



Multi-Echelon Inventory Decisions at Jefferson Plumbing Supplies: To Store or Not to Store?

Amit Eynan, University of Richmond

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The case is reprinted from *The Supply Chain Management Casebook* by Chuck Munson

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with Amit Eynan

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Amit Eynan[†]

It was 4:55 on Friday afternoon before the NASCAR Sprint Cup Series at Richmond International Raceway (RIR), a $\frac{3}{4}$ -mile D-shaped asphalt track that is known for its four 38-foot by 24-foot high-definition LED screens used to broadcast live race action. Alex Halek, Jefferson Plumbing Supplies' Inventory Manager, was looking forward to spending the weekend at the race with two of his friends whom he had not seen since last year's Sprint Cup. He returned to his office to read a few letters that were waiting on his desk before heading home to prepare for his annual rendezvous with his friends on the track.

The first letter he opened was from Faucet Masters, a long-time supplier of a specialty faucet. This was a unique faucet that did not sell at a large volume but was steadily ordered by Jefferson's loyal customers at the rate of 100 units annually. The salespeople often commented that having the faucet available in stock was crucial to retaining some customers. The letter started with Faucet Masters expressing its gratitude for the long-term business relationship with Jefferson Plumbing. The letter also announced that lately the company had adopted a new minimum-order-size policy. Consequently, faucet number 36543 should be ordered at a minimum of 130 units. This new requirement caught Alex by a surprise as it was about three

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times the amount he has been ordering. Through a quick rough calculation: $(3 + \frac{1}{3})/2$, Alex figured out that tripling the order quantity will raise the management cost associated with this faucet by nearly 67%. Alex was very uncomfortable with such a cost increase. Furthermore, given the current low inventory level of this item, Alex knew that a new order would have to be placed soon, and he was determined to find a resolution even sooner.

Jefferson Plumbing sells a variety of plumbing supplies at its store in Richmond, Virginia. Because space is a premium in its city location, Jefferson tends to keep only small inventories and replenish them often. With an annual holding cost of \$10 per unit for faucet 36543, Alex knew that increasing the order quantity to 130 will have a drastic cost impact. At the same time, he hoped that ordering a large quantity would reduce the number of orders. At an ordering cost rate of \$100 per order, that may help a little. However, he was still concerned with his 67% increase estimate. As he walked to his car, Alex tried to shift his focus to the upcoming NASCAR Sprint Cup race and catching up with his friends.

As expected, Alex and his friends had a wonderful weekend. After the race they even had a chance to stop at the Jefferson Hotel and walk up the legendary grand staircase that is believed to have been the inspiration for the one featured in the classic movie, *Gone with the Wind*. Apparently, Margaret Mitchell, the author, stayed at the Jefferson while working on her novel portraying the interesting and dynamic relationship between Scarlett O'Hara (Vivien Leigh) and Rhett Butler (Clark Gable).

After dinner, Alex drove his friends to the airport to catch their flight back home. From the highway he was able to see the big Jefferson Plumbing sign on the top of their warehouse. Alex asked himself, "Should I place large orders of faucet 36543, keep them in our warehouse at an annual holding rate of \$1 per unit, and ship small batches to the store?" However, when Alex recalled that each time the store places an order from the warehouse there is a charge of \$50, he was not as sure about the advantage of this approach and decided to evaluate it the next day in the office. "After all, tomorrow is another day" (Scarlett O'Hara).