STEEL AUTHORITY OF INDIA LTD.
ROURKELA STEEL PLANT.
ROURKELA- 769011 (ORISSA)

UNIT PROFILE

(a) Historical

Rourkela Steel Plant (RSP) a unit of Steel Authority of India Ltd. (SAIL) was started in late fifties in collaborations with leading Steel makers from the Federal Republic of Germany.

The units of the Plant which had a capacity of 1.0 Million Tunnels initially were commissioned between December 1958 and early part of 1962. Rourkela Steel Plant conceived and erected primarily as a flat products Plant, was the first unit in Asia to adopt LD process of steel making. With a view to meet the additional demand for flat products in the country the capacity of the plant was increased from 1.0 MT to 1.8 MT between 1965 to 1969. Besides increasing the capacity of existing units i.e Coke Ovens, Blast Furnace, Steel Melting Shop, Blooming & Slabbing Mill, Plate Mill & Hot Strip Mill a few new units like Electric Steel Mill (for dynamo & transformer grade Steel) and Galvanizing lines (for plain and corrugated Galvanized Sheets) were added at this stage. Subsequent to the expansion of the Steel Plant a number of units were added to enhance product quality, production and productivity, to meet the market needs. These units included spirally welded Pipe Plant, Silicon Steel Mill, second Captive Power Plant & Repair Shops. Rourkela Steel Plant is the only Plant in SAIL, producing large diameter pipes conforming to rigid API standards and Cold Rolled Non Oriented (CRNO) steel sheets for use in electrical industries.

In order to overcome technological obsolescence and to remain competitive nationally and internationally, modernization Plan of Rourkela Steel Plant was conceived in late eighties and was completed by 1997. The major schemes implemented included up gradation of raw materials, continuous casting of slabs, energy efficient Reheating Furnaces in Plate Mill and Hot Strip Mill and a new Sinter Plant with heat recovery system. Rourkela Steel Plant is the first integrated Steel Plant of SAIL, which adopted quality centered and energy efficient continuous casting route to process 100 % of liquid steel produced. The main production facilities of the Plant and the product profile are detailed at Page - 3.

(b) ***Product Profile***

Rourkela Steel Plant produces a wide variety at special purpose Steels. The use of its plate in ship building and high pressure vessels, Silicon Steel in electrical industries, corrugated Galvanized sheets for roofing, pipes for the oil and gas industries, Tin plates for packaging industries and special plates for the defence production items is well known.

(c) Excellence in Quality:

More than twenty production and service units of Rourkela Steel Plant have been certified by M/S RWTUV Germany to ISO 9000 – 2000 Quality Management systems. The Pipe Plants of RSP are also certified to API - Q1 Quality Assurance system by American Petroleum Institute.

The relentless endeavor of RSP does not stop at implementing ISO 9001:2000 Quality Management System (QMS) in the various units. Its sustained effort has resulted in several Departments like Silicon Steel Mill, Environmental Engineering Department, Sinter Plant II, Plate Mill and Hot Strip Mill receiving the coveted ISO 14001:2004 Environment Management System (EMS) certification. Considerable advances have been made for EMS implementation in ERW and SW Pipe Plants as well as Town Engineering and Services. This is a beginning of the objective of RSP to improve the Environment Management as a service towards the employees, stakeholders and the society at large.

Moreover, Quality Improvement Process Management (QIPM) was initiated and implemented in Department like OBBP, CO, Blast Furnace, CPP-1 , SMS-II , Hot Strip Mill, Cold Rolling Mill and Power Distribution where 44 Quality Improvement projects were taken out of which 35 projects have culminated not only in significant cost reduction, but also in overall process development. As a part of this project, a Quality Improvement Team (QIT) is formed which selects various projects with an objective to achieve targets by doing, analyzing and taking corrective and preventive actions.

(d) *Unique HR initiatives* :

Human resource initiatives at RSP have gone a long way in creating congenial industrial relations and work atmosphere. Mass contact exercises where the chief Executive of the Plant interacts directly with the work force is a unique initiative, which has been continuing for the past many years. These initiatives have ushered in the atmosphere of satisfaction and growth for both the employees and the Company.

(e) *Safety:*

In RSP safety is an integral part of main business activity. The organization is continuously striving to achieve new heights of excellence by inculcating a voluntary & sustainable Culture of safety through well planned pro-motive & pro-active activity.

The organization has a well established Safety Department reporting directly to the Executive Director (Works). The visible commitment of top Management in implementing its Safety policy has truly been inspiring to its employees and to integrate safety culture into the working process.

