-0706 |
| Dimas Arum P | Onsite support | +62 89651613399 |

### Huawei Support & Guarantee Team

| Name | Responsibility | Telephone No. |
| --- | --- | --- |
| GTAC | Provide professional  Technical support. | Contact with GTAC hotline **1800 88 1633**  GTAC Emergency Backup: **+86 2981770999** |

## Check of Equipment Running

| Check Item\* | Check result or steps\* |
| --- | --- |
| Input Rectifier voltage | Checked & measure voltage of input rectifier, voltage each phase to neutral shall 180 – 240Vac |
| Output Rectifier voltage | Checked & measure voltage output rectifier, voltage shall 48 – 55 Vdc |
| Current Load Rectifier | Checked on display or measure current load of rectifier, load shall < 85% from total PSU installed |
| Existing Battery VRLA | Checked VRLA battery is still connected or not  Checked VRLA battery voltage, each block shall 12Vdc and 1 group is 48Vdc  Checked VRLA surface, any defect or damage  Checked SN each VRLA battery |
| Existing Battery cables | Checked does battery cable still exist or not |
| Type of Rectifier Controller | Checked type of controller rectifier  (if Huawei: PMU/SMU02B/SMU02C/SMU01B)  (if other brand: ENATEL, ELTEK, EMERSON, etc)  If used SMU02B/SMU02C, lithium battery can directly connect through it |

## Change Risks and Countermeasures

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Risk Description** | **Possibility (High/Middle/Low)** | **Impact**  **(High/Middle/Low)** | **Countermeasure** |
| 1 | Battery Swap/Replace | Low | Low | Swap/replace VRLA battery each Group  Step-by-step method, if have 2 VRLA battery group  Replace 1 Group first to Lithium battery, after done replace, and then replace 2nd group and so on. |

## Check before Change

| No. | Preparations Before Change | Owner | Completion Date |
| --- | --- | --- | --- |
| 1 | Change back solution has been prepared, confirmed and authorized by customer *(essential for high risk change)* \* | Hermadi Gunawan | 1 day before |
| 2 | Change solution and change back solution have been verified\* | Hermadi Gunawan | 1 day before |
| 3 | Readiness of getting access permission to the site | Hermadi Gunawan | 1 day before |
| 4 | Readiness of remote log-in environment | Hermadi Gunawan | 1 day before |
| 5 | Confirm change risks and emergency measures | Hermadi Gunawan | 1 day before |
| 7 | Readiness of support & guarantee team | Hermadi Gunawan | 1 day before |

# Operation Steps for Change

## Overall Description

|  |  |  |
| --- | --- | --- |
| **Time** | **Operation** | **Detail Service Impact** |
| *09:00-10.00* | Start operation | Impact : Battery backup during swap decrease to half capacity, site down if in case power grid down during swap/replacement battery |
| *10.00-11.00* | Start upgrading |
| *11:00-12:00* | Verification (including testing) |
| *12:00-13:00* | Rollback | No impact |
| *13:00* | Complete | No impact |

## Operation Steps for Change

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No. \*** | **Change Step\*** | **Operation\*** | **Implementation Person\*** | **Time\*** |
| 1 | Health check | Make sure power input is not shut down and existing VRLA battery is on floating positions | Dimas Arum P | 09:00 -- 09:10 |
| 2 | Input Rectifier voltage | Checked & measure voltage of input rectifier, voltage each phase to neutral shall 180 – 240Vac | Dimas Arum P | 09:10 -- 19:20 |
| 3 | Output Rectifier voltage | Checked & measure voltage output rectifier, voltage shall 48 – 55 Vdc | Dimas Arum P | 09:20 -- 09:30 |
| 4 | Current Load Rectifier | Checked on display or measure current load of rectifier, load shall < 85% from total PSU installed | Dimas Arum P | 09:30 -- 09:40 |
| 5 | Existing Battery VRLA | Checked VRLA battery is still connected or not  Checked VRLA battery voltage, each block shall 12Vdc and 1 group is 48Vdc  Checked VRLA surface, any defect or damage  Checked SN each VRLA battery | Dimas Arum P | 09:40 -- 09:50 |
| 6 | Existing Battery cables | Checked does battery cable still exist or not | Dimas Arum P | 09:50 -- 10:00 |
| 7 | Operation Overview | Swap VRLA battery to lithium battery and integration for monitoring | Dimas Arum P | 10:00 -- 10:20 |
| 8 | Swap VRLA battery 1st Group | Swap VRLA battery on a 1st group to lithium battery (2 pcs) | Dimas Arum P | 10:20 -- 10:30 |
| 9 | Swap VRLA battery 2nd Group | Swap VRLA battery on a 2nd group to lithium battery (2 pcs) | Dimas Arum P | 10:30 -- 10:40 |
| 10 | Verified installation | Check voltage on each lithium battery, voltage should be 47-53.5Vdc  Check indicator of each lithium battery, should be blinking on charging and no any alarm | Dimas Arum P | 10:40 -- 10:50 |
| 11 | Integration | Integration to NetEco after swap lithium battery, and monitor voltage and current load of battery on NetEco | Dimas Arum P | 10:50 -- 11:00 |

