

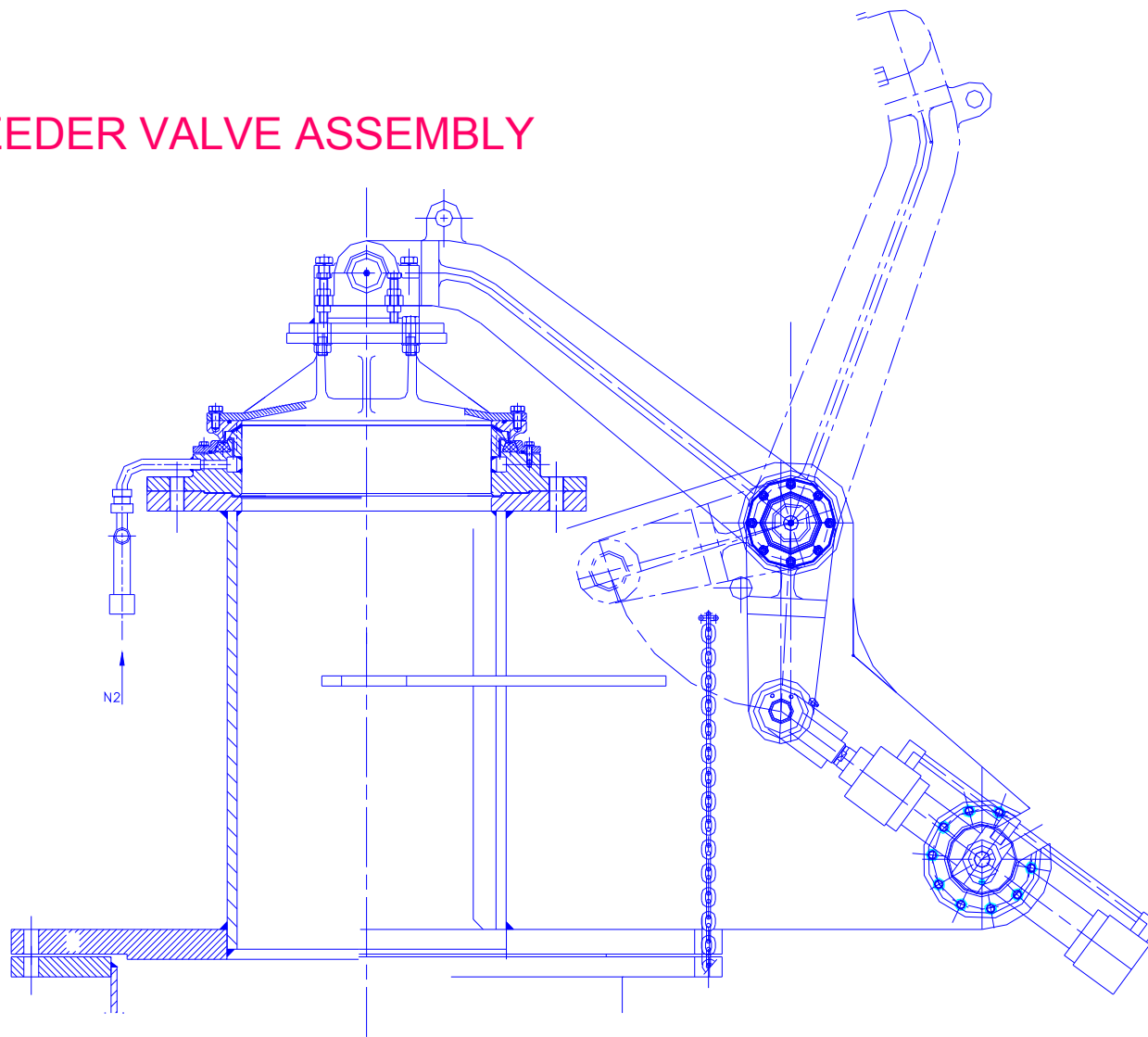
Presentation

FAILURE OF BLEEDER VALVE

28.12.2005

G Blast Furnace

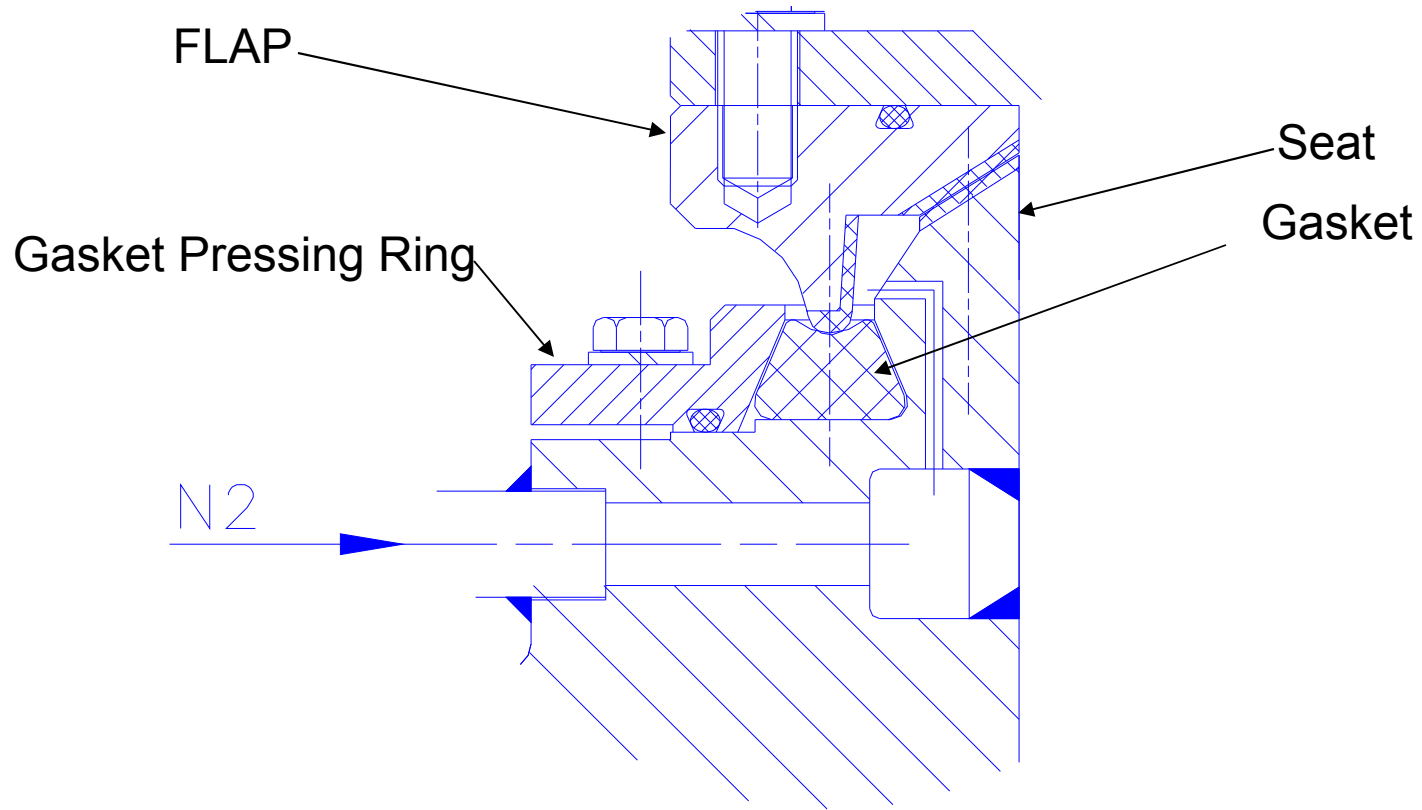
BLEEDER VALVE ASSEMBLY



Functional Description :

The bleeder valves are provided in blast furnace to release the pressure outside, Which acts as safety equipment.

