



Excellence In Water Management

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DGM (WMD)/VSP



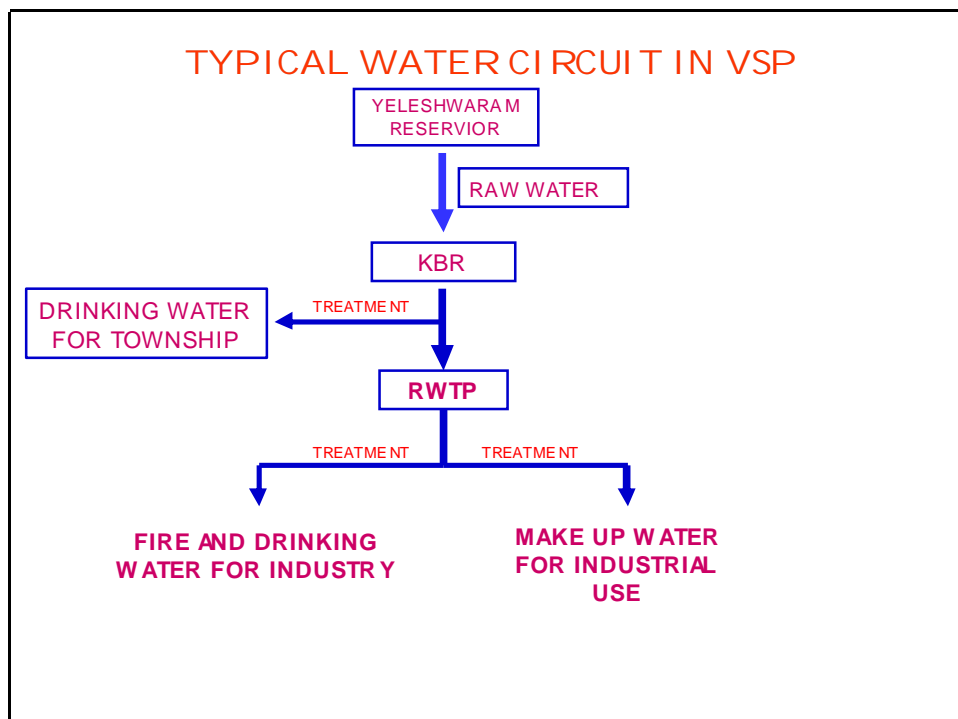
VIZAG STEEL - PROFILE

- First shore-based plant of 3.0 MT liquid steel capacity - operating at 120 % .
- Certified for all 3 International standards of ISO 9001,14001 & 18001.
- Set up with latest CDM technologies like 100% LD gas recovery, dry quenching of coke,100% Cast House Slag Granulation and Torpedo Ladle for transporting liquid hot metal.
- The Company is primarily manufacturing Long Products like Bars, Wire rods, Rebars, Rounds, Channels, Angles etc., which are mostly used in Construction Industry.
- Company's products enjoy premium in the local Market. Major Production caters to Domestic Market.
- Gross turnover during 07-08 is 10,433 Cr & Net profit after tax is 1,943 Cr against previous year fig of 9,151 Cr &1,363 Cr respectively.
- Growth:

Phase	Capacity (Mt)	Invest (Cr)	Cum Invest (Cr)
I (09-10)	6.8	9192	9192
II	8.5	2220	11412
III	13.0	8400	19812
IV (BY 2020)	16.0	6000	25812

Water in steel industry

- Equipment cooling
- Absorption / removal of heat
- Steam generation
- Drinking and sanitary purpose
- Fire fighting
- Plant process
- Gas scrubbing / cleaning



BASIS FOR REPORTING OF QUANTITIES

- Ø INTAKE WATER INTO RESERVOIR IS MEASURED FROM THE PARSHALL FLUME READINGS RECORDED JOINTLY BY STATE GOVT. & VSP
- Ø MAKEUP WATER CONSUMPTION FOR THE PLANT IS RECORDED FROM THE ONLINE FLOW METER INSTALLED IN MAKEUP WATER PUMP HOUSE
- Ø CONSUMPTION IN INDIVIDUAL RECIRCULATION PUMP HOUSES IS MEASURED BY ONLINE FLOW METER AND MEASURING TIME TO TIME WITH ULTRASONIC FLOW METER

Employees/Community Involvement in Water Conservation

- è Mass Awareness through Individual Responsibility
 - Ø Scroll in Cable TV & Pamphlet Distribution
 - Ø Appeal through Recorded Voice in telephones (dial tone) wide publicity of Tel nos of contact persons for water leakages etc.
- è Extensive re-cycling. Eliminating all wastages, Exploring additional sources, Identification of waste water sources for immediate implementation.
- è Discussions in departmental union and samalochana meetings
- è Special suggestions drive through suggestion melas
- è Formation of separate QCs
- è Propaganda at schools
- è Message by CMD & Directors in various forums
- è Formation of Special inspection groups in various departments
- è Meetings with canteen contractors
- è Monitoring by Higher Management through Presentation by Environment Mgmt Dept on all water wastage points in ED (Works) co-ordination meetings.

