Recommended Nickel Cadmium Battery System Specification for Switchgear
Specification JS082108

STATION BATTERY SYSTEM
The Vendor shall provide a 100% redundant system consisting of two sets of batteries with two sets of chargers for the 125 volt DC power system for the electrical equipment as indicated on the Drawings. Each battery shall be sized to simultaneously energize all the switchgear spring charge motors plus the continuous loads on the switchgear, switchboards, etc. requiring 125 VDC power.

1. Battery Specification: Each battery shall be a pocket plate electrode industrial nickel cadmium type. The battery shall be sized in accordance with IEEE 1115-2000 procedures for operation at 32 degrees F. The battery shall be suitable for simultaneously energizing all the circuit breaker spring charge motors in the switchgear to a minimum battery voltage of 105 volts (1.14 volts/cell) at the battery terminals in addition to all the 125 VDC electrical equipment continuous loads. An aging factor of 1.25 shall also be applied. The Vendor shall submit sizing calculations for approval by the Engineer. Battery cell container material shall be translucent polypropylene. The battery shall be supplied wet and discharged, with all necessary intercell connectors, plastic covers and flame arrester vent caps. Battery shall be SAFT Model SBL/SBM/SBH (model to be determined at time of sizing) and shall have a 25 year warranty (5 Years Full / 20 Years Pro-rata) in float service. Battery terminals shall be provided with protective covers. The battery rack shall be suitable for the sites seismic earthquake requirements. The steel battery rack shall be painted with ANSI 61 gray (JS011462) alkali and acid resistant paint. Battery supplier shall provide a layout drawing showing the detailed inter-cell connectors, inter-row and inter-tier cabling as appropriate.

2. Battery Charger: Each battery charger shall be powered from a single phase 120/208/240VAC or three phase 208/480 VAC source, 60 Hz. The battery charger shall be a SAFT Model filtered battery eliminator power supply type. The unit shall be equipped with an input circuit breaker, two pole 10,000 ampere interrupting rating and a two pole output DC circuit breaker. It shall be electronically current limited and shall automatically regulate voltage to plus or minus 0.5% for 0-100 percent load and plus or minus 10% input line voltage variation. The charger shall have a DC voltmeter and DC ammeter, analog type, 2% accuracy, and shall be housed in a front access wall or floor mounting NEMA 1 enclosure. It shall have an alarm board which has latching LED lights and auto reset relays with dry form C contacts for the following:
   a. Low DC voltage (red)
   b. High DC voltage (red)
   c. AC input voltage failure (red)
   d. Rectifier failure (red)
   e. Float mode (green)
   f. High rate (amber)
   g. DC output failure with contacts for remote alarm (red)
   h. Ground detection alarm (red)
   i. Summary alarm

One C contact shall be provided for a remote alarm for any of the above alarms, a, b, c, d,g, h and i.

3. The charger shall have a 0-24 hour fully automatic equalize charge timer. After an outage of about 30 seconds or more, the charger shall automatically go into a boost charge voltage mode for a preset interval. At the end of this period, the charger shall automatically return to float. The charger shall restore the batteries after a complete discharge in twelve (12) hours.
4. Spill Control and Accessories: Containment System shall be 4” high and shall extend 1” beyond the furthest point of the rack. System shall be liquid tight. The barrier must have checkerboard yellow/black markings indicating caution, to alert employees or service personnel to potential hazards in the Battery Room. Markings must meet OSHA safety color code requirements. Provide absorption and neutralization mats in the quantity necessary to cover the entire area inside the system plus 10%. Spill containment and neutralization equipment must be supplied by the original manufacturer. Approved Vendor for spill containment and safety accessories shall be Acran.