



Steel Authority of India Limited (SAIL)

Training for the successful commissioning of a melt shop

Employee training

Challenge

Salem Steel Plant (SSP) is a special steel unit of the Steel Authority of India Limited (SAIL) which in turn is a Government of India Enterprise. Envisaged as an integrated special steel plant, the cold rolling mill (CRM) was initially commissioned in September 1981. Subsequently, the hot rolling mill (HRM) was commissioned in September 1995. To complete the reverse integration and to enhance capacity for saleable steel products, SSP has recently installed steel melting facilities, expanded the CRM and increased the capacity of the HRM.

In order to meet the schedule for the commissioning and stabilisation of the SMS, a number of challenges had to be overcome. These included:

- Team-building: The highly educated, skilled and dedicated workforce had to be aligned in order to achieve the goal.
- Expertise: As the last major part of the plant was commissioned 15-years ago, there was a shortage of experienced personnel.
- Core competencies: Engineering skills and experience in dealing with liquid steel at extremely high temperatures had to be developed.
- Troubleshooting: In the event of major breakdowns, there were few in-house staff with the expertise needed to repair the equipment.
- Specialised expertise: Employee competency in specialised subjects such as refractory life had to be developed.
- Safety: Regular and intensive safety training was required for all employees and contractors in order to enhance their knowledge of personnel and equipment safety, and to make them aware of the risks involved in the operation and maintenance of the SMS.
- Performance improvement: Workshops on sensitive and critical factors were required to ensure production cost targets could be achieved.

Action

The following actions were taken in each area:

- **Team-building:** Key jobs and positions were identified early in the project. A team of 42 employees and 15 managers was created and trained.
- **Expertise:** Intensive project management and managerial training was carried out both on- and off-site.
- **Core competencies:** Key employees were seconded to other plants for up to two months to familiarise them with the equipment, technology and processes. A one-month training programme was also conducted at a special steel plant similar to the SMS. Both managers and employees received additional training from equipment manufacturers in India and overseas.
- **Troubleshooting:** To establish the troubleshooting skills needed, training on critical equipment and processes was carried out. This also involved sessions in which experts from other steel plants shared their experiences.
- **Specialised expertise:** Employees were sent to different plants to study critical process in order to enhance their skill levels.
- **Safety:** Training programmes were conducted on safety awareness, accident prevention, working at heights, and working with critical equipment such as cranes and air compressors.
- **Performance improvement:** Various performance improvement workshops have been held with cross-functional teams to address operational problems. Employees working in the areas affected were invited to the workshops.

Outcome

The extensive and comprehensive training plan has enabled the SSP to commence production on schedule. The first heat of carbon steel was produced in August 2010, with the first stainless steel heats taking place the following month. Since then production has increased consistently (see chart). Integrated commissioning was completed in February 2011.

The development of in-house specialist expertise has enabled production levels to be increased significantly. Training on increasing refractory life has more than doubled the life of each lining.

All commissioning problems and technological challenges have been overcome and the SMS has successfully produced low nickel (200 series), 300 and 400 series grades. The cost of production has also been reduced thanks to the training programme provided.

All safety practices are being adhered to and no major accidents have occurred. This has had the double effect of increasing morale and production.

