

KAWASAKI STEEL TECHNICAL REPORT

No.15 (October 1986)

Process Instrumentation and Control System of Wire Rod and Bar Mill

Nagahisa Iida, Hidetoshi Torikoshi, Shinya Nishijima, Masahiro Kawahara

Synopsis :

A process instrumentation and control system, whose main aims were the improvement of the product quality and security of stable production, was introduced to the wire rod and bar mill of the Mizushima Works, synchronized with the installation of new rod rolling facilities in September, 1984. The system, which consists of a process computer system, process control DDC systems and various sensors, controls processes from the entry of the reheating furnace to the coil finishing line, closely exchanging many items of information with an on-line operational computer system and DDC systems for the electric equipment, etc. Among the functions of the system, computer control of the reheating furnace, automatic setting up of the rolling equipment and high-density data gathering are the major ones, which have greatly contributed to the automatization and stabilization of the rod and bar production, and reinforcement of the quality assurance system of the mill.

(c)JFE Steel Corporation, 2003

The body can be viewed from the next page.

Process Instrumentation and Control System of Wire Rod and Bar Mill*



Naohisa Iida



Hidetoshi Terakachi

Synopsis:

A process instrumentation and control system, whose main aims were the improvement of the product quality and security of stable production, was introduced to the wire rod and bar mill of the Mizushima Works, synchronized with the installation of new rod rolling facilities in September, 1984.

The system, which consists of...

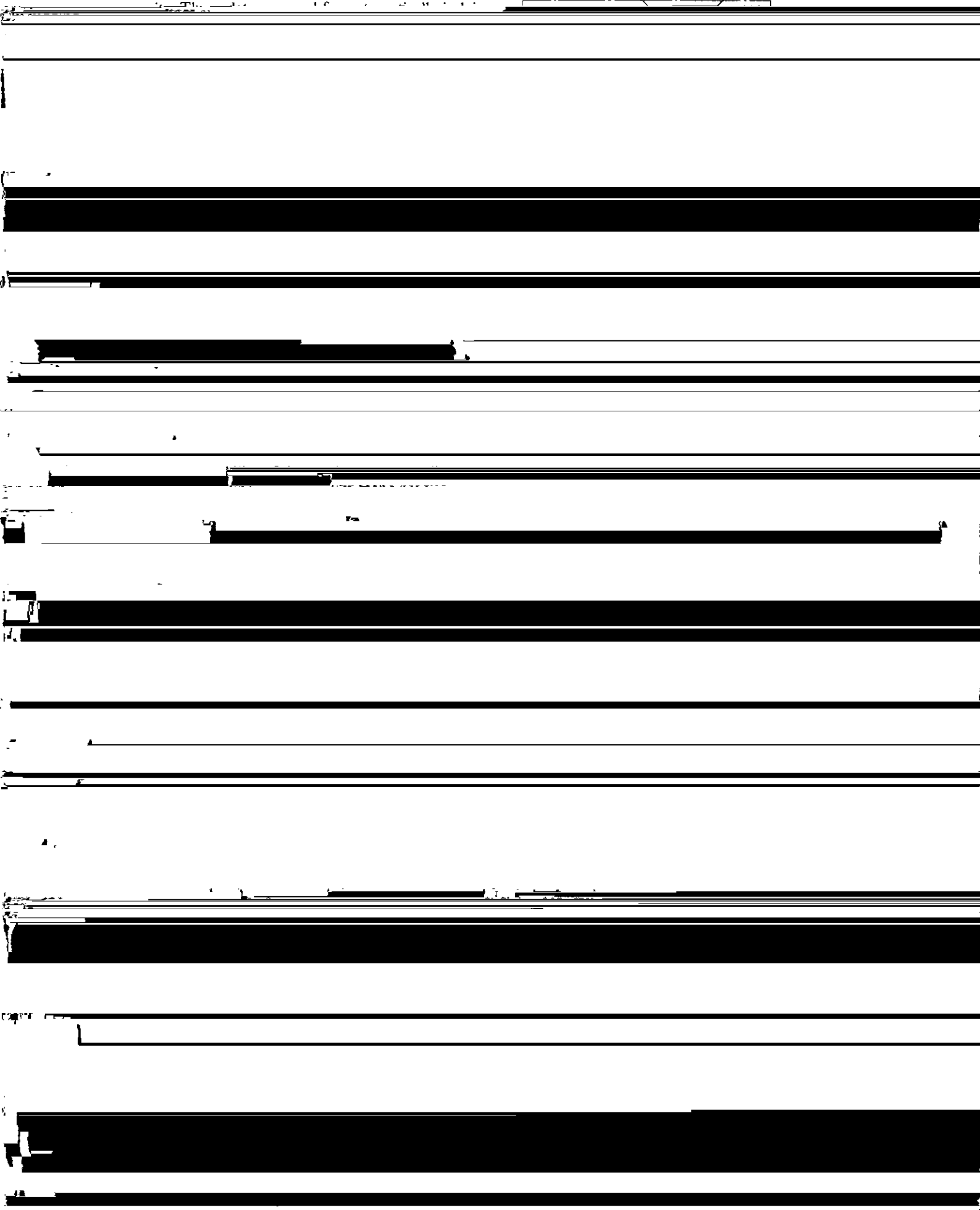
provement and stabilization of quality:

