A Simulated Annealing Heuristic for a Crane Sequencing Problem

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Abstract: When maintenance activities during outages at electric power plants are scheduled using project management software, the location of the resources are determined such that the total distance the resources travel during the outage is minimized. This problem is defined as the dynamic space allocation problem (DSAP). During certain time periods, some resources are required to perform activities, and other resources are idle. Once the DSAP solution (i.e., assignment of activities and their required resources to workspaces and idle resources to storage spaces) is obtained, a crane is used to move some of the resources to different locations at the beginning of each period. The resources are moved such that the total distance the crane travels is minimized. This problem is defined as the crane sequencing problem (CSP). In this paper, a simulated annealing heuristic for the CSP is presented and illustrated on a small problem instance.