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A Metaheuristic Algorithm for The Hazardous Waste Periodic Location Routing Problem

Abstract

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This paper integrates the periodic routing problem with location decisions in hazardous waste management systems. The problem is to determine the periodic collection schedules of hazardous wastes from waste producers, the locations of processing centers and the routing of waste between centers. We propose a two-step solution approach that first solves a set covering problem to locate the processing centers. Then, the developed meta-heuristic approach generates periodic visit schedules to waste producers. The performance of the proposed approach is tested on several hypothetical problem instances. Computational studies have shown that the solution methodology quickly provides high-quality solutions.

Keywords:

Hazardous waste, periodic location routing problem, metaheuristics