BLEEDER VALVE ASSEMBLY



FAILURE OF BLEEDER VALVE

DEFINITION OF PROBLEM

Whenever there is bleeder opening due high furnace pressure (which may be due to burden slipping or due to high gas network pressure), crude gas released at high velocity, carrying small coke particle, depending on the magnitude of burden slip. If at the same time crude gas temperature is more than 450 deg C, gas will self ignite as soon as it will come in contact with air. At the same time after bleeder opening, when furnace pressure gets normal, bleeder will received the close command and subsequently it was observed that there is gas leakage from bleeder valve.

FAILURE OF BLEEDER VALVE

Phenomenon Observation

- When** 27th May 2005 in B Shift at 03.30 PM
- What** Gas leakage was observed from bleeder#1
- Where** From the bleeder valve#1
- Who** Mr. K.D.Kumar (Foreman) observed.
- Why** Bleeder valve opened just 30 minutes earlier.
- How** It was found that small coke particle was entrapped in sealing gasket.

Immediate Action Taken

Blast furnace pressure reduced and bleeder valve open and closed twice, leakage reduced and blast furnace continued to run till next day. On 28th May, furnace was shut down and sealing gasket was replaced.

Further Analysis Done

On 28th May, it was observed that the coke particles got pressed in sealing gasket, which was not sweep away by the flushing N₂, because the height of gasket pressing ring was 5mm more than the sealing gasket height. The higher elevation of gasket pressing ring was preventing coke particle to sweep away. Also it was observed that the available N₂ flushing arrangement was not covering the entire area of sealing gasket.

FAILURE OF BLEEDER VALVE

Phenomenon Observation

- When** 1st June 2005 in A Shift at 10.00 AM
- What** Gas leakage was observed from bleeder#2
- Where** From the bleeder valve#2
- Who** Mr. B.Kumar (Asst. Foreman) observed.
- Why** Bleeder valve opened just 10 minutes earlier.
- How** It was found that small coke particle was entrapped in sealing gasket & flushing N2 holes were jammed

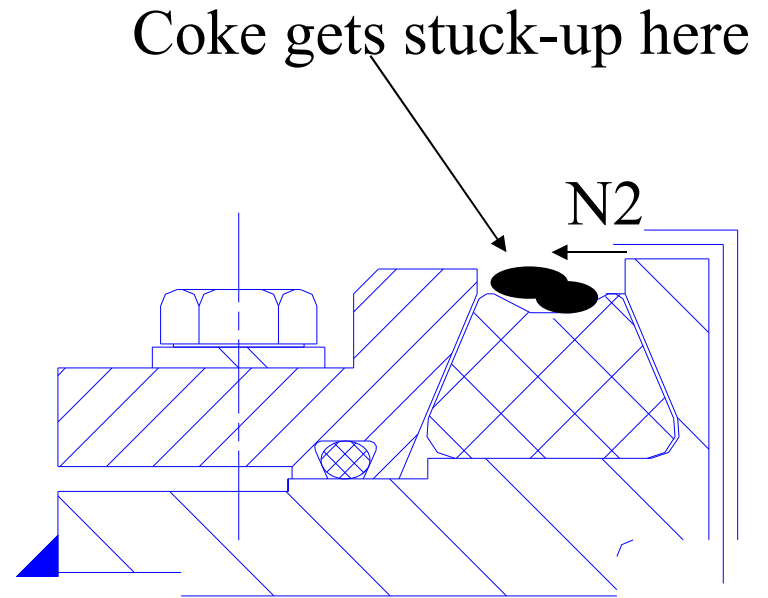
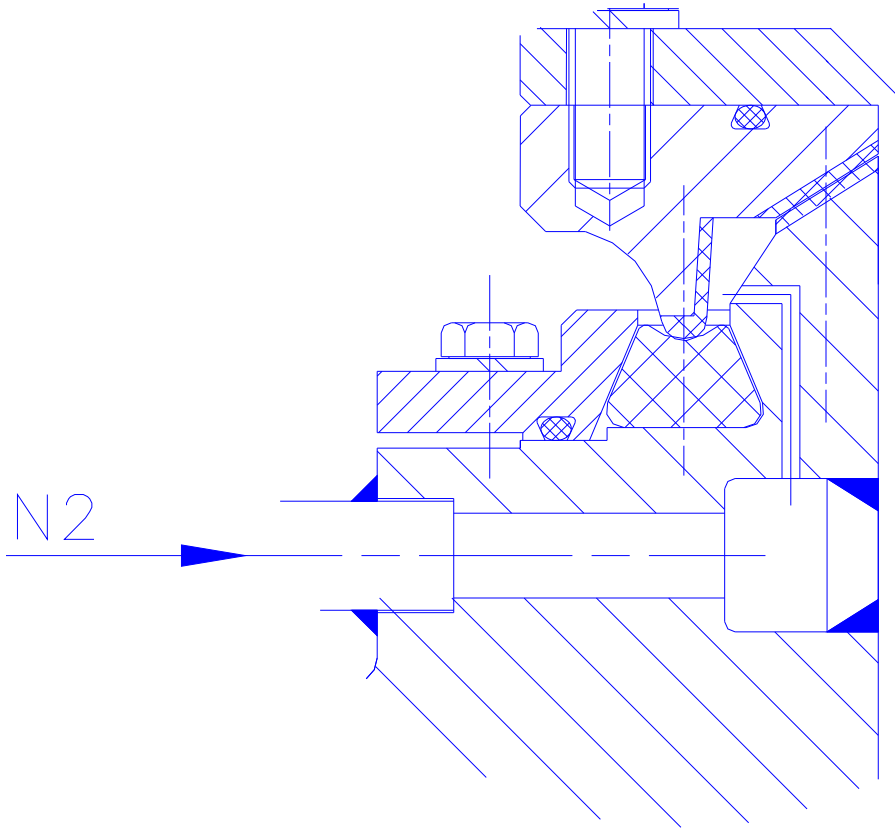
Immediate Action Taken

