

# BMP stands for more than 'best management practice'

## Six-step maintenance process extends 12V lead-acid battery life up to five times.

**Nothing screws with** a technician's day like a truck that won't start.

Several years ago, North Richland Hills, Texas, experienced ongoing downtime due to dead batteries. Today, equipment is much more reliable and Fleet Services is contributing to the city's Think Green initiative by sending less hazardous waste to landfills.

The department accomplished this via proactive maintenance that prevents the top cause of 12-volt lead-acid battery failure: sulfation buildup. As a battery ages or sits unused, lead sulfate crystals eventually create a physical barrier that prevents the battery from accepting or releasing energy. Sulfation buildup claims the life (usually prematurely) of 80% of batteries worldwide.

North Richland Hills' fleet ranges from tractors to backhoes to police and departmental cars to trucks. Initially, Fleet Services installed solar-powered battery chargers made by PulseTech Products Corp. of Southlake, Texas, on selected emergency vehicles and construction equipment. In addition to essentially charging the batteries for free

### BATTERY MANAGEMENT PROGRAM (BMP) PROTOCOL

Initially developed for military fleets, PulseTech Products Corp.'s Mobilization and Training Equipment Site guide recommends the following maintenance routine to extend lead-acid battery performance and life.

**Step 1.** New batteries stockpiled as replacements can discharge up to 50%. The company's PRO-12-RP desulfates 12 lead-acid batteries indefinitely.

**Step 2.** Test each battery to fully understand condition. Recommended PulseTech product: 777P-PT tester with printer.

**Step 3.** Recharge batteries. Recommended product: SC-12.

**Step 4.** Retest each battery after 24 to 48 hours recharging. When within 80% of its rated CCAs, move battery to a maintenance charger like the PRO-12-RP.

**Step 5.** Develop test schedule to ensure each battery remains in peak condition.

**Step 6.** Install a permanent desulfator to minimize sulfate buildup. Recommended product: PowerPulse or SolarPulse desulfator.

every day, the chargers bring batteries to a like-new state capable of holding a full charge.

The chargers keep sulfates from forming without damaging the battery plate by bombarding the surface with a high-frequency waveform consisting of rise time, pulse-width, frequency, and amplitude of current and voltage pulse. On the other hand, competitive products typically use one of three pulses: sine, square, and negative pulse waves.

Competitors may claim to deliver a "pulse charge," but PulseTech Products holds the only U.S. patent for an independently validated process that prevents and removes lead-sulfate deposits. The high-frequency pulse is precisely controlled by microprocessors and is of specific amplitude and frequency. It rapidly rises in less than one microsecond to its maximum amplitude and gradually returns to zero. There's no abrupt stop and battery drain as seen in other chargers.

In 2011, Steve Schultz of reselling partner TS Products Inc. in Minnesota conducted the independent test using PulseTech's XC100-P smart charger and a popular competitive brand. The test was conducted for seven to eight months with the assumption that 120 test cycles equaled one-year use for an average battery.

Comparable to four years' use, the resulting 480 test cycles showed battery plates maintained by pulse technology were clean of sulfation buildup and able to hold full charges. Those maintained by the competitive brand were highly sulfated and couldn't operate at peak efficiency.

Municipal and federal fleet manager response prompted the company to develop a six-step cradle-to-grave maintenance program (see sidebar).

## Proactive battery maintenance

Pulse charging reduces year-to-year battery consumption by 70% or more by improving the battery's ability to accept and store more energy.

North Richland Hills' first installation was so positive, Fleet Services decided to use PulseTech products on all equipment and employ a systematic battery maintenance program that includes using in-shop rechargers that accommodate up to 12 batteries (VRLA, AGM, gel, and flooded-cell) simultaneously.

Another public works customer is Progressive Waste Solutions Ltd. in Vaughan, Ontario, Canada. North America's third largest nonhazardous waste-management company implemented the six-step maintenance program after buying diagnostic, corrective, and preventative battery toolkits for refuse vehicles serving customers in 13 states and the District of Columbia. **PW**

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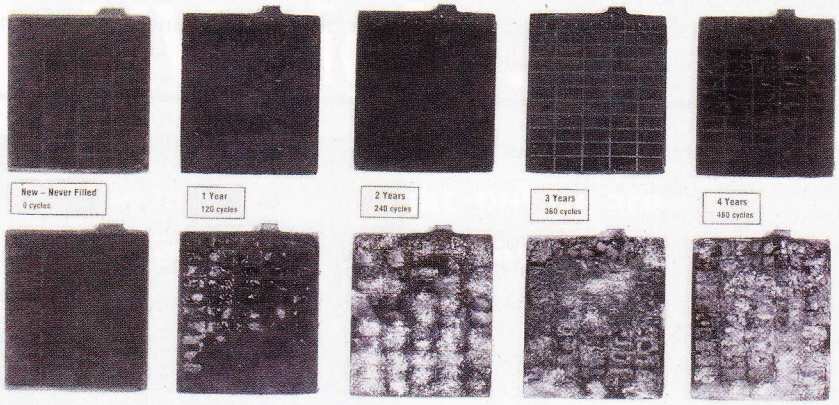


**Top: 12-volt lead-acid battery plates charged and maintained using pulse technology. Bottom: battery plates charged with typical charger.** Photo: Steve Schultz


**North Richland Hills, Texas, Fleet Services recharges up to 12 batteries at a time using PulseTech Products' SC-12 multiple battery charger (bottom left).** Photo: Steve Noyes