

ABSTRACT

INFOBATT 2004

A Case Study: Four Years of Performance Data at a Canadian Rehydration & Catalyst Addition Test Site

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Four years ago a string of high quality 2-Volt VRLA cells underwent the rehydration and catalyst addition process. The cells were manufactured in 1993 and were in very bad shape prior to the start of the process: signs of positive plate growth, low capacity and less than adequate delivery of run time. After the rehydration and catalyst addition process every cell in this 48-volt string made a dramatic recovery, including delivery of the required load during the August 2003 blackout. It has been 4 years since water and catalysts were added to these cells and the latest performance data has just been collected. The results are very good and will be presented in case study fashion along with an explanation of what is occurring inside the cells to account for the turnaround in performance.

The data from this test site has been briefly presented in our last two presentations, but only as supporting data for the larger presentation. This year an in depth analysis will be presented on this field test site in an effort to share what we have learned. Specifically the topic areas that will be covered are:

- The steps taken in the rehydration and catalyst addition process.
- In depth data analysis from the site of before and after data. The specific parameters to be presented are:
 - Voltage
 - Conductance
 - Internal Resistance
 - Capacity
 - Run Time
- The science behind what is at work in these cells and why the process has been so successful at this site.
- Financial analysis: How much has been saved by not having to replace these cells.

Finally, additional performance data from other sites that have undergone the Rehydration/Catalyst Addition process will be presented as supporting data. Anderson's Electronics has performed this process on approximately 10,000 VRLA cells in Canada over the last 4 years and a trending analysis will be included as part of the presentation.