Total Water Management

- Water Balancing & Water Audit
- Treatment & Freezing the end user requirement for various processes
- Supply and distribution of water through out the plant at required quality & quantity parameters.
- Water Recirculation & conservation
- Complete chemical Treatment
- Converting Waste Water into Makeup water grade
- Recovery of metallurgical waste and recycling of water
- Technological Discipline
- Cost economics at every step
- Periodic review of all step

WATER MAPPING FOR PLANT WORKS

RECIRCULATION IN Cu.M /Hr				
ZONE	CLEAR	CONTAMINATED	TOTAL	MAKE-UP WATER
COCCP	10052	980	11032	265
SP	900	1926	2826	70
BF	12865	9520	22385	270
SMS	5415	6160	11575	260
RM	5140	10680	15820	40
TPP	62700	--	62700	1380
AS	432	--	432	25
CWP-1	5250	--	5250	10
CWP-3	4000	--	4000	10
ASP	9920	--	9920	80
CH-2	1000	--	1000	10
SOFT WATER	2200	--	2200	130
DM WATER	5399	--	5399	400
DRINKING		--		550
CONSTRUCTION		--		250
TOTAL			1,55,494	3750

VARIOUS WATER CONSERVATION MEASURES (IN LAST 4 YEARS)

SI No	Title of Water Saving project implemented	Year of Implementation	Annual Water Savings		Invest. Made	Payback Period (Months)
			m ³	Rs. Lakhs	Rs. Lakhs	
1	Recycling of Secondary Spray Cooling water in SMS 250 Cu.mtr/Hr	Jun'04	2190000	131.4	296	27.03
2	Utilizing Cooling tower – 22 blow down in Mills	June 05	175200	10.5	2.5	2.8
3	Utilizing Cooling tower – 21 blow down in SMS	Aug. 05	262800	15.7	2.5	1.9
4	Introduction of Ultra Filter plant	Jan. 06	1752000	105	500	45
5	Installation of 2 nos of pumps in diversion channel to recover rain water	July 06	438000	165.7	470	34

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6	Provision of side stream Filters at TPP PH-04	Jan 07	438000	165.7	470	34
7	Replacement of damaged pipe lines in various zones	Mar 07	876000	131.40	200	18
8	Settling tanks for recovery of metallurgical waste	Mar 07	876000	131.40	585	54
9	Diversion of exhaust cooling water in BHS 1 to PH -6	Dec 07	350400	52.56	2	1
10	Renovation of all cooling towers in coke oven area.	Feb 08	438000	65.70	100	18

RAIN HARVESTING PROJECTS

- Vizag Steel has implemented Rain Harvesting measures in a big way as mentioned below :
- Masonry Check Dams - 9 nos.
- Percolation Pits - 94 nos.
- Earthen Check Dams - 1 no.
- Recharge Wells - 18 nos.

STRENGTHENING COOLING SYSTEM IN COKE OVEN

Problem Identification:

- **High Temperature of recirculation water**
- **Huge Drift loss**
- **In effective Cooling**

STRENGTHENING COOLING SYSTEM IN COKE OVEN

Modification:

- **Total renovation of cooling tower includes**
- **Replacement of existing 2 layer fill system to 3 layer**
- **Replacement of Asbestos Drift eliminators by PVC waves and bushes**

