DECREE OF THE
STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER: KEP-03/MENKLH/II/1991
RE: EFFLUENT QUALITY STANDARDS FOR EXISTING OPERATIONS

THE STATE MINISTER FOR POPULATION AND ENVIRONMENT:

Considering:

a. that as a natural resource, water may be exploited to satisfy the living needs of people, therefore its quality shall be maintained in order to be always useful for human life and other living organisms;

b. for the above purpose, liquid waste disposal shall be controlled;

c. in that respect it is deemed necessary to stipulate a Decree of the State Minister for Population and Environment regarding effluent quality standards for existing activities.

In view of:

1. Law Number 11 of 1974 regarding Water Management (State Gazette of 1974 Number 38, Supplement to State Gazette Number 3037);

2. Law Number 4 of 1982 on the principles of Environmental Management (State Gazette of 1982 Number 12, Supplement to State Gazette Number 3215);

3. Law Number 5 of 1984 regarding Industrial Affairs;

4. Government Regulation Number 29 of 1986 regarding Analysis of Environmental Impacts (State Gazette of 1986 Number 42, Supplement to State Gazette Number 3338;

5. Government Regulation Number 20 of 1990 regarding Water Pollution Control (State Gazette of 1990 Number 24, Supplement to State Gazette Number 3409);

6. Decree of the President of the Republic of Indonesia Number 25 of 1983 regarding Status, Tasks, Functions and Work Procedures of the State Minister and organizational structure of the State Minister's staff;

7. Decree of the President of the Republic of Indonesia Number 64/M of 1988 re formation of Development Cabinet V.

HAS DECIDED

To Stipulate: DECREE OF STATE MINISTER FOR POPULATION AND ENVIRONMENT RE EFFLUENT QUALITY STANDARDS FOR EXISTING OPERATIONS.

Article 1

(1) Industrial effluent standards for:
   a. Caustic Soda shall be as contained in appendix I;
   b. Metal plating shall be as contained in appendix II;
   c. Leather tanning shall be as contained in appendix III;
   d. Oil refining shall be as contained in appendix IV;
   e. Oil palm shall be as contained in appendix V;
   f. Pulp and paper shall be as contained in appendix VI;
   g. Rubber shall be as contained in appendix VII;
   h. Sugar shall be as contained in appendix VIII;
   i. Tapioca shall be as contained in appendix IX;
   j. Textile shall be as contained in appendix X;
   k. Urea fertilizer shall be as contained in appendix XI;
   l. Ethanol shall be as contained in appendix XII;

m. Monosodium glutamate shall be as contained in appendix XIII;
n. Plywood shall be as contained in appendix XIV.

(2) In respect to any parameter not yet contained in the effluent quality standards referred to in paragraph (1), the Governor can stipulate the parameters and the maximum concentrations after obtaining an approval from the State Minister for Population and Environment.

Article 2

(1) The maximum concentration of each parameter and the maximum effluent flow rate shall be stipulated for the disposal of liquid waste or in permitting the disposal of any liquid waste, unless satisfying the requirements as referred to in paragraph 2 hereof.

(2) The maximum concentration of each parameter or maximum liquid waste flow rate can only be exceeded as long as the maximum pollution load is not exceeded.

(3) Determination of maximum effluent flow rate, as referred to in paragraph (1), shall be based on actual monthly production of the relevant industry.

(4) The explanation for calculating maximum effluent flow rate and maximum pollution load are shown in Appendix XVI.

Article 3

(1) Sampling and effluent quality analyses shall be made periodically by a laboratory so appointed by the Government, at least once a month at the expense of the party in charge of the effluent discharge.

(2) Effluent quality monitoring results as referred to in paragraph (1) shall be conveyed to the agency responsible for environmental monitoring.

Article 4

If deemed necessary, the agency responsible for environmental monitoring shall monitor the quality and flow rate of effluent of each type of industry.

Article 5

(1) Each person in charge of an activity discharging effluent shall install an effluent flow meter and record the reading daily.

(2) The reading as referred to in paragraph (1) shall be sent to the agency responsible for monitoring environmental quality, at least once every six months.

Article 6

The Government can assist cottage industries to satisfy the provisions of the effluent quality standards.

Article 7

(1) A Decree of the State Minister for Population and Environment shall stipulate further effluent quality standards for industries not yet contained in Article 1 paragraph (1) herein.

(2) For industries referred to in paragraph (1) herein, the following guideline shall apply:
   1. The Governor shall stipulate alternative effluent quality standards guided by the effluent standards as referred to in Appendix XV.

   2. Effluent quality standards, as referred to in item 1 of this paragraph, shall be stipulated by taking into account the allowable maximum load which may be received by a water source.

   3. For each activity referred to in this article, disposing effluent to a water source shall be subject to an effluent quality standard stipulated as follows:
      a. the effluent discharged to water shall not exceed the given effluent quality standard,
      b. the effluent shall not result in any decrease in water quality in the receiving water source.

