

**Annex-V**  
**(Referred to in paragraph 15)**  
**Discharge of drains/nallahs out falling in the river Yamuna and BOD**  
**input during March 2002 to June 2003**

Sl. No.	Name of the drains/nallahs	Quantum of discharge (Avg.) in MGD	BOD (mg/litre)	
			Min.	Max.
1.	Najafgarh	441.599	40	100
2.	Magazine Road	0.801	400	450
3.	Sweeper Colony	1.292	90	450
4.	Khyber pass	2.135	60	280
5.	Matcalf	3.194	50	130
6.	Qudasia Bagh/Mori Gate	12.523	30	530
7.	Tonga stand	2.265	50	350
8.	Moat Nallah	0.316	40	130
9.	Civil Mill	11.243	40	230
10.	Delhi Gate	24.559	30	150
11.	Dr.Sen Nursing Home	21.266	60	90
12.	Nalla No.12A	2.211	50	470
13.	Nalla No.14	12.843	50	280
14.	Barapulla	24.869	40	150
15.	Maharani Bagh	2.984	100	160
16.	Kalkaji	7.417	50	230
17.	Tuglaquabad	0.762	20	130
18.	Shahdra	138.580	50	180
	<b>Total</b>	710.859		

**Annex-VI**  
**(Referred to in paragraph 15)**  
**Detail of Heavy Metal Pollution in drains/nallahs**

<b>Sl. No.</b>	<b>Metal</b>	<b>Standard as per EPA</b>	<b>Actually Measured from Drains</b>
(i)	Copper	9	28 to 770
(ii)	Lead	2.5	40 to 454
(iii)	Nickel	52	20 to 153
(iv)	Zinc	120	138 to 12600
(v)	Mercury	0.77	17.4 to 462

*Besides, presence of free ammonia was ranged between 1.64 to 6.73 mg/l against the prescribed standard of 0.02 mg/l and below*

## GLOSSARY

**Bio-chemical Oxygen Demand (BOD):** is used to assess the water quality by determining how much oxygen is being used by aerobic microorganisms in the water to decompose organic matter. Elevated levels of BOD is a risk to diversity of life, affects the useful aquatic life and promotes growth of pollutant tolerant harmful organisms.

**Chemical Oxygen Demand (COD):**It indicates the measure of the oxygen required for chemical oxidation. In situations where the presence of toxic materials is likely to interfere with the BOD, this test is very useful.

**CPM/PERT:** 'Critical Path Method' is a tool to analyze project and determine duration, based on identification of "critical path" through an activity network. Knowledge of the critical path can permit management of the project to change duration. In 'Program Evaluation and Review Technique', activities are represented by arrowed lines between the nodes or circles and multiple time estimates are used for each activity allowing variation in activity times.

**Dissolved Oxygen (DO):** Refers to the amount of oxygen dissolved in water. This is the most important parameter, determines the ecological health of water. Fish kills, noxious taste, odours and low biological diversity are indication of low DO.

**Internal sewer:** Small dia sewer pipe line which collects sewage from individual residential colonies and conveys the sewage to peripheral/trunk sewers.

**Million Gallon per Day (MGD):** Million Gallons per Day (standard unit of measurement of water/sewage i.e. 10,00,000 x 4.53 litre per day).

**Million Litre per Day (MLD):** Million Litres per Day (standard unit of measurement of water/sewage i.e. 10,00,000 litre per day).

**Peripheral sewer:** Medium dia sewer pipe line which collects sewer water from different internal sewers and conveys to trunk sewers.

**pH:** It is measure of hydrogen ion concentration and is an indicator of relative acidity or alkalinity of water. Water values of 9.5 and above indicate high alkalinity while water value of 3 and below indicates acidity.

**Rising Main:** It is a big dia pipe which is connected between SPS and STP for conveyance of waste water from the level of SPS to that STP.

**Sewage Pumping System (SPS):** It is a installation of electrical and mechanical equipment to pump sewage water to STP through rising main.

**Sewage Treatment Plant (STP):** It is a installation of electrical and mechanical equipments meant to treat the domestic sewage.

**Sewer:** Means any conduit pipe or channel, open or closed, carrying sewage or trade effluents.

**Total coliform and Faecal coliform:** The presence of faecal coli form bacteria indicates contamination with faecal material of humans or other animals. Contaminated water contains pathogens, which are responsible for the spread of many contagious diseases.

**Total Suspended Solids (TSS):** are the third most significant conventional pollutant because it aggravates a dissolved oxygen deficiency by sedimentation and forming an oxygen-demanding sludge deposit. These cause turbidity in the receiving water and may alter the habitat of aquatic biota; and, perhaps most importantly, they can harbor pathogens (disease-causing microorganisms).

**Trunk sewer:** Big dia sewer pipe lines which collects sewage from peripheral/internal sewer lines and convey it to SPS/STP.

## **Bibliography**

### **Acts**

1. Environment (Protection) Act, 1986.
2. The Water (Prevention and Control of Pollution) Act, 1974.

### **Study Reports**

3. Can the clock be Turned Back, Delhi Environment Status Report, Department of Environment, Govt. of NCT Delhi, August 1995.
4. Draft Final Report on Okhla Drainage Zone-Upgradation of Sewerage System for Delhi Module-II, by TCE, for Delhi Jal Board, December 2000.
5. Measurement of Discharge, Water Quality Analysis and Mathematical Modeling to Determine the Influence of Pollutant Load of 18 Waste Water Drains and Yamuna River in Delhi Area, Draft final Report (Volume – I), January 2004, RITES LTD.
6. Sewage Management in Trans Yamuna Region of Delhi: Status and Needs, Central Pollution Control Board, July, 1999.
7. State of Environment Report for Delhi – 2001, A TERI Report prepared for Department of Environment, Govt. of National Capital Territory, Delhi.
8. Water Quality Status of Yamuna River, Central Pollution Control Board, April 2000.

### **Papers**

9. The Pre-feasibility Study on Rehabilitation of Damaged Sewer Systems of Delhi, Ministry of Environment and Forests and Delhi Jal Board, January 2000.
10. White Paper on Pollution in Delhi, Government of India, Ministry of Environment & Forest.
11. Status of CETPs build to clean River Yamuna at the direction of the Hon'ble Supreme Court, in the matter of W.P. No.4677 of 1985; M.C. Mehta v/s UOI & others, Environment Pollution (Prevention & Control) Authority for the National Capital Territory and National Capital Region, March 2004.
12. Status Report on Sewage Treatment Plants in Delhi, Central Pollution Control Board, Delhi, January 2004.
13. Design of Common Effluent Treatment Plants for Industrial Estates in NCT of Delhi, Phase II Report, Volume I, National Environmental Engineering Research Institute, Nagpur, June 1996.