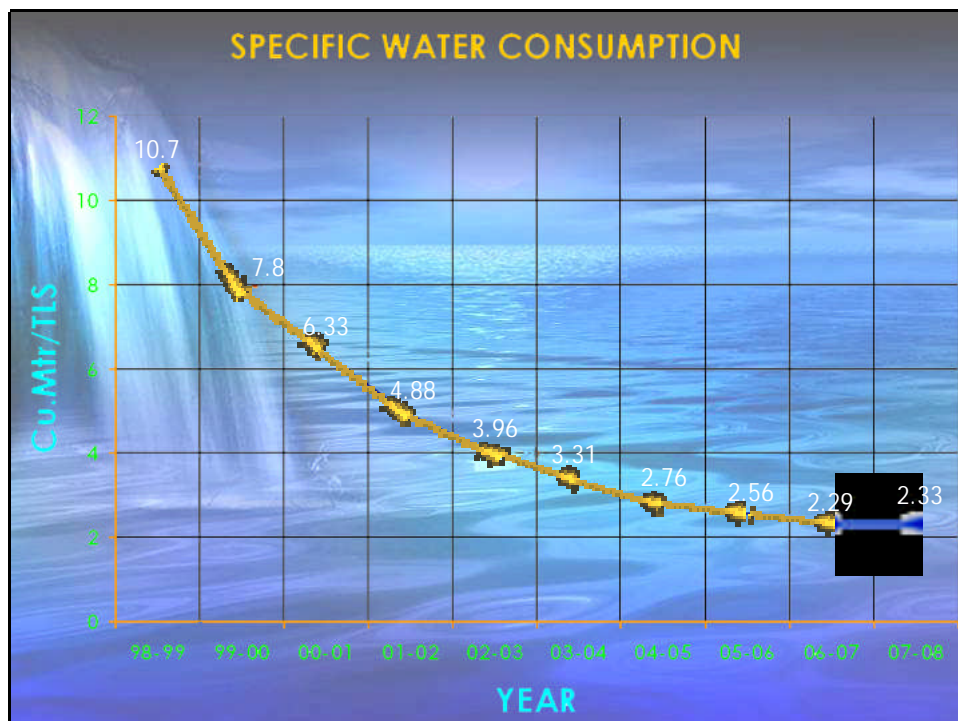
STRENGTHENING COOLING SYSTEM IN COKE OVEN

Result :

- **Water saving incurred out of modification of drift eliminators : 50 cum. /hr.**
- **Increased deltaT by 2 – 3 degrees improved the performance of various heat exchangers of coke ovens.**
- **Elimination of water spillage to the surroundings.**
- **Cost benefit analysis:**
- **Investment made against procurement of fills and drift eliminators and execution : Rs. 100 Lakhs**
- **Hence direct Tangible savings : Rs.65.70 lakh per annum**

WATER CONSUMPTION w.r.t. PRODUCTION

YEAR	PRODUCTION (MT Liq steel)	CONSUMPTION (MGD)
DESIGNED	3.0	70
00-01	2.91	40
01-02	3.08	35
02-03	3.34	31.4
03-04	3.51	27.0
04-05	3.56	26.0
05-06	3.60	25.0
06-07	3.61	24.5
07-08	3.31	26.0 (Due to Construction Activity - 1.5 MGD Addtl cons.)



SPEC. WATER CONSUMPTION IN VSP AS COMPARED TO STEEL MAJORS

Vizag Steel's specific water consumption (cubic meter / ton of liquid steel)	As compared to				
	Bluescope steel - Australia	Thyssen Krupp - Germany	POSCO	China Steel, Taiwan	Corus, UK
2.33	2.5	3.2	3.6	4.5	4.7

Source : collected By Sri Ramesh Prasad AGM / Vizag Steel at international forum "IISI" held at Amsterdam, CORUS STEEL.

SCHEMES TOWARDS ZERO DISCHARGE

Source	Qty of water to be recycled in cum/hr	Type of treatment	Estimated Cost in Rs in crores	Remarks
Balacheruvu	300-350	Physical treatment like settling/clarification, Oil separation etc.	20.1	Treated water will be used in the expansion area for misc. uses like fire fighting, dust suppression, gardening, toilet flushing etc.
Appikonda	500 (including expansion units)	Reverse Osmosis	43.15	Treated water will be used as make up in TPP System and in soft water network
Sewage from the existing plants	80	Reverse Osmosis	21.5	Treated water will be used in COCCP recirculation system
Sewage from the expansion units	80	Reverse Osmosis	18.6	Treated water will be used in soft water network
Marine Discharge Pipe Line	300 - 450	Collecting Tank	11.5	To pump out water from MBC, COCCP leakages, rejects from RO plant (STP-I)

VSP – OTHER AWARDS

- Ø CII – EXIM Bank award 2007 for Significant Achievement .
- Ø Golden Peacock award for Environmental management by world Environmental Foundation – 2006
- Ø National energy conservation award – 2006 (7 times in row) for Energy efficiency (First prize for 3 consecutive years and also a special award for achieving this).
- Ø National award for excellence in Water Management by CII-2006 (three consecutive years).
- Ø Commendation prize for strong commitment to Excellence - CII Exim Bank Award for Business Excellence 2006 for Overall Excellence in all activities of the company.
- Ø Strong Commitment - CII HR Excellence Award 2006 for Excellence in HR processes and practices.
- Ø Organizational Excellence Award for Efficient suggestion scheme operation given by INSSAN – 2006
- Ø Best Industrial Productivity Award (Jawaharlal Nehru Silver Rolling Trophy) from FAPCCI for Outstanding productivity in steel production.- 2006