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bcc

Subject Visit to IIT Kanpur

15th June 2006

Executive President

Sub: Visit to IIT Kanpur

This has reference to our visit to IIT Kanpur yesterday where we met Dr. Bhattacharya- Head Chemical Engg, Professor S.C.Srivastava - Dean R&D, Dean- Academy and Head Mechanical engg. At about 4 PM we had a meeting with all senior faculty members of Chemical engg Department and few faculty members of Mechanical Engg Department. The discussions were very enlightening and fruit full. We explained them few areas/issues where some break trough ideas can be worked out jointly with IIT Kanpur. The areas identified are:

● **Liquid-Liquid Separation:**

1. To separate ammonia from the Ammonia process condensate by use of Hybrid separation technology where specially designed membranes are used to separate ammonia.
2. To separate ammonia and Urea from the Urea process condensate specially designed membranes are used to separate ammonia and Urea.
3. Separation of neem oil from Urea + water+ Neem oil system which will help in recovery of swept neem coated urea.

● **Gas- Gas Separation:**

1. To remove Hydrogen from CO₂ supplied to Urea plant. This will help improving the conversion in Urea Reactor and hydrogen so recovered will be recycled back as fuel to primary reformer.
2. To remove CO₂ from the flue gases of primary reformer.

● We also explained them the problem of polymer formation in the Urea manufacturing process. We suggested to find out solution to either eliminate polymer formation or to dissolve and reprocess in Urea plant.

● To find out cost effective way of recovering low grade heat.

● Explore possibility of enhancing the efficiency of turbine/compressors/pumps.

● Problem of High Prill Temperature and limitations in prill tower were explained. They are very keen on working on this project and they suggested that probably change in the design of Louvers to give circulatory motion to air to enhance the contact between prill and air.

The schemes mentioned in liq. and gas separation may be breakthrough projects and may give huge saving of steam by about 40 to 45 LP steam.

The response from all the professors and faculty members was very encouraging. We are providing them a brief note on each area of improvements based on which they will provide their proposal for the study and recommendations.

In order to make the entire process more effective, Dean R&D suggested that Indo Gulf may have few scholarships for M.Tech. students who will be working on our projects. After getting proposal from IIT we will work out the methodology for proceeding further.

This is for your kind perusal please.

Kind Regards.