PARTICULARS OF ORGANIZATION, FUNCTIONS AND DUTIES

PARTICULARS OF ORGANIZATION

a)	Name of the Company	:	Rashtriya Ispat Nigam Limited
b)	Company Identification Number (CIN)	:	U27109AP1982GOI003404
c)	Date of Incorporation	:	18th February 1982
d)	Mode of Incorporation	:	Incorporated as a Government Company under the provisions of the Companies Act, 1956.
e)	Administrative Ministry	:	Ministry of Steel Govt. of India.
f)	Present Status	:	A Govt. Company within the meaning of Section - 617 of the Companies Act, 1956.
g)	Share Capital :		
	i) Authorised		
	Equity Share Capital	:	Rs.4,890 Crores
	Preference Share Capital	:	Rs.3,110 Crores
	Total	:	Rs.8,000 Crores
	ii) Subscribed, Issued and paid up capital		Rs.7,827.32 Crores
h)	Present Share holding.	:	The entire Share Capital is held by President of India.
i)	Address of Registered Office	:	Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Administrative Building Visakhapatnam – 530 031 Website: www.vizagsteel.com

Visakhapatnam Steel Plant (VSP), the first coast based Steel Plant of India is located, 16 KM South West of city of Destiny i.e. Visakhapatnam. Bestowed with modern technologies, VSP has an installed capacity of 3 million Tonnes per annum of Liquid Steel and 2.656 million Tonnes of saleable steel. At VSP there is emphasis on total automation, seamless integration and efficient up gradation, which result in wide range of long and structural products to meet stringent demands of discerning customers within India and abroad. VSP products meet exacting International Quality Standards such as JIS, DIN, BIS, BS etc.

VSP has become the first integrated Steel Plant in the country to be certified to all the three international standards for quality (ISO-9001), for Environment Management (ISO-14001) & for Occupational Health & Safety (OHSAS-18001). The certificate covers quality systems of all Operational, Maintenance and Service units besides Purchase systems, Training and Marketing functions spreading over 4 Regional Marketing Offices, 24 branch offices and stock yards located all over the country.

VSP by successfully installing & operating efficiently Rs. 460 crores worth of Pollution Control and Environment Control Equipments and converting the barren landscape by planting more than 3 million plants has made the Steel Plant, Steel Township and surrounding areas into a heaven of

lush greenery. This has made Steel Township a greener, cleaner and cooler place, which can boast of 3 to 4° C lesser temperature even in the peak summer compared to Visakhapatnam City.

VSP exports Quality Pig Iron & Steel products' to Sri Lanka, Myanmar, Nepal, Middle East, USA, China and South East Asia. RINL-VSP was awarded "Star Trading House" status during 1997-2000. Having established a fairly dependable export market, VSP plans to make a continuous presence in the export market.

Having a total manpower of about 16,600 VSP has envisaged a labour productivity of 265 Tonnes per man year of Liquid Steel.

BACKGROUND

With a view to give impetus to Industrial growth and to meet the aspirations of the people from Andhra Pradesh, Government of India decided to establish Integrated Steel Plant in Public Sector at Visakhapatnam (AP). The announcement to this effect was made in the Parliament on 17th April' 1970 by the then Prime Minister of India late Smt. Indira Gandhi.

A site was selected near Balacheruvu creak near Visakhapatnam city by a Committee set up for the purpose, keeping in view the topographical features, greater availability of land and proximity to a future port. The foundation stone for the plant was laid by Smt. Gandhi on 20.01.1971.

Seeds were thus sown for the construction of a modern & sophisticated Steel Plant having annual capacity of 3.4 Million Tonnes of hot metal. An agreement was signed between Governments of India and the erstwhile USSR on June 12th, 1979 for setting up of an Integrated Steel Plant to produce structural & long products on the basis of detailed Project report prepared by M/s M.N. Dastur & Company. A Comprehensive revised DPR jointly prepared by Soviets & M/s Dastur & Company was submitted in Nov' 1980 to Govt. of India.

The construction of the Plant started on 1st February 1982. Government of India on 18th February 1982 formed a new Company called Rashtriya Ispat Nigam Ltd. (RINL) and transferred the responsibility of constructing, commissioning & operating the Plant at Visakhapatnam from Steel Authority of India Ltd. to RINL.

Due to poor resource availability, the construction could not keep pace with the plans which led to appreciable revision of the plant cost. In view of the critical fund situation and need to check further increase in the plant costs, a rationalized concept was approved which was to cost Rs. 6849 crores based on 4th Quarter of 1988.

The rationalized concept was based on obtaining the maximum output from the equipments already installed, planned / ordered for procurement and achieving higher levels of operational efficiency and labour productivity. Thus the plant capacity was limited to 3.0 Million tonnes of Liquid Steel per annum. In the process, one of the Steel Melt Shops and one of the mills were curtailed.

The availability of resources were continued to be lower than what was planned and this further delayed the completion of the construction of the plant. Finally all the units were constructed and

commissioned by July' 92 at a cost of Rs. 8529 crores. The plant was dedicated to nation by the then prime Minister of India Late Sri P. V. Narasimha Rao on 1st August, 1992.

Since Commissioning VSP has already crossed many milestones in the fields of production, productivity & exports. Coke rate of the order of 509 Kg/Ton of Hot metal, average convertor life of 2864 heats an average of 23.6 heats per sequence in continuous Bloom Caster. Specific energy consumption of 6.07 G Kal / ton of liquid steel, a specific refractory consumption of 8.94 kg and a labour productivity of 265 Ton / man year are some of the peaks achieved (during the year 2004-05) in pursuit of excellence.