(1) Strengthening of Quality Assurance System

Production process data directly related to product quality are gathered automatically and in high den-

On-line computer system (O/C)

Central computer system (C/C)



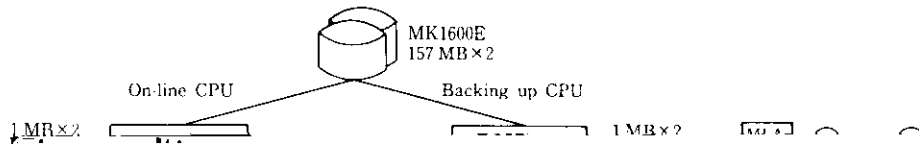
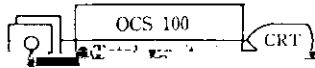
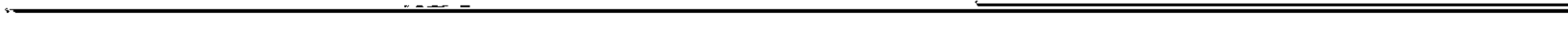
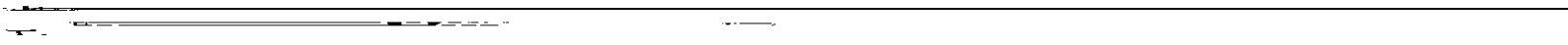
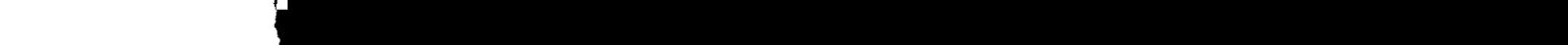
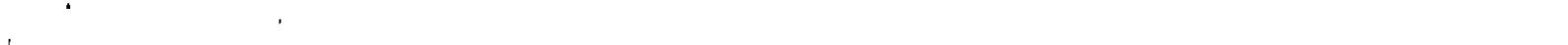
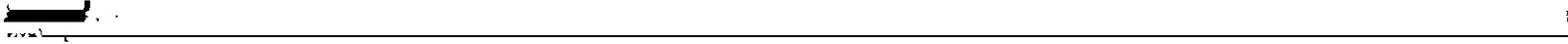
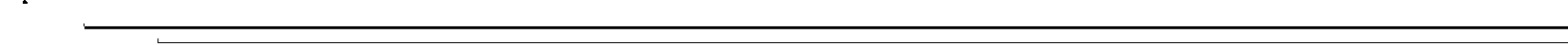


Table 1 Major functions of the process computer involves cumulative calculation of the motions of the

