**Title; \_\_\_\_\_\_\_\_\_Ball Charge Management\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contact Person: (Optional) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contact Details: (Optional)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Background/Problem:**

Spare balls were not being properly managed, resulting in excess inventory of balls of unknown origin and make-up. The plant used forged balls for the raw mills and cast balls for the finish mills. The two should not be mixed in the same mill.

**Investigation:**

Outside storage of old drums led to dust covering the balls and a lack of knowledge of the origin or metallurgy of the balls. Therefore the balls were not used and only collected more dust.

**Solution:**

By investigating the historic ball consumption, a future usage could be estimated based on the budgeted grinding schedule. Knowing the usage and make-up charge allowed the plant to order new balls on a just in time basis. Two years worth of balls were ordered at one time, but with a delivery schedule according to the plants budgeted requirements. Thus spare balls were no longer stored in the plant. All old balls were sold for scrap as they were only taking up place.

When new balls were delivered to the plant, the process engineer directly the unloading from the delivery truck. First compartment balls were placed at the feed end of the mills. Second compartment balls were placed at the discharge end of the mill. There was a standing order than production would load balls through the feed chute during the next operating shift. Second compartment balls were loaded before closing up the mill during the next scheduled down day.

This practice allowed the plant to operate without any spare balls in the plant, reducing the working capital. It also reduced the double handling of the mill balls as they were unloaded directly from the delivery truck to the mill building. No work orders were required as the production department understood that the balls should be added to the respective mill as soon as they showed up, but according to a standard protocol. Over 100 drums of old balls were removed from the plant generating some cash and the storage area could be used for other storage.

**Photo / Diagram:**

N/A