VSP Technology: State-of-the-Art

- 7 meter tall Coke Oven Batteries with coke dry quenching. Biggest Blast Furnaces in the Country
- Bell - less top charging system in Blast Furnace
- 100% slag granulation at the BF Cast House
- Suppressed combustion - LD gas recovery system
- 100% continuous casting of liquid steel.
- "Tempcore" and "Stelmor" cooling process in LMMM & WRM respectively
- Extensive waste heat recovery systems
- Comprehensive pollution control measures
-

Major Sources of Raw Materials

Raw Material	Source
Iron Ore Lumps & Fines	Bailadila, Chattisgarh
BF Lime Stone	Jaggayyapeta, AP
SMS Lime Stone	Dubai
BF Dolomite	Madharam, AP
SMS Dolomite	Madharam, AP
Manganese Ore	Chipurupalli, AP
Boiler Coal	Talcher, Orissa
Imported Boiler Coal	Indonesia
Imported Coking Coal	Australia / US
Medium Coking Coal (MCC)	Kathara / Swang / Rajarappa / Kedla
Imported LAM Coke	China
Quartzite Lump & Fines	Local
Sand	Sarepalli, AP

Major Units

Department	Annual Capacity ('000 T)	Units (3.0 MT Stage)
Coke Ovens	2,701	4 Batteries of 67 Ovens & 7 Mtrs. Height
Sinter Plant	5,256	2 Sinter Machines of 312 Sq. Mtr. grate area each
Blast Furnace	3,400	2 Furnaces of 3200 Cu. Mtr. volume each
Steel Melt Shop	3,000	3 LD Converters each of 133 Cu. Mtr. Volume and Six 4 strand bloom casters
LMMM	710	2 Strand finishing Mill
WRM	850	4 Strand high speed continuous mill with no twist finishing blocks
MMSM	850	6 STAND FINISHING MILL

Main Products of VSP

Steel Products	By-Products	
Blooms	Nut Coke	Granulated Slag
Billets	Coke Dust	Lime Fines
Channels, Angles	Coal Tar	Ammonium Sulphate
Beams	Anthracene Oil	
Squares	HP Naphthalene	
Flats	Benzene	
Rounds	Toluene	
Re-bars	Zylene	
Wire Rods	Wash Oil	

FUNCTIONS OF VARIOUS DEPARTMENTS OF RINL/VSP

Vision

To be a continuously growing world class company we shall

- **Harness our growth potential and sustain profitable growth.**
- **Deliver high quality and cost competitive products and be the first choice of customers.**
- **Create an inspiring work environment to unleash the creative energy of people.**
- **Achieve excellence in enterprise management.**
- **Be respected corporate citizen, ensure clean and green environment and develop vibrant communities around us.**

Mission

- **To attain 16 million ton liquid steel capacity through technological up-gradation, operational efficiency and expansion; to produce steel at international standards of cost and quality; and to meet the aspirations of the stakeholders.**

Objectives

- **Expand plant capacity to 6.3Mt by 2011-12 with the mission to expand further in subsequent phases as per Corporate Plan**
- **Revamping existing Blast Furnaces to make them energy efficient to contemporary levels and in the process increase their capacity by 1 Mt, thus total hot metal capacity to 7.5 Mt**
- **Be amongst top five lowest cost liquid steel producers in the world**
- **Achieve higher levels of customer satisfaction**
- **Vibrant work culture in the organization**
- **Be proactive in conserving environment, maintaining high levels of safety & addressing social concerns**

Core Values

- **Commitment**
- **Customer Satisfaction**
- **Continuous Improvement**
- **Concern for Environment**
- **Creativity & Innovation**

Directorate of Operations

MAJOR DEPARTMENTS

Mines

Brief about Captive Mines of Visakhaptanm Steel Plant

- **Madharam Dolomite Mine (MDM)**

MDM is located at Madharam village in Singareni Mandal of Khammam District, A.P. The mining lease is for exploitation of Dolomite covering an area of 384.46 Hectares for about 20 years. The lease area is a captive source for Rashtriya Ispat Nigam Ltd (RINL) / Visakhapatnam Steel Plant (VSP) for use of Dolomite in its Iron and Steel making processes. The area is situated at a distance of 16 Km from the Ywellandu – Mehaboobabad road taking diversion at Mukundapuram to the area. The present mining lease is valid upto 13.07.2020. A railway line of 7.165 Km distance was constructed from the lease area adjoining at Karepalli Junction. The lease is in operation from 1989 onwards for transportation of Dolomite to VSP covering a distance of 510 Km from the area. A township consisting of 225 dwelling units of all categories with modern amenities was constructed with in the lease area. A DAV School, hospital, hostel, Community Welfare Centre, Shopping Complex, Parks and an Open Air Auditorium were also provided in the township. A Guest House of 4

rooms was also provided in the township. The capacity of the mine is to produce 7,80,000 tonnes of Dolomite per annum. The employee strength is 203 of different categories. The present Dolomite reserve is 31.03 million tones. It is an open cast mechanized mine of VSP to cater to the requirement of Dolomite.

- **Jaggayyapeta Limestone Mine (JLM)**

Jaggayyapeta Limestone mine (JLM) is located 5 Km south – West of Jaggayyapeta connected by a black – top road in Krishna District, A.P. This is a captive mine of VSP to cater to the requirement of BF Grade Limestone of VSP. The mining lease has been granted by Govt. of A.P. covering an area of 1295 Hectares out of which 900 Ha is forest land and 395 Ha is acquired private lands. The lease is valid upto 07.08.2020. This mine is an open cast mechanized mine with a capacity of 4,50,000 tonnes of BF Grade Limestone per year. A Township having 226 quarters of all categories with modern amenities was constructed. Schools hospital, hostel, Community Welfare Centre, Shopping complex and an Open Air Auditorium were also provided in the Township. A four – roomed Guest House was also provided. The Limestone reserve of 130 million tones is occurring in the area. The total strength of employees is 133. The Limestone is dispatched by a goods train covering a distance of 450 Km to VSP from the lease area.

- **Garbham Manganese mine (GMM)**

Garbham Manganese mine (GMM) is a captive source for manganese ore for VSP. It is located 16 Km away from Garividi connected by the black – top road in Merakamududam Mandal, Vizianagaram District, A.P. There are two mining leases adjacent to each other covering an area of 264.54 Hectares. The present reserve of Manganese is 7,03,760 tonnes as on 01.01.2008 with a life of 46 years producing 15,000 tonnes per annum. The area is equipped with a store house, maintenance shed and vocational training centre. The total employees strength is 31 including contractual labour. The total distance from the mine to VSP is 125 Km. The annual production of the mine is @ 16,000 tonnes.

- **Saripalli Sand Mine (SSM)**

This is a captive source for catering to the requirement of Silica sand for VSP. This is located in Champavati River near Nellimarla Mandal of Vizianagaram District, A.P. The sand is transported from this mine by trucks covering a distance of 95 Km from the area to VSP. The requirement of sand is 50,000 per annum. Loading, transportation and unloading is carried by contractual agency. Only one Junior Officer is posted to look after the mining activities of Saripalli sand Mine. The total reserve of sand is 3,20,000 tonnes.