Article 8

Each person in charge of an operation shall install an effluent flow meter as referred to in Article 5 not later than three months after the stipulation of this decree.

Article 9

These effluent quality standards shall apply to ongoing activities, namely those already holding a permanent licence at the date of stipulation hereof. Provisions for effluent quality standards for new activities shall be stipulated later.

Article 10

Provisions for effluent quality standards for new operations shall apply to existing operations which expand capacity by more than 30% of the original capacity.

Article 11

For operations to which effluent quality standards have been applied before this decree become effective, the effluent quality standards designated thereof, shall apply.

Article 12

The effluent quality standards shall generally apply and in implementation, the Governor can stipulate a stricter standard based on consideration of pollution control and environmental damage.

Article 13

To prevent any shock loading to a waste treatment system or water source, each factory shall establish a system to maintain a maximum pollution level not exceeding 100% of the average monthly pollution load level.

Article 14

By the promulgation of Government Regulation Number 20 of 1990 regarding Water Pollution Control (State Gazette of 1990 Number 24, Supplement to State Gazette Number 3409), provisions in Chapter II as well as Appendices I and II to Decree of the State Minister for Population and Environment - Number Kep-02/MENKLH/I/1988 regarding Guidelines to determine Environmental Quality Standards dated January 19, 1988 shall be declared null and void.

Article 15

This Decree shall become effective as of the date of stipulation.

Stipulated in Jakarta
On February 1, 1991

State Minister for Population
and Environment

signed

EMIL SALIM

APPENDIX I :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR CAUSTIC SODA INDUSTRY

Maximum Effluent Flow - 10 m^3 per ton of Caustic Soda Product							
PARAMETER	MERCURY CELL PROCESS				MEMBRANE/DIAPHRAGM PROCESS			
	Maximum Concentration		Maximum Pollution Load		Maximum Concentration		Maximum Pollution Load	
COD	150	mg/l	1.5	kg/ton	150	mg/l	1.5	kg/ton
TSS	50	mg/l	0.5	kg/ton	50	mg/l	0.5	kg/ton
Hg	0.005	mg/l	0.05	gr/ton	–		–	
Cu	–		–		3.0	mg/l	0.03	kg/ton
Pb	–		–		0.3	mg/l	0.003	kg/ton
Zn	–		–		2.0	mg/l	0.02	kg/ton
pH	6–9		–		6–9		–	

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table shall be stated in kg or gram parameter per ton of caustic soda product.

APPENDIX II :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR METAL PLATING INDUSTRY

Maximum Effluent - 100 liters per m^2 surface area of finished product								
Parameter	Copper Plating (Cu)				Nickle Plating (Ni)			
	Maximum Concentration		Maximum Pollution Load		Maximum Concentration		Maximum Pollution Load	
TSS	60	mg/l	6.0	g/m^2	60	mg/l	6.0	g/m^2
Cd	0.05	mg/l	0.005	g/m^2	0.05	mg/l	0.005	g/m^2
CN	0.5	mg/l	0.05	g/m^2	0.5	mg/l	0.05	g/m^2
Total Metal	8.0	mg/l	0.8	g/m^2	8.0	mg/l	0.8	g/m^2
Cu	3.0	mg/l	0.3	g/m^2	--		--	
Ni	--		--		5.0	mg/l	0.5	g/m^2
pH	6–9		--		6–9		--	

Parameter	Chrome Plating (Cr)				Zinc Plating & Galvanization (Zn)			
	Maximum Concentration		Maximum Pollution Load		Maximum Concentration		Maximum Pollution Load	
TSS	60	mg/l	6.0	g/m^2	60	mg/l	6.0	g/m^2
Cd	0.05	mg/l	0.005	g/m^2	0.05	mg/l	0.005	g/m^2
CN	0.5	mg/l	0.5	g/m^2	0.5	mg/l	0.05	g/m^2
Total Metal	8.0	mg/l	0.8	g/m^2	8.0	mg/l	0.8	g/m^2
Cr	2.0	mg/l	0.2	g/m^2	--		--	
Cr (+6)	0.3	mg/l	0.03	g/m^2	--		--	
Zn	--		--		2.0	mg/l	0.2	g/m^2
pH	6–9		--		6–9		--	

Notes:
1. Except pH, maximum concentration of each parameter in the above tables are as milligram parameter/liter of effluent.
2. Maximum pollution load of each parameter in the above tables are as - gram parameter per m^2 surface area of metal plating product.

APPENDIX III :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR LEATHER TANNERY INDUSTRY

Maximum Effluent Flow of 70 m^3 per ton of raw hide		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	150 mg/l	10.5 kg/ton
COD	300 mg/l	21.0 kg/ton
TSS	150 mg/l	10.5 kg/ton
Sulfide (as H_2S)	1.0 mg/l	0.07 kg/ton
Total Chromium	2.0 mg/l	0.14 kg/ton
Oil and Grease	5.0 mg/l	0.35 kg/ton
NH_3 - N	10.0 mg/l	0.70 kg/ton
pH	6–9	--

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table shall be stated in kg parameter per ton of raw hide.

