Summary

Corus IJmuiden comprises all work units and service units that are located on the Corus terrain in IJmuiden. The work units form a chain in which ore and coal are transformed into high quality steel by means of technical installations.

In the period 2000-2002 the improvement project Optimizing Maintenance Performance was carried out that was led by the consultancy company AT Kearney. This project was aimed at creating more added value at Corus IJmuiden by optimizing maintenance.

During the improvement project AT Kearney found that maintenance work usually is carried out during installation shutdowns. During the improvement project subprojects were carried out with the aim of improving management of shutdowns.

After AT Kearney left, it was found that despite the improvement project, shutdowns structurally exceeded the planned duration, and that in the work units nothing was done with the results of the improvement project OMP.

Then, a work group was set up to exchange knowledge and to develop best practices for shutdown management. In support of the work group the maintenance platform, a body having the mandate to formulate the maintenance policy for Corus IJmuiden, formulated two assignments listed below:

I. *develop a kind of toolkit as a basis for a best practice that may be used within Corus: What does a shutdown process look like from preparation to evaluation (including process diagrams, including tasks/responsibilities/ authorities, use of supportive resources, pitfalls, etc.)*

II. *perform, in line with the first assignment and on the basis of estimated needs and capacity, an analysis on the organization within Corus and do a proposal whether and how site-level support and guidance should be set up.*

During the work group meetings it was found that the exchange of knowledge was difficult due to differences between work units. To promote exchange of knowledge, joint identification and capturing of the shutdown management process were started in order to develop a common framework within which the exchange of knowledge relating to shutdown management is possible.

During identification and capturing of the process it was found that the actual process does not correspond with the models which were used during the improvement project Optimizing Maintenance Performance to improve shutdown management.

In the current models which are used at Corus IJmuiden to improve shutdown management, a planned shutdown is considered a way to carry out maintenance work. During a planned shutdown however not only shutdown bound maintenance work is carried out, but also shutdown bound production work and modification work.

As a consequence during the set up of the function shutdown management on the basis of the current models, shutdown bound production work and modification work, were not taken into account. This leads in practice to disrupt relations between the control bodies of the processes to which the production, maintenance and modification work belong. As a result the control of the execution of a planned shutdown is not optimal.

In the current models a correct representation of the function shutdown management is not possible. In addition, in the current models the execution of a planned shutdown is modeled as the execution of individual work assignments. This has the consequence that the importance of controlling the execution of the shutdown as a whole is lost.

By applying the PROPER model an alternative model is described to support the improvement of shutdown management.

In this alternative model the shutdown management is related properly to the control bodies of the processes to which the production, maintenance and modification work belong.

In addition, in this alternative model a planned shutdown serves the execution of shutdown bound work, being either production, maintenance and modification work, and the model promotes a deliberate design of the control of the execution of the shutdown as a whole.

The PROPER model for shutdown management is detailed further by filling in the functions 'handling work applications' (aspect system ORDER flow), 'implementation planned shutdown (aspect system PRODUCT flow) and ‘use personnel and equipment' (aspect system RESOURCE flow).

The knowledge that was gathered in the work group meetings during identification and caption of the process shutdown management was used for detailing the PROPER model for shutdown management.