Raw Material Handling Plant

VSP annually requires quality raw materials viz. Iron Ore, fluxes (Lime stone, Dolomite), coking and non coking coals etc. to the tune of 12-13 Million Tonnes for producing 3 Million Tonnes of Liquid Steel. To handle such a large volume of incoming raw materials received from different sources and to ensure timely supply of consistent quality of feed materials to different VSP consumers, Raw Material Handling Plant serves a vital function. This unit is provided with elaborate unloading, blending, stacking & reclaiming facilities viz. Wagon Tipplers, Ground & Track Hoppers, Stock yards Crushing plants, Vibrating screens, Single / twin boom stackers, wheel on boom and Blender reclaimers, Stacker – cum – Reclaimer (SCR). In VSP peripheral unloading has been

adopted for the first time in the country. Coking coals are received through conveyors directly from M/s Gangavaram Port Limited to Coal Stock Yard.

Coke ovens & Coal Chemical Plant (CO&CCP)

Blast Furnaces, the mother units of any Steel plant require huge quantities of strong, hard and porous solid fuel in the form of hard metallurgical coke for supplying necessary heat for carrying out the reduction and refining reactions besides acting as a reducing agent. At VSP there are Four Coke Oven Batteries, 7 Metre tall and having 67 Ovens each. Each oven is having a volume of 41.6 cu. metre & can hold upto 31.6 Tonnes of dry coal charge. There are 4 Coke Dry Cooling Plants (CDCP) each having 4 cooling chambers. Nitrogen gas is used as the Cooling medium. The heat recovery from nitrogen is done by generating steam and expanding in two back pressure turbines to produce 7.5 MW each.

The Coal chemicals such as Benzole (& its products), Tar (& its products), Ammonium Sulphate etc. are extracted in Coal Chemical Plant from C.O. Gas. After recovering the Coal chemicals the gas is used as a by product fuel by mixing it with gases such as BF Gas, LD Gas etc. A mechanical, biological & chemical treatment plant takes care of the effluents.

Sinter Plant

Sinter is a hard & porous ferrous material obtained by agglomeration of Iron Ore fines, Coke breeze, Lime Stone fines, Metallurgical wastes viz. Flue dust, mill scale, LD slag etc. Sinter is a better feed material to Blast Furnace in comparison to Iron Ore lumps and its usage in Blast furnaces help in increasing productivity, decreasing the coke rate & improving the quality of Hot Metal produced. Hot Sinter discharged from Sintering machine is crushed to +5 mm - 50 mm size and cooled before dispatching to Blast Furnaces.

Parameters of Sintering Machines are

- Total area : 312 Sq. metre
- Effective Sintering area : 276 Sq. metre
- Sinter bed height : 500 mm
- Sinter Machine Capacity : 400 T P H each

The dust laden air from the machines are cleaned in scrubbers & electrostatic precipitators to reduce the dust content to 100 mg/ m3 level before allowing to escape into the atmosphere and thus helping in maintaining a clean & dust free environment.

Blast Furnaces

VSP has two 3200 cu. metre Blast Furnaces (largest in India) equipped with Paulworth Bell less top equipment with conveyor charging. Rightly named as "Godavari" & "Krishna" after the two rivers of AP, the furnaces will help VSP in bringing prosperity to the state of Andhra Pradesh. Provision exists for granulation of 100% liquid slag at blast furnace cast house and utilization of blast furnace gas top pressure (1.5-2.0 atmospheric pressure) to generate 12 MW of power in each furnace by employing gas expansion turbines. The two furnaces with their novel circular cast house

and four tap holes each are rated to produce 9720 tonnes of Hot Metal daily or 3.4 Million Tonnes of low sulphur Hot Metal annually.

Record Performance of Blast Furnace department:

TECHNO-ECONOMICS:

Productivity	2.23	$t/m^3/day$	Feb '06
Power	51.31	kwh/thm	Feb '06
Fuel Rate	509	kg/thm	Jan '04
Heat cons.	450	Mcal/thm	Apr '05
Nut coke usage	56	kg/thm	Mar '04

PRODUCTION

Day Peaks

Blast Furnace - 1	6820	Tons	23.03.06
Blast Furnace - 2	6805	Tons	21.03.06
Shop	13325	Tons	10.02.06
PCM Pouring	6723	Tons	31.03.93

Monthly Peaks

Hot metal	374419	Tons	Mar '06
PCM Pouring	107463	Tons	Mar '93
Pig Iron Despatch	110387	Tons	Mar '94
G. Slag Despatch	150942	Tons	May '02

Steel Melt Shop

VSP produces steel employing three numbers of top blown Oxygen Convertors called LD Convertors or Basic Oxygen Furnaces / Convertors. Each convertor is of 133 cu. Metre volume, rated to produce 3 Million Tonnes of Liquid Steel annually. Besides Hot Metal, Steel Scrap, Fluxes such as calcined lime or Dolomite form part of the charge to the Convertors.

Different grades of steel of Superior quality can be made by this process by controlling the Oxygen blow or addition of various ferro alloys or special additives such as FeSi, FeMn, SiMn, Coke Breeze, Aluminum etc. in required quantities while liquid steel is being tapped from the convertor into a steel ladle. Convertor / LD Gas produced as by product is used as a secondary fuel.

Characteristics of VSP Convertors:

- Capacity : 150 Tones per heat blow
- Volume : 133 Cu. Metre
- Convertor Sp. Volume : 0.886 Metre Cube per tonne
- Tap to Tap Time : 45 mts - 60 mts

Liquid Steel produced in LD Convertors is solidified in the form of blooms in continuous Bloom Casters. However, to homogenize the steel and to raise its temperature, if needed, steel is first routed through, Argon rinsing station, IRUT (Injection Refining & Up temperature) / ladle Furnaces.

Continuous casting Department

VSP has six-4 strand continuous casting machines capable of producing 2.82 million Tonnes / year Blooms of size 250 x 250 mm and 250 x 320 mm. Entire quantity of molten steel produced (100%) is continuously cast in radial bloom casters which help in energy conservation as well as production of superior quality products. Facilities at continuous casting machines include a lift and Turn table for ladles, Copper mould, oscillating system tundish, Primary & Secondary Cooling arrangement to cool the steel bloom. Gas cutting machines for cutting the blooms in required lengths (Av. 6 metres long).