Blast furnace stopped immediately and sealing gasket and modified gasket pressing ring fixed. Also N2 flushing holes cleaned.

Further Analysis Done

To improve the N2 flushing arrangement, N2 flushing line should be made external type considering higher flow of N2.

FAILURE OF BLEEDER VALVE



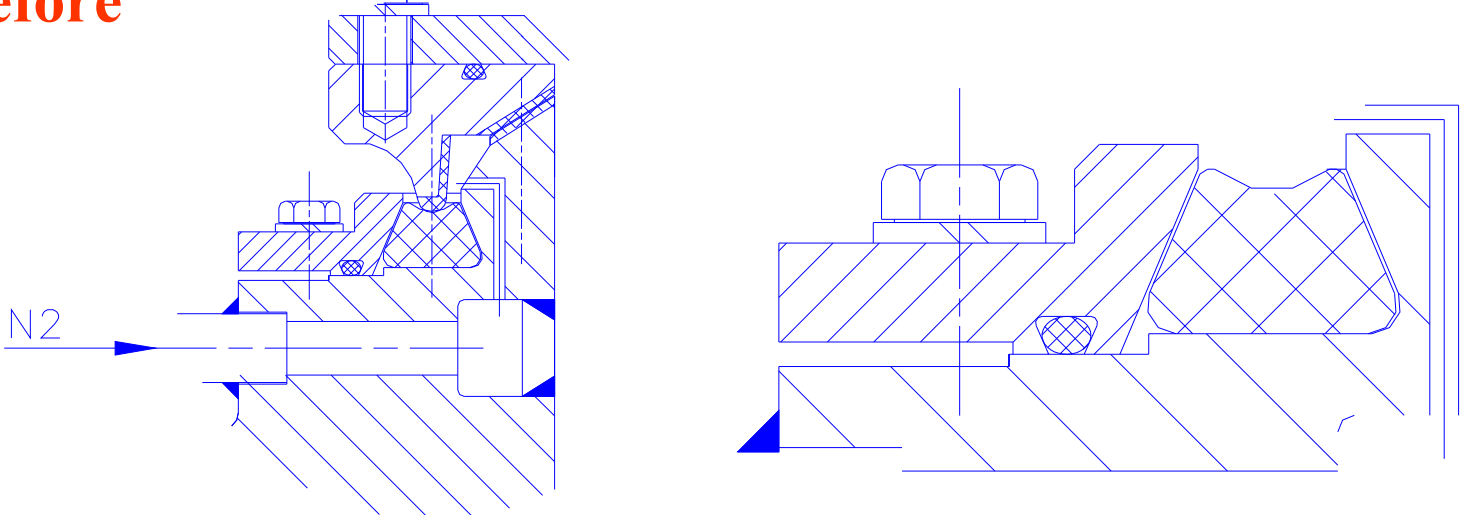
FAILURE OF BLEEDER VALVE

Remedial Action

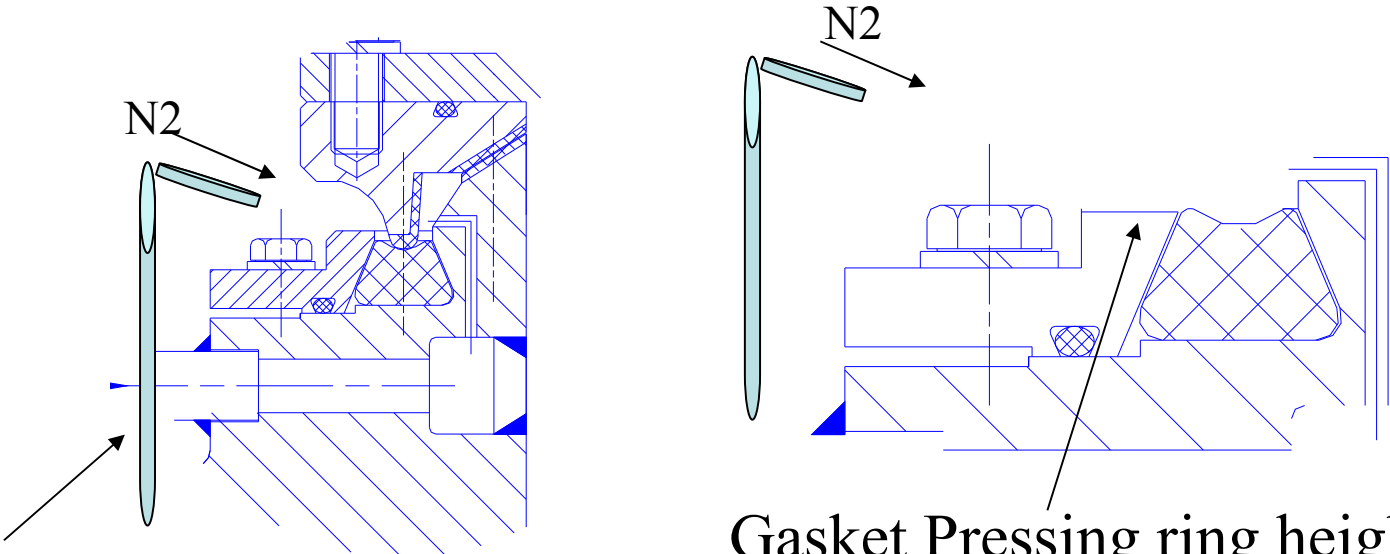
- **Gasket pressing ring height to be reduced by 6mm.**
- **External N2 flushing system to be introduced.**

FAILURE OF BLEEDER VALVE

Before



After



External N2 flushing provision

Gasket Pressing ring height Reduced by 6mm.

FAILURE OF BLEEDER VALVE

Phenomenon Observation

Further Observations

On 18/06/05, the suggested method of external N2 flushing was implemented in bleeder#1 & #2. The performance of modified gasket pressing ring was also checked on 18/06/05 and no coke particle was found in bleeder#2.

FAILURE OF BLEEDER VALVE

Preventive Countermeasure

N2 flushing system operation has to be check in every shut down.

Horizontal Deployment

The suggested method have to be implemented in rest 2 bleeders.

Mr.T.Watanabe's comments

'Presentation is good'

THANK YOU

G Blast Furnace