

A Report on Internship Programme at Dulanga Coal Mines, NTPC Ltd., Sundargarh.

The objective of the internship project was to provide M.Sc. Chemistry students with real-world exposure to the coal-based thermal power industry. The students aimed to comprehend the complexities of coal mining, preparation, purification and the methods employed for accurate sampling and analysis. Understanding these processes is crucial for ensuring the quality and efficiency of thermal power generation.

During the visit to the NTPC, on dated.19.04.2021 to 25.04.2021.They were provided with comprehensive insights into the following aspects of coal-based power generation:

a. **Coal Mining Methods:** The interns learned about the different techniques employed in coal mining, including surface mining and underground mining. The processes of excavation, blasting and transportation were explained, highlighting the safety protocols and environmental considerations.

b. **Coal Preparation:** They were introduced to the coal preparation methods, including crushing, screening, and washing, aimed at removing impurities and achieving the desired coal quality for power generation.

c. **Coal Purification:** They gained knowledge about purification techniques such as coal beneficiation, which involves chemical and physical processes to enhance the energy content and reduce pollutants in coal.

d. **Sampling and Analysis:** They received hands-on training in coal sampling methods, ensuring representative samples are collected. The students also learned about analytical techniques, including proximate analysis, ultimate analysis, calorific value determination and ash fusion temperature testing.

Key Learnings:

a. **Chemical Composition:** The interns deepened their understanding of the chemical composition of coal and its impact on combustion efficiency and environmental emissions.

b. **Quality Control:** They learned about the importance of quality control in every stage of coal processing, from mining to power generation, to ensure the consistency and reliability of energy production.

c. **Environmental Compliance:** They were made aware of the environmental regulations and standards that the industry adheres to, focusing on minimizing the ecological footprint and mitigating environmental impacts.

d. **Safety Protocols:** Emphasis was placed on the stringent safety protocols followed in the coal mining and processing industry, highlighting the significance of worker safety and well-being.

Conclusion:

The internship at NTPC Ltd. was a transformative learning experience for all 13 M.Sc. Chemistry students. The interns extend their sincere gratitude to the team of experts guided and the opportunity to gain practical knowledge in the field.