Rolling Mills

Blooms produced in SMS-CCD are shaped into products such as Billets, rounds, squares, angles (equal & unequal), Channels, I-PE Beams, HE Beams, Wire rods and reinforcements bars by rolling them in three sophisticated high capacity, high speed, fully automated rolling mills, namely Light & Medium Merchant Mills (LMMM), Wire Rod Mill (WRM) and Medium Merchant and Structural Mill (MMSM).

Light & Medium Merchant Mill (LMMM)

LMMM comprises two units, namely Billet Mill and Bar Mill. The Billet Mill is facilitated with 2 Walking Beam Furnaces and it is a continuous seven stand mill. In the Billet Mill 250 x 320 mm size blooms are rolled into Billets of 125 x 125 mm size. Billets are supplied from this mill to Bar Mill of LMMM, Wire Rod Mill and for sale. Bar Mill is facilitated with tempcore heat treatment technology, automated bundling facilities and high degree of automation. Bar Mill is a 2 strand continuous mill having a capacity of 7,10,000 tons per annum and produces rounds and rebars of various sizes from 16 mm to 36 mm.

Wire Rod Mill (WRM)

Wire Rod Mill is fully automated & sophisticated mill. The billets are rolled in 4 strand, high speed continuous mill having a Annual Capacity of 8,50,000 Tonnes of Wire Rod Coils. The mill produces rounds in 5.5 - 14 mm range and rebars in 8, 10 & 12 mm sizes. The mill is equipped with standard and Retarded Stelmor controlled cooling lines for producing high quality Wire rods in Low, Medium & High carbon grade meeting the stringent National & International standards viz. BIS, DIN, JIS, BS etc. and having high ductility, uniform grain size, excellent surface finish.

Medium Merchant & Structural Mill (MMSM)

This mill is a high capacity continuous mill. The feed material to the mill is 250 x 250 mm size blooms, which is heated to rolling temperatures of 1200 °C in two walking beam furnaces. The mill is designed to produce 8,50,000 tons per annum of various products such as rounds, squares, flats, angles (equal & unequal), T bars, channels, IPE beams I HE beams (Universal beams)

AUXILIARY FACILITIES

Calcining & Refractory Material Plant

CRMP consists of two units - Calcining Plant & Brick Plant. In calcining plant, Limestone & Dolomite are calcined for producing Lime & Calcined Dolomite which are used for refining of steel in the converters. In Brick Plant, bricks and refractory masses are produced, which are used in the Steel Converter as working lining.

Central Maintenance Electrical (CME)

Maintenance of all H.T motors, L.T motors and DC motors of above 200KW. There are 810 such large rotating electrical machines spread through out the plant including 3 Nos. of 60 MW Turbo-Generators, 1 No of 67.5M TG in TPP, 2 nos of Back Pressure Turbo Generators of 7.5 MW each and 2 Nos. of Gas Expansion Turbo- Generator of 12 MW each. The service provided are as mentioned below.

- **Repairs, Maintenance and condition monitoring of all rotating Electrical machines of the plant. The job includes transportation, Overhauling and re-erection with precision alignment.**
- **Maintenance of Electrics of all street lights, Tower lights and Weigh Bridges through out the plant.**

Civil Engineering Department (CED)

- **Inspection of all Civil Buildings in the plant.**
- **Attending Civil Maintenance jobs in various zones of the plant**
- **Road repair works**
- **Laying of additional roads…….. RCC / BT Roads**
- **Attending special jobs during Capital Repairs / Shutdowns.**
- **Repainting of Equipments in various zones of the plant**
- **Horticulture / Development of parks**
- **Cleaning of storm water drains / Box drains, diversion channel**
- **Upkeep of Toilets in buildings / shops of the plant**
- **Preparation jobs for VIP visits**
- **Ash Pond maintenance jobs**
- **Survey jobs**
- **Special jobs: Core cutting in concrete structures, Pressure grouting, Roof treatment, Anti terminate treatment etc.**
- **Civil jobs for infrastructure: Scooter sheds / Rest rooms, office room extension etc.**
- **Security related jobs: Maintenance of Boundary wall Watch towers, peripheral road**

DNW Department

Distribution Network (DNW) Department deals with receipt, transmission of electrical power at 220KV level and distribution of power at 33 KV, 11 KV and 6.6 KV level. Operation and maintenance of power handling equipment under DNW at 220 KV, 33 KV, 11 KV & 6.6 KV levels, maintenance of TPP 220 KV equipments and maintenance of other shop's 33 KV, 11 KV, 6.6 KV equipments (except operations of 220 KV, O&M of 33 KV, 11 KV, 6.6 KV equipment at TPP & other shop HVMCC board with Vacuum Contactors, other Vacuum Contactors) are under DNW purview. DNW department also coordinates with AP Transco and APEPDCL for import of power.

Electrical Repair Shop (ERS)

ERS is a central repair shop to carry out repair activities like overhauling, rewinding, testing etc., of various types of AC Motors, DC Motors, HT Motors, Submersible pumps, Distribution transformers, Welding Machines, Control Transformers, Lifting magnets, Coils etc., of the plant. The Main Functions of ERS are:

- **Overhauling of motors**
- **Rewinding of motors, magnets, transformers, pumps, coils etc.**
- **Testing of Electrical equipment**
- **Emergency Site Repairs**
- **Performance assessment of electrical motors**

Electro Technical Laboratory (ETL)

ETL Department supports the electrical sections of different production shops all over the plant in maintaining electronics pertaining to Drive automation, Programmable Logic Controllers, Crane Drives, Uninterrupted Power Supplies, Electrostatic Precipitators, Special Machines like CNC Machines etc. The following are the main activities:

- **Preventive Maintenance and trouble shooting of the concerned electronics.**
- **Procurement of spare electronic modules.**
- **Repair of defective electronic modules.**
- **Aid the up gradation of obsolete electronics in preparation of specifications and commissioning.**

Energy Management Department (EMD)

EMD deals with handling and distribution of gaseous by-product fuels (BF Gas, Coke Oven Gas, LD Converter Gas) and other utilities such as Steam, Compressed Air, Instrumentation Air, Nitrogen Chilled Water, Oxygen, Demineralised Water, Argon, Acetylene and Fuel Oil in the plant besides conducting various thermo technical studies and reviewing energy consumption regularly. It also looks after gas safety aspects in the plant.

