Safety Aspects in Integrated Steel Plants - A Perspective

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ABSRACT

Iron and Steel plants are important, as steel as a commodity material occupies a vital place in the modern, industrial age. The volume of steel being produced around the globe has already exceeded 1600 MT and is expected to grow further in coming years.. In particular, India is poised for a large leap forward in the near future, having produced almost 90 MT of steel last year and occupying third position in the globe .An integrated steel plant of today represents an array of complex activities and engages a very large number of people.

It is known that many sections of a typical integrated steel plant are also potentially hazardous due to a variety of reasons. These include: molten metal, slag and coke at high temperatures; flammable & explosive substances and gases; toxic & corrosive substances and gases ; heavy machinery; work carried out at heights and confined places; noise; fine particles floating around in the surroundings and so on. Over the past two decades, a number of fatal accidents have taken place in steel plants, accounting for loss of valuable lives and have led to extensive loss & damages of property. Consequently, the subject of safety and health has engaged the attention of steel plant management, employees, the Government and even the common man.

A good deal of organizations around the globe have studied the situation pertaining to accidents in integrated steel plants and have come out with reports. A number of people in the past (and, some even now) were of the opinion that an integrated plant representing a place that is basically vulnerable, accidents are inevitable. Fortunately, a deeper analysis has shown that this view is not correct and that it is possible in principle that the integrated plants could become accident-free.

Towards an accident-free steel the world body of steel companies, earlier known as the International Iron & Steel Institute (IISI), now World Steel Association (WSA), have

worked extensively and have chalked out blue-prints. Metrics survey, regular monitoring of accident data (particularly, the Loss Time Injury Frequency Rate, LTIFR, representing the number of accidents in 1 million working hours); conducting safety audits on prescribed structures; recognizing excellence in safety performance; sharing best practice data globally; observing Steel Safety Day since 2014; all these have contributed to a greater awareness and over the past 10 years the Safety Performance Indicator has improved dramatically .It is shown that To avoid fatal accidents, it is necessary to work towards avoiding ‘small incidents’. Thus, an iceberg concept has been introduced where the base is for small incidents and the top represents fatal accidents.

Even with all the above steps, a lot of ground still needs to be covered in order to achieve the goal of zero-accident in all plants. A key factor is the involvement of the highest management and all sections of the plant for bringing about a ‘culture of high safety’. Some plants also have started using sophisticated technology in monitoring the movement of people, particularly in hazardous places. All in all, it has been realized that safety in integrated plants ought to occupy a high priority as the safety of a large number of people is at stake.