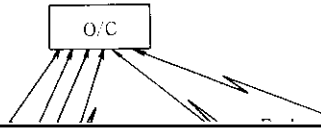


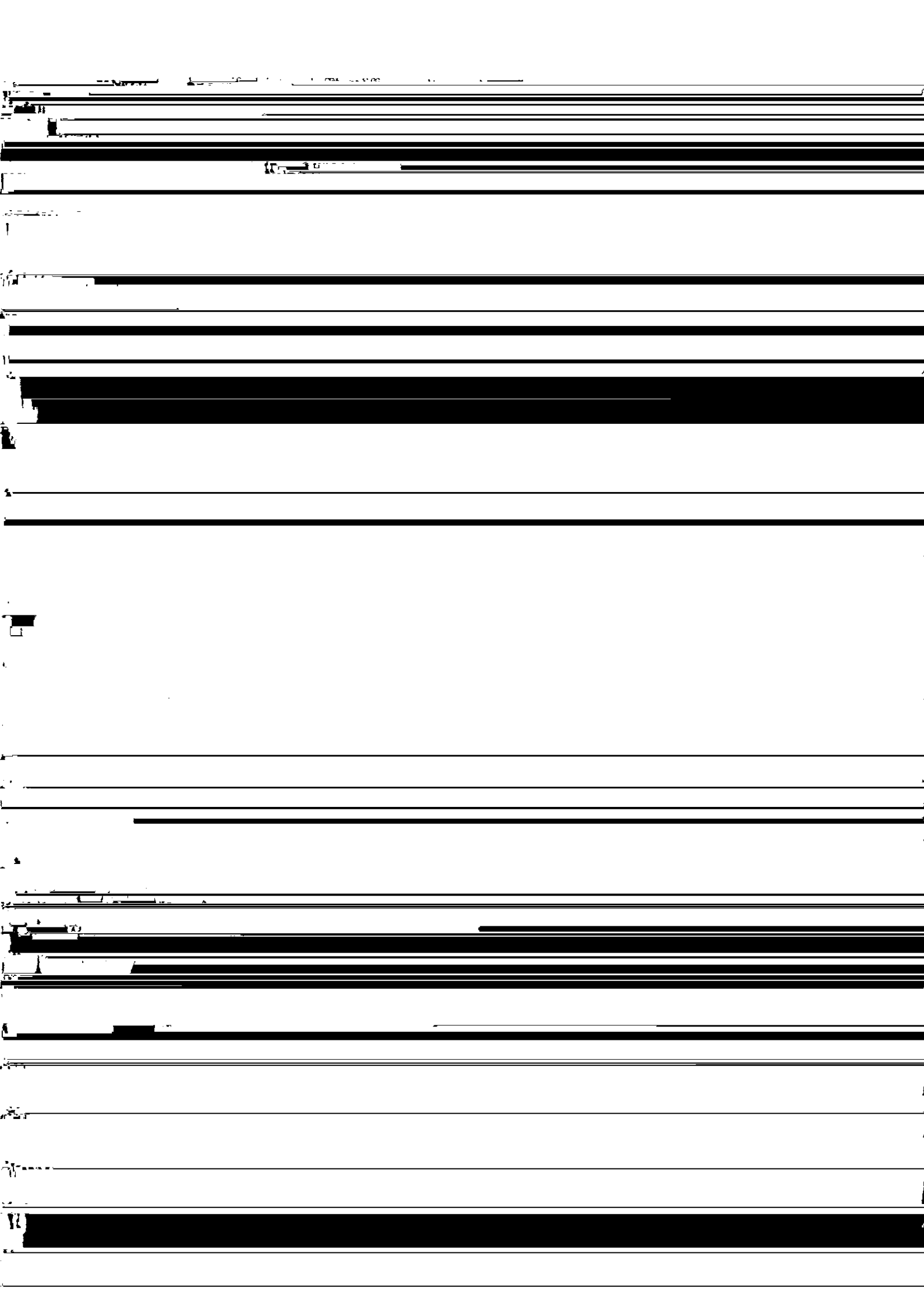
OCS 100



O/C

Cell qualification results I



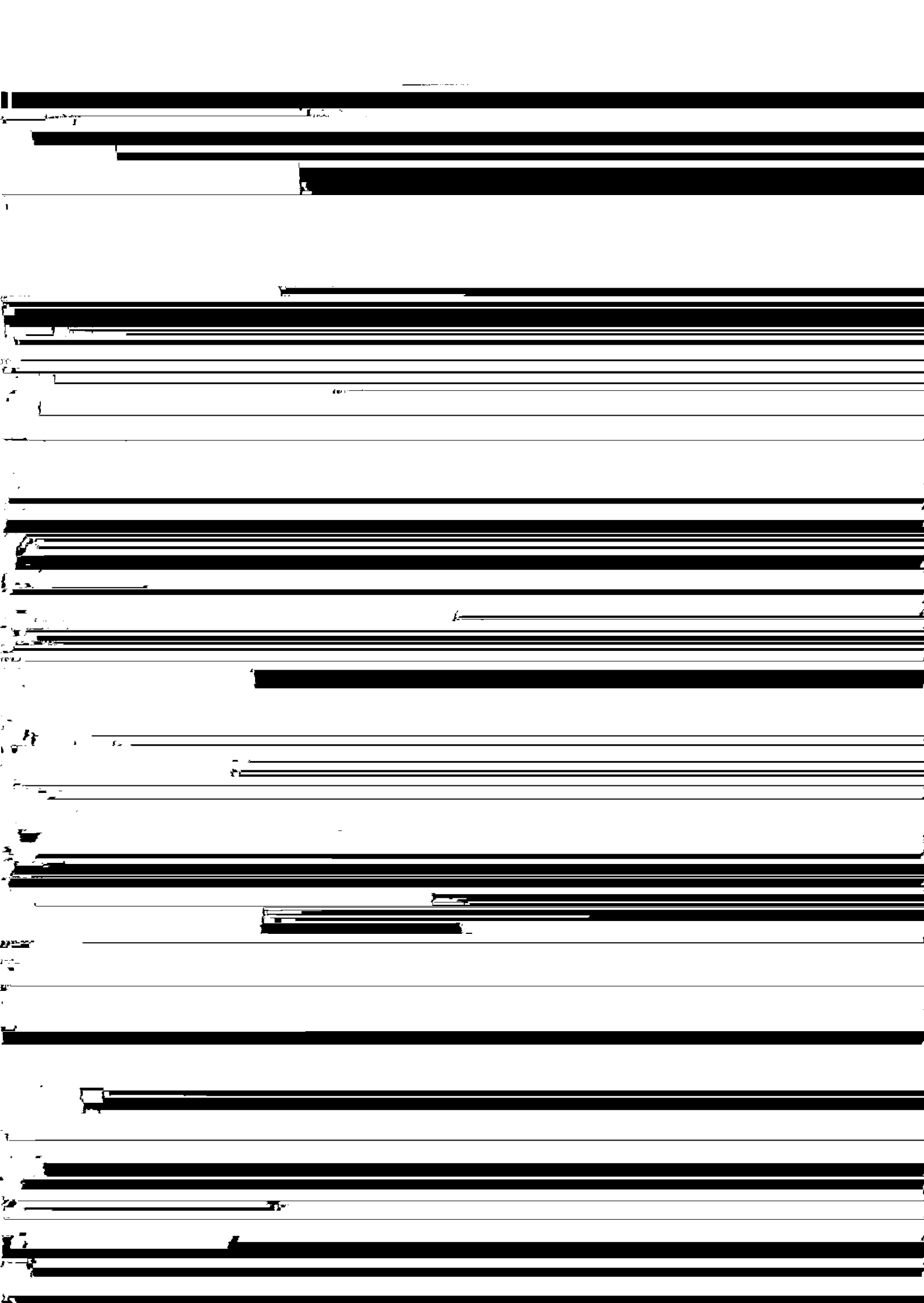


of the production specifications and operation conditions which are sent down from the higher-level O/C. Main set-up items are shown in Table 1. All these items

mill is shown in Fig. 14. While coil information is transmitted to and received from O/C, the process instrumentation and control system outputs operation instructions to the DDC system for each conveyor

chronization with the progress of the material, though the actual facilities are controlled mainly by the DDC systems for electrical equipment. The earlier-mentioned extraction pace control determines the extraction timing of succeeding material, taking into consideration

driving and takes charge of automatic operations ranging from coil loading to unloading by the unloader. In addition to the transportation facilities, the finishing line has a coil scale, binding machines, and a metal tag puncher, most of which transmit and receive signals to



information processing, it has become indispensable to mill operation. Computer control of the reheating fur-