1. **PURPOSE:** To Monitor and to ensure proper alkali flushing in PID1.Alkali is very detrimental to blast furnace process and health. On regular basis alkali flushing has to occur inside the furnace so that the process is smooth and also the refractory and health of the furnace is.
2. **SCOPE:** BF 1, 2
3. **RESPONSIBILITY:** Process Control Team, Production Team
4. **PERFORMANCE INDICATORS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No.** | **Measure** | **Unit** | **Frequency** | **Responsibility** |
| 1 | Alkali load | Kg/THM | Daily | Process Control Team |
| 2 | Alkali Balance | Kgs | Daily | Process Control Team |
| 3 | Alkali Flushing | % | As per requirement | Production Team |
| 4 | Off Grade | % | Daily | Process Control Team |

1. **PROCEDURE:**
2. **Alkali Load:** On Daily basis alkali load data of BF1 and 2 to be shared with production head along along with monthly trend
3. **Alkali Balance:** On Daily basis Alkali Balance of BF1 and 2 to be shared with production head along with monthly trend.
4. **Alkali Flushing:** It is very important that alkali flushing is happening in any furnace. Following methods to be adopted for alkali flushing

Note – Below flushing procedures to be followed only during foundry grade production. If flushing needs to be given in any other grade, final decision to be taken by HOD Production in discussion with HEAD PID

* + 1. **Quartzite Flushing:** Every day 500 Kg of Quartzite to be given extra along with 1 Extra Coke. Quantity and frequency of flushing can be adjusted as per furnace requirement and final decision to be taken by HOD Production in discussion with HEAD PID.
    2. **Coke Flushing:** 4-6 Extra coke to be given followed by 4-5 half coke base charge. This can be done once in a month or as and when required. Quantity and frequency of flushing can be adjusted as per furnace requirement and final decision to be taken by HOD Production in discussion with HEAD PID
    3. **Bunch Coke Flushing:** If there is any suspicion of buildup is there in Bosch/Belly region (indication from irregular movement/hanging), bunch coke of 5 or 10 EC to be given. Quantity and frequency of flushing can be adjusted as per furnace requirement and final decision to be taken by HOD Production in discussion with HEAD PID.
    4. **Reverse Flushing:**  In this method first coke is taken on lower bell and on top of that ore is taken. With the weight of the metallic coke will tend to fall towards the periphery and this will help in peripheral movement of gas and cutting of jam and alkali flushing will be there. Frequency of this flushing charge to be monthly. Quantity and frequency of flushing can be adjusted as per furnace requirement and final decision to be taken by HOD Production in discussion with HEAD PID.

In this following needs to be ensured.

This to be continued 15-20 charges

Before starting dump level to at least increase by 0.5m.

Coke Base to be adjusted such that total quantity of IBRM and COKE fits into inter bell space.

One EC to be given at start of this process, in between this process and at the end of this process.

Coke Rate to be increased by 30 KG or more depending on furnace condition in consultation with HOD & Head PID during this process of charging 15-20 reverse charges.

**All the above flushing methods will be seen effective if there is any increase in alkali content of the slag and alkali balancing is happening. All the methods Quantities and frequency needs to be adjusted based upon the furnace condition, alkali balance and final decision to be taken HOD Production in discussion HEAD PID.**

**6. Records**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Record No.** | **Record Title** | **Maintained by** | **Soft/Hard form** | **Retention Time** |
| 1. |  |  |  |  |  |
| 2. |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| Head – Process Control | Management Representative | Head – Production -PID1 |
| **Signature:** | **Signature:** | **Signature:** |
| **Date: 15.07.2022** | **Date: 15.07.2022** | **Date: 15.07.2022** |
|  |  |  |

|  |
| --- |
| Head – PID |
| **Signature:** |
| **Date: 15.07.2022** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Amendment Record** | | | |
| **Revision date** | **Manual Section ref. and para** | **Brief details of revision** | **New Revision No.** |
| 15.07.2022 | Alkali balance and flushing | Change in logo | 01 |
|  |  |  |  |