Safety Engg Department of the Plant translates safety policies into realities by monitoring safety efforts in all the units. It undertakes regular routine activities of preventive safety using all the known techniques of Safety Management like inspection, investigation, system audit, safety training, emergency preparedness planning etc.

Joint participation is ensured through functioning of Apex Central Safety Committee and Zonal Safety Committees. Issues on safety are discussed in these joints forums. There is a system of following written down operating practices for regular jobs. For special jobs protocols are prepared where Safety aspects are considered. At Departmental level HOD Communication meetings and at functional head level GMs Communication Meetings are held every fortnight to discuss issues relating to safety and productivity with workmen.

Video graphic recording of unsafe condition are done and shown in different meetings for better understanding of issues. There is system of internal safety audit teams who are engaged in Safety audit of 59 Departments and audit points are taken care.

The Plant has bagged National Safety Award-2005, runner up under scheme VII & VIII in 2006, Ispat Suraksha Puraskar for maximum reduction in Accident rate for maintenance, Service and projects Zone in 2004.

(f) Over all Performance

Over the past few years the Company has registered significant improvement in production performance, technological parameters and financial indices. During 2006-07, RSP exceeded rated production levels in a number of units, which was unthinkable on earlier days. On financial front also the plant has been achieving substantial net profit for the past three years. The copies of the certified audit reports of the Plant for last three years are enclosed at page 46 to 51 .

(g) Future Plans

Presently RSP has embarked upon a massive expansion plan to increase the Hot Metal Production capacity to 4.5 mtpa from the present level of 2.0 mtpa and crude steel capacity to 4.2 mtpa from the present level of 1.9 mtpa. The expansion plan envisages addition of a number of units with state of art technology and upgradation of existing units like a tall Coke Oven battery with coke dry quenching, a new big blast furnace with high top pressure and top recovery turbine, coal dust injection in all the blast furnaces, combined blowing and RHOB degassing in Steel Melting Shop, a new high capacity Plate Mill to produce wide plates and new HCl pull push pickling line in Cold Rolling Mills besides a number of logistics and support facilities. After the completion of these expansion schemes which is likely to by Nov-2010 the Sp. energy consumption will be brought down to 5.4 Giga calories per ton of crude Steel (Gcal/ TCS) from the present level of 7.5 Gcal/TCS.

(h) Energy Consumption

Like in any other integrated Steel Plant, Coking Coal (for producing coke to be used as a reducing and heating agent in Blast Furnaces) boiler coal (for generating Steam & power) furnace oil (to be used as a supplementary fuel in Power Plant and reheating furnaces of Hot Strip Mill) and purchased electricity (to supplement in house generation) are the major external energy inputs to the Plant . For the past years some amount of Blast Furnace grade Coke is also being purchased to meet the total coke demand in blast furnaces.

Besides purchased fuels, by product fuel gases (Coke Oven gas, Blast Furnace Gas & LD gas generated during the process of Steel Making at various stages are used for process heating.

(i) Energy conservation commitments, policy and set up.

Energy Conservation has always been an important Management objective in Rourkela Steel Plant. We are aware that conserving energy is desirable not only to reduce costs but also for conserving precious & fast depleting fossil fuel reserves and protecting the environment.

Continuous and sustained efforts towards energy conservation have been continuing in RSP for the past many years. Energy policy has been issued by the Chief Executives of RSP(copy provided page-17) to provide direction to set

performance goals, integrate energy management into the organization culture and operational practices and to ensure the commitment of the highest authority of the Plant towards energy conservation and environmental protection. Through the energy policy, the Plant is committed to reduce Sp. energy conservation by 2 % every year up to 2012.

Energy Management Department monitors the availability and distribution of fuel gases and utilities around the clock basis for optimization, monitors major energy parameters on daily basis and generates MIS reports on unit wise overall energy parameters for variance analysis and corrective actions. It also monitors condition of energy generating and consuming equipments/process on a regular basis and carries out periodic inspections to detect leakages and wastages of energy bearing materials for corrective actions. The department also conducts energy audits in each of the major shops at least once a year along with the concerned personnel from the department. The audit covers mainly analysis of energy consumption, combustion status, heat balances, physical condition of heat/energy consuming facilities, condition of gas / utility grid including leakages, efficiency of fans, blowers and cooling towers and electrical energy consuming units etc. The findings and recommendations of audits are discussed with the head of the auditee department for formulating action plans for implementation. The salient points are also discussed with the Head of works of the Plant.