

KAWASAKI STEEL TECHNICAL REPORT  
No.32 ( March 1995 )  
Ironmaking Technology, Secondary Refining,  
and Center-Segregation Control with Forging in CC

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Technology for Prolonging Campaign Life of Blast Furnace

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Synopsis :

The Chiba No.6 blast furnace with an inner volume of 4500 m<sup>3</sup> has operated for 16 years without intermediate relining since June 1977. It has achieved a record of long campaign life and accumulated iron production to the class of 4000 m<sup>3</sup> inner volume. This record has been established with a ne

# Technology for Prolonging Campaign Life of Blast Furnace\*



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### 3 Operating Technology for Prolonging Campaign Life

Chiba No. 5 BF

- Pulverized coal injection operation following start-up of PCI plant

Period: 6/1/02 - 12/31/02

#### 3.1 Operational Trend of Chiba No. 6 BF to Date

The operational results of Chiba No. 6 BF from 1/1/03 to

Ultra-high Fuel Rate<sup>8)</sup>

- Ultra-high fuel rate ( $\geq 530$  kg/t-p) in considera-

tion of West

is to the present time are shown in Fig. 2 and are

As of 12/31/02, the total amount of ultra-high fuel rate

TABLE 1

TABLE 2



[REDACTED]

[REDACTED]

22 218

[REDACTED]

[REDACTED]



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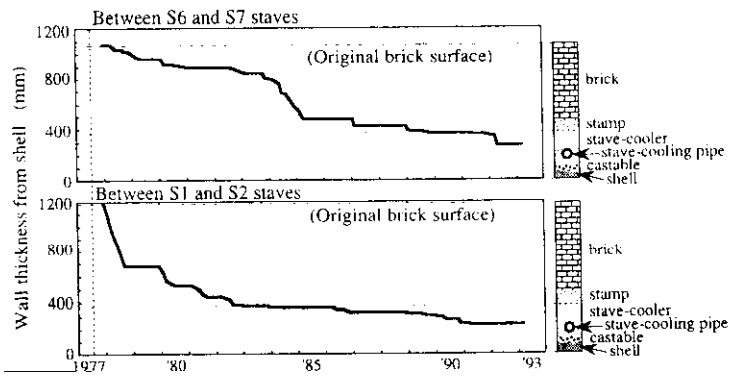
gerously.<sup>16)</sup> These measures are illustrated in Fig. 10.

#### 4.1.2 Upper shaft refractory damage

Progressive wear of the upper shaft refractories caused changes in the gas flow distribution, as shown in the example in Fig. 11. After 1000 hours upper shaft

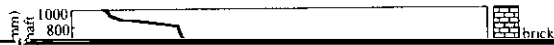
irregularities in the profile of the furnace wall.<sup>17)</sup> The increased peripheral flow due to this type of decreased controllability of the gas flow distribution invites an increased heat load on the furnace body, and is therefore a major problem from the viewpoint of furnace body protection. Measures should be taken to prevent





(No. 6 BF)

Years after blow-in



stave-front refractory material has already disappeared in

the large bearing. A vibration sensor for the upper  
reduction gear was also installed to monitor vibration.



side wall. When the stove temperature increases the

ton charging system and GO-STOP operating con-

temperature at the hearth side wall decreases. Moreover,

trol system.

(2) Elimination of obstacles to stable operation from the