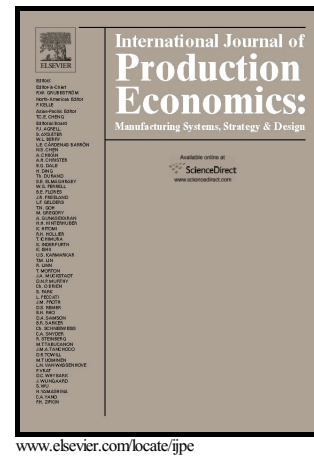


Optimal Location, Capacity and Timing of
Stockpiles for Improved Hurricane Preparedness

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PII: S0925-5273(16)00007-4
DOI: <http://dx.doi.org/10.1016/j.ijpe.2016.01.006>
Reference: PROECO6318

To appear in: *Intern. Journal of Production Economics*

Received date: 19 December 2014
Revised date: 16 September 2015
Accepted date: 10 January 2016

Cite this article as: Jomon Aliyas Paul and Leo MacDonald, Optimal Location Capacity and Timing of Stockpiles for Improved Hurricane Preparedness, *Intern. Journal of Production Economics*, <http://dx.doi.org/10.1016/j.ijpe.2016.01.006>

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Optimal Location, Capacity and Timing of Stockpiles for Improved Hurricane Preparedness

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Abstract

Applying historical hurricane data to model storm related uncertainty, this paper develops a stochastic optimization model to determine the stockpile location and capacities of medical supplies for improved disaster preparedness in the event of a hurricane. Our models incorporate facility damage and casualty losses, based upon their severity levels and remaining survivability time, as a function of time variant changes in hurricane conditions. To determine the optimal deployment time, we use an optimal stopping time framework to model the trade-offs between increasing costs and reduced uncertainty as the hurricane approaches landfall. Finally, aided by an innovative mixed integer programming model, we develop an

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