## Test and Verification

Describe in details how the test is conducted, specify the owner of each test item and test items, record detailed test process.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Change Validation** | | | | |
| **No. \*** | **Test Item\*** | **Operation Method\*** | **Owner\*** | **Time\*** |
| 1 | Voltage Lithium Battery | Measure voltage each lithium battery, nominal shall 48-53.5Vdc | Dimas Arum P | 11:00 -- 11:10 |
| 2 | Current Load Lithium Battery | Measure current load each lithium battery, nominal shall not more than 10Adc (if coefficient battery charging is 10%) | Dimas Arum P | 11:10 -- 11:20 |
| 3 | Indicator Lithium Battery | Indicator LED on lithium battery shall blinking on SOC  4 LED indicates from 25%-100% | Dimas Arum P | 11:20 -- 11:30 |
| 4 | Monitor lithium battery | Monitor voltage and current load on NetEco | Dimas Arum P | 11:30 -- 11:40 |
| 5 | Monitor existing alarm | Check & rectification for alarm | Dimas Arum P | 11:40 -- 12:00 |

## Solution for Changeback In the Case of Failure

### Definition of Change Failure

Define what is a change failure and who can recognize a change failure (negotiate with the user before the change to determine this part).

|  |  |
| --- | --- |
| **Change back time\*** | 12:00 – 13:00 |
| **Change back decision maker\*** | Hermadi Gunawan / 08990220706 |
| Change back condition | If lithium battery is fault in the beginning and can’t backup |
| Change Back Owner | Hermadi Gunawan / 08990220706 |
| Deadline of rollback | The roll back decision is going to made by 12:00 |

### Overall Description of Change back

*Briefly describe the changeback in an overall manner.*

### Change back Steps

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.\*** | **Changeback Steps\*** | **Operation content\*** | **Owner\*** | **Time\*** |
| 1 | Rollback of Battery | Replace existing VRLA battery to existing rectifier | Dimas Arum P | 12:00 -- 12:10 |
| 2 | Check voltage on each battery | After replace again, check and measure voltage of each battery block and group | Dimas Arum P | 12:10 -- 12:20 |
| 3 | Monitor Alarm | Check and rectify alarm on sites | Dimas Arum P | 12:20 -- 12:30 |

### Tests after Change Back

Check all alarms. Make sure this is no any alarm.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No. \*** | **Test Item\*** | **Operation Method\*** | **Owner\*** | **Time\*** |
| 1 | Voltage VRLA Battery | Measure voltage each VRLA battery, nominal shall 11-12Vdc, and 48-53.5Vdc for group | Dimas Arum P | 12:30 -- 12:35 |
| 2 | Current Load VRLA Battery | Measure current load each VRLA battery, nominal shall not more than 10Adc (if coefficient battery charging is 10%) | Dimas Arum P | 12:35 -- 12:40 |
| 3 | Monitor existing alarm | Check & rectification for alarm | Dimas Arum P | 12:40 -- 12:50 |
| 4 | Monitor load on U2020 | Check & view voltage, current, percentage capacity on U2020 for battery | Dimas Arum P | 12:50 -- 13:00 |

### Change back Risk Analysis

Analyze the risks that may be brought by change back, and provide corresponding countermeasures.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.\*** | **Main Issues and Risks Description\*** | **Possibility\*** | **Impact\*** | **Countermeasure\*** |
| 1 | If short circuit happen during swap | Low | Low | Roll back . Detail steps please refer to "Rollback" sheet |
| 2 | If on sites happen power grid shut down more than 1 hours | Low | Low | Roll back . Detail steps please refer to "Rollback" sheet |

## Complete

| No. \* | Step Description\* | Operation Method\* | Owner\* | Time\* |
| --- | --- | --- | --- | --- |
| 1 | Inform customer about the operation status. | Informs customer by sending email to request the monitoring | Dimas Arum P | 13:00 |

# Work After Change

## Observation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Observation Item\*** | **Observation method\*** | **Observation time\*** | **Owner\*** |
| 1 | Charging Battery | Check voltage and current is raised up not more than 10% from total capacity, and capacity battery raised up to 50% | 13:00 -- 13:10 | Dimas Arum P |
| 2 | Indicator Lithium battery | Indicator LED on lithium battery shall blinking on SOC  4 LED indicates from 25%-100% | 13:10 -- 13:20 | Dimas Arum P |
| 3 | Monitor Alarm | Check all alarm after swap | 13:20 -- 13:40 | Dimas Arum P |
| 4 | Voltage Battery | Check and monitor voltage for each battery on NetEco | 13:40 -- 13:50 | Dimas Arum P |