

Baseline data verification Observations

New Delhi

12.5.16

- **Why Base line data Verification ?**
- It is a mandatory requirement under PAT .
- **Key Advantages :**
- Verification of calculation as per New MBN methodology which is chosen as the metric for SEC.
- Defining the acceptable data source for each Refinery
- Ensuring uniformity in calculation of Heat rate ,energy for non refinery operations vis-à-vis other Refineries, Purge gas quantification from HGUs etc.,
- Defining the boundary for Refinery operation for each Refinery.
- Collection of source data and calculated data in soft and hard form for any future verification.

- **Observations** :
- **Some Refineries have modified the MBN worksheet (Format-1 and Format-2) .**
- **Heat rate calculation difference**
- **Use of fixed Density such as Crude assay density**
- **Some Refineries were not having back up of Fuel data in downloaded form from RTDB / IP-21/ ,Tank receipt statement etc.**
- **Not having NCV calculations/ LIMS/SAP downloads**

- **Observations** :
- Assumed value for not having flow meter in steam supply for non-Refinery operation.
- Fixed density for secondary units
- Fixed density for Naphtha, Fuel Oil & Diesel etc.,
- Formulae errors
- Erroneous consideration of non-refinery fuel

- **Result of above deficiencies** ?
- Second round of documents verification after the requisite data have been downloaded /calculated wherever required with recalculation of MBN .
- Additional time and effort to complete the exercise.

Suggestions :

- 1. Have regular frequency of downloading the Flow values for Fuels, Unit feed rates, unit operating conditions, Non Refinery steam flows, non-refinery power etc., from RTDB, IP-21**
- 2. Have regular frequency of sampling for NHVs- for Liquid fuels, gaseous fuels and solid fuels like pet coke, coal etc.,**
- 3. Have regular frequency of sending samples for density of secondary units**

Suggestions :

- 4. Have regular frequency of downloading the lab results from LIMS/ SAP & calculate NHVs.**
- 5. Also configure reports from DCS for direct printing which will help incase of difficulty in accessing RTDB data**
- 6. Get regular reports from CPP with regard to Natural Gas received, FO received in their Tanks etc.,**
- 7. NCV for NG should be based on NCV given in the Bill by suppling companies like GAIL/GSPL.**

Suggestions :

- 8. Have atleast 1 coke yield calculation of FCC per month.**
- 9. Ensure regular sampling of petcoke/ coal for NCV & proximate analysis.**
- 10. Ensure coal feed to Boiler as per load cell matches with Physical depletion for the month.**
- 11. Cross check the downloaded operating data with actual operating conditions. If there is any abnormal mis-match, use alternate source data with justification.**

Suggestions :

12. Crude density should be weighted average density based on Tank receipts and Tank dip memo density.

13. Please do checks to ensure data integrity.

- Naphtha balance to make sure that NSU, ISOM and CRU feeds are OK**
- Fuel & Loss by material balance should match with Gross fuel plus hydrocarbon loss used in MBN calculation.**
- Purge gas quantification should be as advised by CHT (Feed to unit minus Hydrogen production).**

Suggestions :

14. Use the indicative checklist to update the agreed data source. Mention the document No and page No. against each parameter while submitting data next time.

16. Provide copy of Published reports which are accepted as documents (hard copies).

17. Maintain a copy of documents provided.

18. Since downloaded documents are lengthy , some Refineries have given folder containing soft copies of downloaded documents. Maintain the folder with proper identification as backup.

Remarks:

- 1. Lot of efforts and hard work done by each Refinery to provide acceptable documents in soft/hard form.**
- 2. Good cooperation and immediate reworking of calculations by Refineries wherever deviations were observed.**
- 3. Full Familiarity and acceptance of new MBN**
- 4. High confidence level to accurately calculate and produce required documents in future audits.**
- 5. Expected System improvements – streamlining regular sampling and data management.**

Sincere thanks to team members from CHT, BEE and PCRA for their contribution in thorough verification of data for the Baseline year and for streamlining the entire process.

Thanks