Engineering shops & Foundry (ES & F)

Engineering Shops & Foundry department is set up to meet the requirements of spares, repair of assemblies and reclamation of various jobs of different departments. This complex consists of 1.Central Machine Shop (CMS) 2.Steel Structural Shop (SSS) 3.Foundry 4. Forge Shop (FS) 5.Utility Equipment Repair Shop (UERS).

- **CENTRAL MACHINE SHOP (CMS)**

In Central machine shop, various spares like Gears, Shafts, Crusher liners, hammers, machined castings and fabricated jobs are made. In addition to the manufacturing spares, assembly and repair jobs like gear boxes, Crusher, bearing housings, stands of SMS are taken up. Over 100 major machines including lathes, milling, Plano milling, boring, slotting, shaping, grinding etc. are available to take up machining of spares. 2 presses of 630 ton, 315 ton and dynamic balancing machine of 25 ton capacity, are provided at CMS for repair of assemblies.

- **STEEL STRUCTURAL SHOP (SSS)**

At Structural shop of ES&F, structural jobs of various departments like coke bucket, ladle, SRC body, Wagons, Shells, ducts etc. are being fabricated or repaired as per the requirement of departments. The equipments available are Bending machine-25mm capacity, Shearing machine-25mm capacity, CNC profile gas cutting machine, welding machines, gas cutting sets, other tools and tackles.

- **FOUNDRY**

In Foundry, castings of Iron, steel and non-ferrous are produced based on the projection of customer departments. 8 ton Arc furnace, 2nos of 5ton Induction furnaces and 1 ton crucible furnace for non-ferrous jobs and sand plant for preparation of sand for moulds are available for making castings. Major jobs like Hot metal runners of 10 tons weight , Bottom funnel(5 ton), Emergency containers(7 ton), lower mantle and Bowl liners(3 tons each) etc are produced.

- **FORGE SHOP (FS)**

In Forge shop, preparation of raw materials for shafts, coupling flanges, gears etc and also of forge shapes such as crusher hammer heads, V -hooks, drill rods with the help of 0.5 ton, 2 ton, 3 ton pneumatic hammers, manipulators, heating furnaces is carried out.

- **UTILITY EQUIPMENT REPAIR SHOP (UERS)**

In Utility Equipment Repair Shop, repair of ventilation equipments, valves, fans and impellers is carried out. Equipments like shearing machine, bending machine, presses, lathes etc are provided to take up different repair and manufacturing activities.

Environment Management Department (EnMD)

The environmental parameters related to ambient air, stacks, effluents, work-zone environment, sound, waste management, sub-soil water, marine water and the fugitive emissions (from the coke oven batteries) are regularly monitored by the Environment Management Department (EnMD) as stipulated under consent conditions and statutory orders from APPCB/CPCB/MoEF. All these monitoring activities are carried out as per frequency prescribed by the APPCB/CPCB/MoEF and compliance with all norms is ensured.

Field Machinery Department (FMD)

FMD deals with operation and maintenance of Heavy Earth Moving Equipment, Material Handling Equipment like Cranes, Fork lifts, Tractor trailers and Vehicles. Our equipments are utilized for material transportation, maintenance jobs, house keeping etc. FMD is one of the critical service department, whose services are directly involved in operational activities at many production departments like Coke Ovens, Sinter Plant, Blast Furnace, Steel Melting Shop etc.

In addition to the above, vehicles and fire tenders of VSP / CISF are maintained by FMD.

Information Technology (IT)

- Formulation of Organizational IT-Policy, IT-Security Policy and IT-Vision.
- Identification of IT enabled projects for various processes and implement them.

M & CR

Functions:

- Modernization of major plant equipment (BF-1&2, SMS Converter shop, Sinter machines-1&2 etc.) through "Revamping, Up gradation and Capital repairs" as per sustainability and roll on plan of VSP.
- To execute the modernization of major plant equipment with support of works department and concerned contractor / agency.

Duties:

- To finalize technology and design in construction with D&E, works department for modernization or major plant equipment.
- To finalize contracts in consultation with project contracts department for modernization of major plant equipment.
- To execute the modernization of major plant equipment with support of works department and concerned contractor / agency.

Plant Design

Major functions of this unit are

- Development of detailed Manufacturing Drawing and Replacement Specification drawings
- Suggesting New Designs and detailing by doing elaborate engineering study and Analysis
- Standardization

Production, Planning and Monitoring Department (PPM)

- Formulation of Annual and Monthly Production Plan.
- Analyzing Plant performance against targets on a periodic basis and put up for information.
- Formulation of techno – economic norms and reviewing the same against targets periodically.
- Raw material requirement projection of Coal, Ore and fluxes.
- Preparation of MIS on Inward and outward traffic w.r.t. incoming raw materials and outward dispatches.

Quality Assurance and Technological Development (QA &TD)

The QA & TD dept. has been set up to take care of activities pertaining to Quality Control of Raw Materials, Semi finished products and finished products. The QA & TD labs are provided at major department like CO&CCP, SP, BF, SMS, Rolling Mills etc., in addition to Central Laboratory. The department monitors the process parameters for production of quality products. QA & TD carries out analysis, testing and final inspection including spark testing of finished products and assigns grades to them.

Research and Development (R & D)

R&D Department started functioning from 2005 in RINL. This department takes up various improvement projects related to the areas given under:

- Pursuing innovative and path breaking technologies to create a vibrant, viable and sustainable future for RINL
- Developing technologies to enrich raw materials of lean variety
- Product development to meet ever increasing demands on steel quality
- Meeting the challenges of energy and environment
- Create knowledge through basic research in the area of Iron and Steel
- Improve the technological capability of the human resources through interventions like exposure to information, advanced knowledge and new technologies

R&D projects are carried out internally and jointly with the help of external agencies viz., research organizations and academic institutions like IITs, NITs, CSIR laboratories, Universities etc.

Refractory Engineering Department (RED)

In Visakhapatnam Steel Plant the pyrometallurgic processes involved from Raw Materials Processing to Finished Products units, everywhere Refractory material is involved. Refractory Engineering Department plays it's role by maintaining the refractories in furnaces, kilns and vessels required for different operations of steel making process. In order to augment timely production, the main objective of RED is to make pyrometallurgic machines / equipments available in time with prolonged service period.

