

**KAWASAKI STEEL TECHNICAL REPORT**

No.11 ( March 1985 )

---

**Quality Assurance System for UOE Pipe Production**

Satoru Takahashi, Hideyuki Yuzawa, Naomasa Murai, Yoshihiko Inoue, Tadashi Morii,  
Masanori Minagawa

---

**Synopsis :**

The Production Control System adopted by the UOE Pipe Plant in November 1983 supervises all the processes ranging from order receiving to manufacture and to shipping, It has been contributing greatly to productivity and quality control. Each pipe piece is identified at any place in the plant by automatic material tracking. The feature of this system consists in the principle that no pipe piece in processing is permitted to move from one stage to the next unless it fully meets given operating instructions and quality requirements based on all necessary data collected and product evaluation standards established for each stage. In this system, therefore, the passing of mechanical testing and nondestructive inspection is only a partial requirement for product shipping approval. Added feature of this system is the use of many automated equipment such as welding condition monitor, and pipe number readers.

(c)JFE Steel Corporation, 2003

**The body can be viewed from the next page.**

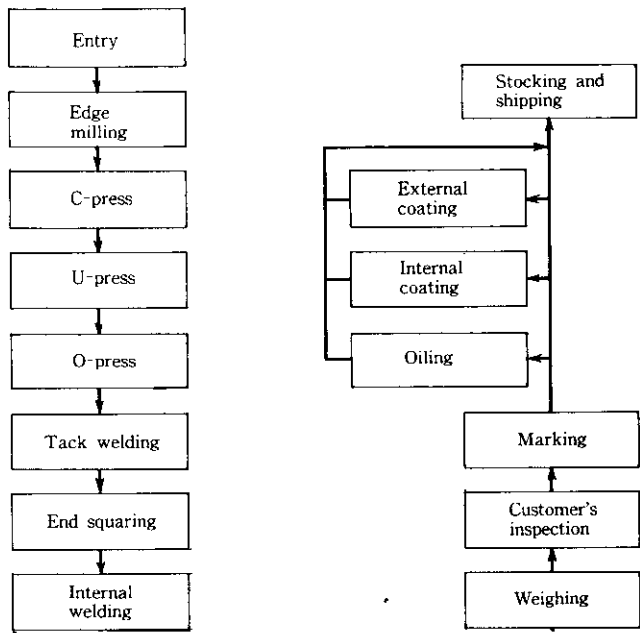
# Quality Assurance System for UOE Pipe Production\*

Satoru TAKAHASHI\*\*  
Yoshihiko INOUE\*\*

Hideyuki YUZAWA\*\*  
Takashi MORII\*\*

Naomasa MURAI\*\*  
Masanori MINAGAWA\*\*

*The Production Control System adopted by the UOE Pipe Plant in November 1983 super-*



of an increased size of computers and the development of microcomputers. This means that production control functions of UOE pipes will be improved using on-line system covering order receiving, specification design, scheduling, feedstock material procurement, setting of instructions, yard control, pipemaking, inspection,

by computer for each pipe piece material.

- (2) Actual result data at each production process are checked by computer, and the material is allowed to proceed to the next process only when the actual results conform to the given production and inspection specifications. If the actual results do not con-

end, an automatic pipe tracking system will be installed in the entire plant so that all operational instructions, record keeping and decision of acceptance and rejection will be performed in good synchronization with the

of necessary processing and the process to which the material should proceed.

- (3) Quality data and operation data are collected and fed back or forward to previous processes and processes

puter. This feature is required for the following two reasons, namely, to prevent overlapping of hardware and software as a result of mixed presence of the process and

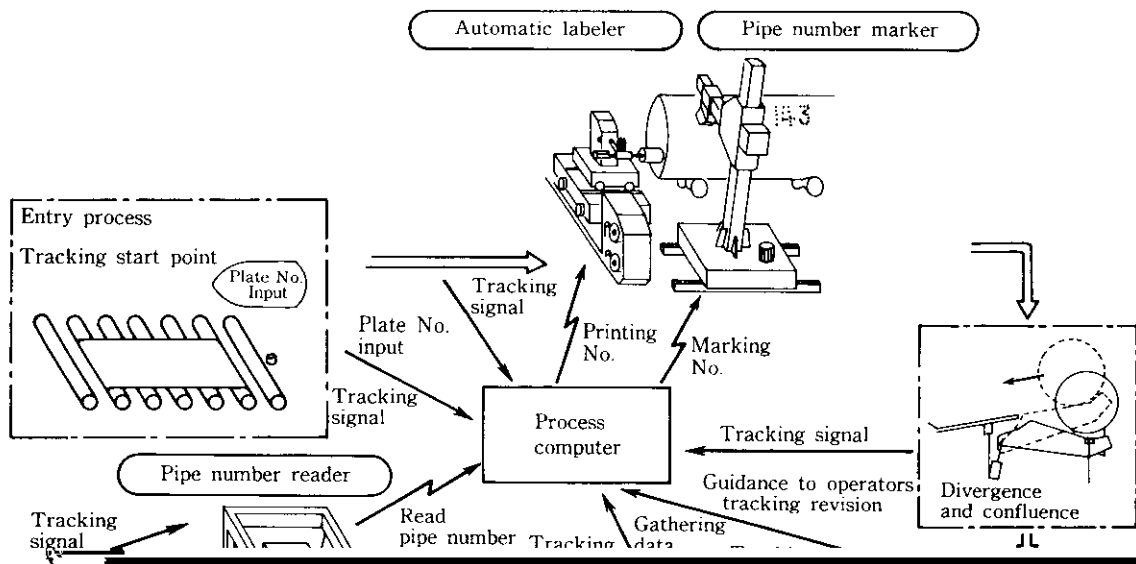
business computers, and eliminate frequent data transfer between the two computers. Terminals of the business computer are provided at the material yard, ship-

and feedstock materials are transported by crane without the slinging worker posted on the ground. The actual operation record of the overhead traveling crane

is transmitted to the business computer, operation by operation, to renew address control. **Figure 3** shows the layout of the overhead traveling crane at the material

modity distributing and storing locations as well as the controller and staff division, whereas the factory is provided only with terminals of the process computers for

flexible address allocation control is performed according to the slab widths and lengths. It is also one of the features of this system that no skid is used for transporta-



erances of welding speeds are given to the welding condition monitor by the process computer in synchronization with the hauling in and out of pipes. The welding conditions may be changed in synchronization with the

processes.

### 5.1.3 Processing of quality information

Results of the X-ray test on the welds etc. are

**Table 1** Sensors for quality control

| Process | Function sensor |
|---------|-----------------|
|         |                 |

nal at a cycle of 100 ms.

### 5.2 Automatic Summing-up of Quality Data

**Table 1** shows sensors for quality control of UOE