Survey of Corrosion Control in Gas Processing and its Treatment Plant both in Onshore and Offshore Facilities

By Lawrence Ekwebelam

Supervised by Dr. Trevor Hodgkiess

INTRODUCTION

Natural gas occurs in deep reservoirs either as Associated gas with crude present or as reservoir that contains little or no crude (Non-Associated gas). Over the years, corrosion has been a major problem in the oil and gas industries in the world and this has increased the running cost, lowers plant efficiency, availability and product quality. The survey of corrosion control measures in the oil and gas industries has been analyzed in various forms in terms of its consequences in capital and operational expenditure, health, safety and the environment. In order to eliminate and solve this problem, series of research and engineering concept should be carried out such as corrosion and its properties of metals in the area of drilling, production, transportation and refinery activities.

BACKGROUND

– Satisfactory operation of steel equipment requires
– Good process control
– Appreciation of potential corrosion problems and their alleviation
– Corrosion cost of the equipment
– Effective Heat Treatment and Gas Dehydration process

PROJECT OBJECTIVES

– To study the physical, chemical and engineering principles used in gas processing and its treatment plant.
– To study corrosion properties, nature of corrosive environment and method of prevention.
– To apply these principles in the description of the various equipment used during the process.
– To provide a common base of gas processing knowledge and allowing easy communication with others in the oil and gas industries.
– To give a clear knowledge on the various types of corrosion that will affect the equipment in the gas processing plant.
– To provide guidelines on degradation mechanisms and corrosion control measures including integrity operating parameters to be monitored matching the health, safety, environment and economic risks of their operation.

PROJECT PROCEDURE

– Preliminaries: Choose topic, Preliminary reading, Restrict subject
– Data Gathering: Literature survey, Report from industries
– Data Evaluation
– Begin report writing

MAIN FINDINGS

EQUIPMENT COVERED

– Pressure vessels – all pressure containing components
– Process piping – pipe and piping components
– Boilers and heaters – pressurised components
– Heat exchangers – shell and tube

CONCLUSION

– Ensuring complete utilisation of constructing materials at its best
– Overall margin and yield of products are maximised
– Planning, operational and monitoring of the system cycle is incorporated throughout the system

– Identification of various corrosion effect and correction of the problems
– Operational function both long term and short term of the equipment are fully understood
– The work force for the plant are given good information about the process