RED section are scattered in all the major production units (viz., SP, TPP, BF, SMS, Roiling Mills, ES&F etc.).

The central section is located at CRMP & RED Area Shop Office Building. The main functions of RED are:

- **To plan & procure the refractory required during regular maintenance and capital repair of all types of furnaces, kilns and vessels in steel making**
- **To carry out all the refractory repair & maintenance including regular and running repairs and also capital repaint**
- **To arrange for supervision, inspection and corrective action of vital equipments.**
  - **like LD converter, Steel ladle, Tundish in SMS round the clock**
  - **TLC, Open top ladle of BF**
  - **Furnaces of CRMP, ESF & Rolling mills.**

Round the clock supervision of capital repair of furnaces of rolling mills, hot blast stoves, Mixer, CRMP.

Roll shop & Repair shop (RS & RS)

Roll shop & Repair shop is in the complex of Rolling Mills catering to the needs of mills in respect of roll assemblies, guides few Maintenance Spares and roll pass design. Geographically this dept. is in three areas as Roll shop-1, Roll shop-II and Area Repair Shop. The main activities of this shop is Roll pass Design, grooving of rolls, assembly of rolls with bearings, preparation of guides and their service and manufacture / repair of mill maintenance spares.

For the first time in the country, VSP has adopted CNC technology for grooving of steel rolling mill rolls. High constant respective accuracy, higher productivity, use of standard tool for any groove turning, elimination of the use of different templates, easier to incorporate groove modification etc., are some of the advantages of CNC lathes over the conventional one.

Safety Engineering Department (SED)

Safety Engineering Department advises and assists the management in the fulfillment of obligation concerning prevention of accidents and maintaining a safe working environment. SED imparts safety training as well as refresher safety training to the regular employees as well as contractor workers. SED conducts safety inspections, safety audits, mock drills and co-ordinate with the departments for corrective actions in respect of unsafe conditions and unsafe actions. SED conducts safety campaigns and safety competitions amongst the employees to promote safety. SED ensures that high quality safety appliances are procured and issued to the employees. SED co-ordinates and liaison with AP Factories departments.

Spares Management Department (SMD)

SMD is a nodal agency between Works and Materials Management department:

The main functions of SMD are:

- **Rationalized spares are procured by SMD department viz., Bearings, Electrodes, Conveyor belts, Idlers, LV Switchgear, Cables, etc., to cater the needs of various departments.**
- **All the indents and Technical recommendations viz., Operation, Mechanical, Electrical, Instrumentation, Refractory etc., are processed thro' SMD department for procurement of spares thro' Materials Management department.**
- **SMD department controls Inventory of spares, indenting & consumption budget.**

Structural Engineering Department (St.ED)

The main objective of Structural Engineering Department is to maintain Steel structures located inside the plant area including Boundary Lighting Towers & Watch Towers and the main functions are as below:

- **Inspection of all steel structures and chimneys as per schedule of inspection and inspection of roof sheeting works as per schedule of inspection.**
- **All units of every zone are inspected at least once in a year. Critical units like CDCP's of C&CCD, Service benches of C&CCD are inspected twice in a year. Inspection of roof dust cleaning of identified units of CRMP, SP, & SMS is being done four times in a year.**
- **Repair / Replacement of damaged steel structures and sheeting in various zones inside the plant area.**
- **Arresting roof leakages in all structural buildings inside the plant area.**
- **Re-painting of ODPL pipe lines and repainting of structures as a Preventive Maintenance.**
- **Removal of dust from roof and gutters of different units.**
- **Preparation jobs for VIP visits.**
- **Special Jobs: Providing polycarbonate sheets as energy conversion in all zones.**
- **Infrastructural Jobs: Providing scooter sheds, Rest Rooms, storage racks etc.**
- **Security related jobs: Maintenance of watch towers and Flood light towers inside the plant area.**

Thermal Power Plant

The average power demand of all units of VSP when operating at full capacity will be around 230 MW. The captive Generation capacity of 286.5 MW is sufficient to meet all the plant needs in normal operation time. In case of partial outage of Captive Generation Capacity due to brake down/ shutdown/ or other reasons, the short fall of power is availed from State Grid. The Captive Generation capacity comprises of

- **TPP : 247.5 MW (3 X 60 MW + 1 X 67.5 MW)**
- **Back Pressure Turbines (C&CCD) : 2 X 7.5 MW**
- **Gas Expansion Turbines (BF) : 2 x 12 MW**

Power plant also meets the Air Blast requirement of Blast Furnaces through 3 Turbo Blowers each of 6067 NM3/Min capacity.

In addition to the above, Power Plant also supply process steam, DM Water, Chilled Water, Soft Water to various units of VSP.

Traffic Department

VSP has a well planned rail network with Yards / Stations, Locos and Wagons which are maintained by Traffic department. For the convenience of Operational activities, the rail network is divided into six yards / stations and each yard has specified functions attached to it.

VSP has the distinction of having peripheral yard concept to improve the turn – round time of wagons and to avoid duplicating of the rail facilities by Railways and VSP. All the Raw-material rakes are delivered by Railways directly at Pre-tippler lines.

The main functions of Traffic department are to carry out in-plant rail movements like handing over of empties to Railways after tippling, transportation of Hot metal from BFs to SMS / PCMs, taking over of empty rakes from Railways and distribution to various loading points and after loading of the finished products and weighment handing over of load rakes to Railways.

Technical Improvement Cell

TIC functions as nodal agency for coordinating and monitoring the various activities as envisaged in company procedure for processing and implementing of AMR schemes.

