

# NEELACHAL ISPAT NIGAM LTD



**Power Plant**

**Utilization of Boilers Blow down water and DM Plant effluent water at GCP Pump house of Blast Furnace**

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## Confidentiality Statement

The information in the document mentioned is not confidential and have been taken references from various sources as specified.

## Abstract

Blow down water of Boilers and cooling water of sample coolers discharged to storm water drain line. Similarly at DM Plant, effluent water which is generated during regeneration of Cation, Anion and Mixed Bed also discharged to storm water drain after proper neutralization. Total volume of waste water from Power Plant going to storm water drain line will be around 8-10 M<sup>3</sup>/hr. Analysis of waste water generated at different place carried out and found that it can be used as make up water at different place. After getting clearance from EMC & WSS, it was decided to utilize the waste water at GCP Pump House of BF as make up water. A new scheme prepared for the implementation of waste water utilization and commissioned successfully on 31.03.2015.

## About the Author

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## Introduction

Power Plant is having 3 nos. Gas Fired Boilers and 1 no. Waste Heat Recovery Boiler for the generation of steam to produce Power, run STB and supply process steam to various dept. In the process of steam generation in Boilers, continuous blow down is given to maintain necessary Boiler parameters as recommended by OEM. Blow down water of Boilers discharged to storm water drain line.

Proper analysis of Boiler water is very vital for smooth operation of Boilers and Turbines. So analysis of various parameters of Boiler water carried out at least once in a shift regularly and samples points are there for collection of sample water. Cooling water supplied continuously to sampling points for cooling down the samples to normal temperature and then drained to storm water drain line.

DM water is used as make up water in the process of steam generation. At DM Plant effluent water is getting generated during the regeneration of Cation Bed, Anion Bed and Mixed Bed. After proper neutralization of effluent water, the same is discharged to storm water drain line.

## Description

Total volume of waste water generated at Power Plant going to storm water drain line will be around 8-10 M<sup>3</sup>/hr. Water analysis of above mentioned waste water carried out by Environment Management Cell (EMC). From analysis report it was evidenced that this water can be suitably used as make up water at different place.

The above matter discussed with WSS dept. and EMC. Various schemes / plans were considered into account for the utilization of waste water. As temperature of blow down water of Boilers is little bit higher side, it was decided to use it in the Gas Cleaning Plant (GCP) Pump House of Blast Furnace (BF) as make up water.

A new layout / plan had been made to collect and transfer blow down water and sample coolers cooling water of Boilers to neutralization pit of DM Plant through pipe lines. As no collecting pit was available near Boiler area, it was decided to utilize DM Plant neutralization pit for the above purpose. There are two nos. neutralization pits at DM Plant, one for collection of effluent water and another for neutralization. Utilization of DM Plant neutralization pits having dual advantages: – a) No separate pit is required for collection of blow down water and sample coolers cooling water, b) Temperature of blow down water of Boilers will also come down after mixing with sample coolers cooling water and DM Plant effluent water.

After collection of blow down water / sample coolers cooling water / DM Plant effluent water, proper neutralization to be done and pH of water to be maintained in between 7.5-8.5 before transferring to GCP Pump House of BF. A new pump of suitable capacity to be installed near DM Plant neutralization pit to transfer neutralized water from pit to GCP Pump House of BF and Pump to be run intermittently.

Laying of Pipe lines from Boilers to DM Plant and from DM Plant to GCP Pump House of BF, Installation of neutralized water disposal Pump completed on 20.03.2015. Commissioning of above system carried out on 31.03.2015.