TQM - ISO Cell

- **Ensuring the implementation and maintenance of Quality Management System requirements for ISO 9001 : 2008.**
- **Liaisoning with certifying agency for conducting audits for Quality Management System, Environment Management System, Occupational Health & Safety Management System and Energy Management System.**
- **Conducting Internal Audits for Quality Management System, Environment Management System, Occupational Health & Safety Management System**

Utilities Department

Utilities dept. Consists of

1. **Air Separation Plant, designed to produce and meet the consumer requirements of gaseous oxygen, Nitrogen and Argon through pipe lines and through gas cylinders.**

2. **Compressor Houses – 1 & 2, designed to produce and meet the consumer requirements of Plant air and Industrial grade dry air.**

3. **Chilled water plants – 3 & 4, designed to produce chilled water for meeting the consumer air conditioning requirements.**

4. **LPG is being procured and distributed through pipe lines for CCD & Engineering Shops and for maintenance agencies through cylinders. DA gas is being procured and distributed for Billet cutting at MMSM & for critical maintenance agencies through cylinders.**

Works Contracts Department

- **Processing for and obtaining administrative approval on receipt of contractual proposal from indenting departments, tendering and awarding of work.**
- **Convening tender Committee meetings and preparing recommendations for awarding work.**
- **Preparing COM / Board Note for decisions at those forum.**
- **Participating in Claims and Arbitration proceedings and legal cases pertaining to contracts.**
- **Registration of agencies under various categories & classes of works regularly.**

Water Management Department

Water Management Department basically caters water needs throughout the plant for various processes of making Steel and drinking water inside the plant and Township. It consists of 30 pump houses, 8 treatment plants, 4 Overhead tanks, 22 cooling towers, 10 sewage pump houses, STP & ETP. Its prime functions are as follows:

- **Receipt of Raw water from State Government, Treatment and distribution of Makeup water and drinking water in & Township.**
- **Operation and Maintenance of Various Recirculating Pump houses, Cooling towers, Treatment plants, pipe line tunnels etc.**
- **Maintenance of underground Makeup and Fire & Drinking water network.**
- **Operation and Maintenance of Effluent Treatment Plant & Sewage treatment plants and pump houses.**
- **Recovery of township sewage water through Ultra Filtration process and reuse in plant as make water.**

Budget plan and control

- Identification of Budget requirement under various heads.
- Control of the Budget and Spares, Consumables & Raw Materials Inventory.

Systems and Procedures

- Streamlining the contract management system to ensure consistency of approach and adoption of sound principles of contract management.
- Monitoring pollution control activities of the Plant and interaction with the State and Central Pollution Control Board.

Directorate of Personnel

Personnel Department (Corporate Personnel, Central Employee Relations and Plant Personnel)

- Manpower Planning
- Employees induction
- Service matters, policy & rules
- Industrial relations
- Employees welfare
- Corporate Social Responsibility (CSR)
- Replies to parliamentary questions
- Official Language implementation

Legal Affairs (LA)

- Legal Affairs deals with all legal matters including arbitration, coordination with Standing Councils, Legal Advices etc.

Management Services (MS)

- Quality Circle
- Suggestion Scheme
- Incentive Scheme
- Reward Scheme
- Procedural Orders etc

Training & HRD

- Leadership Training
- Training on Motivation and Attitude
- Team Building
- Skill Training
- Induction and Orientation
- Plant Practice Lectures
- Basic Engineering Lectures
- Plant Specialized Training
- Management Development
- On the Job Training
- Multi Skilling / SUPW and Mentoring

Town Administration & Administration (TA)

- Matters relating to Land & State
- Civil Maintenance
- Electrical Maintenance
- Water Supply
- Roads and Drain Maintenance
- Horticulture and Afforestation
- Peripheral Development and
- Public Health in Township (Ukkunagaram)
- Interact with District Authorities for various welfare activities, land acquisition matters etc.

Medical & Health Services (M & HS)

The Medical & Health Services Division of RINL consist of Visakha Steel General Hospital (VSGH) & Peripheral Units viz. Pedagantrya Health Centre (PGHC), Health Centre – II, Occupational Health Services & Research Centre (OHSRC), Emergency Unit – I & II and Hospitals in Mines – Jaggayyapeta Limestone Mines and Madharam Mines. The special features of Visakha Steel General Hospital are:

- Full fledged Modern American Designed ICU and MBU capable of treating 6 patients at a time
- Full fledged Modern Radiology with Central A/c systems
- Well equipped Path. Lab with Blood bank facility
- Cluster type Wards & Casualty with Central Nursing Station
- Modern Operation Theatre comples with Shadowless cold lights and 100% bacterial free A/c system

Directorate of Commercial

Marketing Department

VSP has 23 no of Branch Sales Offices all over India and five Regional Offices viz. North Delhi, South - Chennai, West - Mumbai, East - Kolkata and Andhra - Visakhapatnam. Main Activities of the Marketing are as follows :

- **Collecting Market feedback and Customers requirements for the preparation of Annual Sales Plan in coordination with Works Department, for the sale of Pig Iron, Steel and Byproducts.**
- **Prepration of Marketing Policies.**
- **Finalisation of MOUs, Spot sale agreements etc, in Domestic and Export Markets.**
- **Preparation of Monthly Rolling Plans in coordination with Works Department for meeting the sale commitments.**
- **Processing of Materials like straightening of coils, cutting, bending, bundling, packaging etc. at the plant premises and in the branches to meet customers requirements.**
- **Dispatch of products to various stockyards by road or rail or to customers from the plant on direct dispatch basis.**
- **Operation of the contracts for transportation of products by road and stockyard handling/ consignment agency contracts for domestic sales, stevedoring contracts and third party inspection agency for exports.**
- **Sale of products at branches, Headquarters and on direct dispatch basis to the customers in domestic markets and on Ex-works and fob Visakhapatnam basis in exports subject to tying up of commercial and financial terms and conditions. Ensure documentation as per the procedures and as per the statutory requirements.**
- **Rendering after sales services, obtaining customer feedback and Customer Relations Management.**
- **The details/information on the following aspects of Marketing are available in www.vizagsteel.com, Marketing Module.**

  a. **Rolling Plan**
  b. **Products**
  c. **Prices**
  d. **Exports**
  e. **Network**
  f. **Customer Relation**

Further, five Consignment Sale Agencies are also functioning at Jamshedpur, Raipur, Pondicherry, Jammu and Guwahati.

Materials Management Department (MM)

- **Procurement of all materials such as Raw-materials, Spares and consumables required for the entire Plant Operations.**
- **To enter into long term agreements for supply of major & minor raw-materials with indigenous and imported suppliers.**

- To affect economy in the cost of materials by Purchasing materials of the right quality, in the right quantity at the right time from the right source at the right place.
- To arrange inspection of materials prior to handing over to Production Units to ensure quality materials only are issued to Production Units.
- Storage of materials & issue the same to the Production Units as per their requirement.
- To develop and encourage ancillary industries so that the availability of the materials at right time is ensured.

Directorate of Finance & Accounts

Finance & Accounts

- Corporate Treasury Functions - Arrangements for Long term & Short term Funds, Working Capital, Submission of periodical reports to Banks as required, Strategies for Long term / Short term investments.
- Accounting of all monetary transactions and preparation of Financial statement of the company, statutory compliance of Taxation, Company Law & Provident Fund and getting them audited as required under Companies Act / relevant Act.
- Maintaining records w.r.t. to the cost of products in line with the Cost Accounting Records & Rules Prescribed.
- Release of payments to suppliers / providers of goods and services.
- Release of salaries & allowances to the employees of the company.
- According concurrence / consultation to the proposals for investments & expenditure as per the extant policies, procedures and the Delegation of Powers.
- Organising for payment of Central Excise, Sales Tax, Income Tax & other statutory payments as per the provisions of the respective acts.
- Internal Audit (including ERM audit), Stock Verification as per the requirement of the company.
- Ensuring timely Statutory Audit and Govt. Audit for the Company's accounts and attending to proprietary audit points by Govt. Audit.
- Generation of various MIS reports relating to Finance function of the Company for enabling Management to take timely decision.

Corporate Strategic Management (CSM)

CSM is a "think tank" of the organisation. The Deparment is engaged in formulation of VMO (Vision, Mission & Objectives) of the organisation and developing the strategy to achieve VMO. It has various wings which inter-alia includes Knowledge Management Cell (KM Cell). It has also developed the Corporate Plan of RINL. It takes up strategic tasks of the organisation.

Directorate of Projects

Design & Engineering Department (D & E)

- Liaisoning with Consultants and Government Authorities in connection with designs, specifications, approval of drawings and liaisoning work for various types of clearances.
- Preparation of drawings, design and specification for AMR and Non-AMR jobs.
- Assisting indenting departments in technical discussion with parties and preparation of technical recommendation.
- Layout clearances of various facilities coming in the Plant and Township.
- Operation of Consultancy contracts.

Construction Department

- Exercising supervision of work at site both for quality and quantity checks.
- Preparation of contractors bills, processing of extra items and closure of contracts.
- Liaisoning with suppliers, MM department, Design & Engineering Department and Stores in connection with progress of work at site.
- Arranging PAT/FAT will all concerned departments like works, design, consultants and suppliers in terms of contract and handing over the unit to works department for operation.

Contracts Department

- Awarding of contract from the point on receipt of administrative approval from indenting departments.
- Conducting commercial discussions with parties.
- Arranging Tender Committee meetings and preparing recommendations for awarding work.
- Preparing COM/Board Note for decisions at those form.
- Participating in claims and arbitration proceedings.

Project Monitoring Department

- To monitor the physical and financial progress of all the works executed by Construction department.
- To monitor the progress of works executed by D&E as well as Contracts department.
- Preparation of various types of reports for information of Government and different levels of Management.
- Interaction with departments and consultant for updating the schedules and networks for Project Monitoring.

Vigilance Department

Vigilance Department of RINL, set up in accordance with the Central Vigilance Commission (CVC) Act 2003, is headed by the Chief Vigilance officer (CVO). The CVO acts as a link between the organization and the CVC.

Functions of the department can be broadly divided into three areas, viz. (i) Pro-active / Preventive vigilance; (ii) Punitive vigilance; and (iii) Collecting intelligence about the corrupt practices / acts committed or likely to be committed in the organization through Surveillance and Detection.

At micro level, the Activities of vigilance Department include inter-alia timely investigation and disposal of complaints, monitoring and advising the Disciplinary Authorities for timely disposal of disciplinary cases initiated based on vigilance cases, putting up to the authorities concerned periodic reports in the prescribed timeframe, coordinating with the CVC, Administrative Ministry and the CBI for effective vigilance administration, implementation of anticorruption initiatives through awareness drives etc.

ACHIEVEMENTS & AWARDS

The efforts of VSP have been recognized at various forums. Some of the major awards received by VSP are in the area of energy conservation, environment protection, safety, quality, Circles, Rajbhasha, MOU, sports and a number of awards at the individual level.

Some of the important awards received by VSP are

- **ISO 9001:2000 Certificate for**

    1. **Production of comprehensive range of Iron and Steel products, Coke & coal chemicals, other saleable products like liquid nitrogen, liquid oxygen, liquid argon, ammonium sulphate and generation of power along with supporting & service departments.**
    2. **Marketing of Iron and Steel products in export and domestic markets through a network of regional offices and branch offices.**
    3. **Sale of power to state grid and sale of Coke & coal chemicals, other saleable products like liquid nitrogen, liquid oxygen, liquid argon, ammonium sulphate in domestic markets.**

- **Indira Priyadarshini Vriksha Mitra Award - 1992-93 Nehru Memorial National Award for Pollution Control 1992-93 & 1993-94**
- **EEPC Export Excellence Award - 1994-95**
- **CII (Southern Region) Energy Conservation Award - 1995-96**
- **Golden Peacock (1st Prize) "National Quality Award - 96" 11M in the National Quality Competition - 1996**
- **Steel Minister's Trophy for "Best Safety Performance" – 1996**
- **Selected for "World Quality Commitment Award - I997" of J* Ban , Spain**

- **Gold Star Award for Excellent Performance in Productivity Udyog Excellence Gold Medal Award for Excellence in Steel Industry. Excellence Award for outstanding performance in Productivity Management, Quality & Innovation.**
- **Ispat Suraksha Puraskar (1st Prize) for longest Accident Free Period 1991-94**
- **Best Labour Management Award from the Govt. of AP**
- **SCOPE Award for Best Turnaround - 2001**
- **Environment Excellence Award from Greentech Foundation for Energy conservation – 2002**
- **Best Enterprise Award from SCOPE, WIPS - 2001-02**
- **Best Enterprise Award from SCOPE for surpassing MOU targets-2003-04**
- **ISTD Award for "Best HR Practices" - 2002**
- **Prime Ministers Trophy for "Best Integrated Steel Plant - 2002-03**
- **"World Quality Commitment International Star Award" in the Gold category conferred by Business Initiative Directions, Paris**
- **"Organizational Excellence Award" for 2003-04 conferred by INSSAN**
- **National Energy Conservation Award, 2004 and Special Prize from Ministry of Power, Govt. of India.**

The above awards are besides a number of awards at the local, regional & national level competitions in the area of Quality Circles, Suggestion Schemes etc.

For further information, please visit our website http://www.vizagsteel.com/