APPENDIX IV :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR OIL REFINING INDUSTRY

Maximum Effluent Flow of 1,200 m^3 per 1,000 m^3 of crude oil		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	100 mg/l	120 g/m^3
COD	200 mg/l	240 g/m^3
Oil and Grease	25 mg/l	30 g/m^3
Sulfide (a H_2S)	1.0 mg/l	1.2 g/m^3
Total Phenol	1.0 mg/l	1.2 g/m^3
Cr (+ 6)	0.5 mg/l	0.6 g/m^3
NH_3 – N	10.0 mg/l	12.0 g/m^3
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the table is stated in gram parameter per m^3 of crude oil.

APPENDIX V :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR PALM OIL INDUSTRY

Maximum Effluent Flow of 6 m^3 per ton of palm oil product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	250 mg/l	1.5 kg/ton
COD	500 mg/l	3.0 kg/ton
Total Suspended Solid substances	300 mg/l	1.8 kg/ton
Oil and Grease	30 mg/l	0.18 kg/ton
NH_3 - N	20 mg/l	0.12 kg/ton
pH	6–9	--

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of palm oil.

APPENDIX VI :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR PULP AND PAPER INDUSTRY

Parameter	Pulp Mill		Paper Factory		Pulp and Paper Factory	
	Max.Conc.	Max.Pollution Load	Max.Conc.	Max.Pollution Load	Max.Conc.	Max.Pollution Load
BOD_5	150 mg/l	15 kg/ton	125 mg/l	10 kg/ton	150 mg/l	25.5 kg/ton
COD	350 mg/l	35 kg/ton	250 mg/l	20 kg/ton	350 mg/l	59.5 kg/ton
TSS	200 mg/l	20 kg/ton	125 mg/l	10 kg/ton	150 mg/l	25.5 kg/ton
pH	6–9	--	6–9	--	6–9	--
Maximum Effluent Flow:	100 m^3 per ton of air dried pulp		80 m^3 per ton of paper product		170 m^3 per ton of air dried pulp or paper product	

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of air dried pulp or paper product.
3. Especially for thin paper, maximum effluent flow is 200 m^3/ton of paper product.

APPENDIX VII :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR RUBBER INDUSTRY

Maximum Effluent Flow of 40 m^3 per ton of rubber product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	150 mg/l	6.0 kg/ton
COD	300 mg/l	12.0 kg/ton
TSS	150 mg/l	6.0 kg/ton
NH_3 - N	10 mg/l	0.4 kg/ton
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of rubber product.

APPENDIX VIII :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR SUGAR INDUSTRY

Maximum Effluent Flow of 40 m^3 per ton of sugar product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	100 mg/l	4.0 kg/ton
COD	250 mg/l	10.0 kg/ton
TSS	175 mg/l	7.0 kg/ton
Sulfide (as H_2S)	1.0 mg/l	0.04 kg/ton
pH	6–9	--

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of sugar product.

APPENDIX IX :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR TAPIOCA INDUSTRY

Maximum Effluent Flow of 60 m^3 per ton of product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	200 mg/l	12.0 kg/ton of product
COD	400 mg/l	24.0 kg/ton of product
Total Suspended Solid substance	150 mg/l	9.0 kg/ton of product
CN (Cyanide)	0.5 mg/l	0.03 kg/ton
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of tapioca product.

APPENDIX X :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR TEXTILE INDUSTRY

Maximum Effluent Flow of 150 m^3 per ton of textile		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	85 mg/l	12.75 kg/ton
COD	250 mg/l	37.5 kg/ton
TSS	60 mg/l	9.0 kg/ton
Total Phenol	1.0 mg/l	0.15 kg/ton
Total Cr	2.0 mg/l	0.30 kg/ton
Oil and Grease	5.0 mg/l	0.75 kg/ton
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of textile product.

APPENDIX XI :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR UREA FERTILIZER INDUSTRY

Maximum Effluent Flow of 15 m^3 per ton of urea fertilizer		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	100 mg/l	1.5 kg/ton
COD	250 mg/l	3.75 kg/ton
TSS	100 mg/l	1.5 kg/ton
Oil and Grease	25 mg/l	0.4 kg/ton
NH_3 - N	50 mg/l	0.75 kg/ton
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of urea fertilizer.

APPENDIX XII :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR ETHANOL INDUSTRY

Maximum Effluent Flow of 70 m^3 per ton of ethanol product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	150 mg/l	10.5 kg/ton
TSS	400 mg/l	28.0 kg/ton
pH	6–9	--

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of ethanol product.

APPENDIX XIII :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR MONO SODIUM GLUTAMAT (MSG) INDUSTRY

Maximum Effluent Flow of 120 m^3 per ton of MSG product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	100 mg/l	12 kg/ton MSG product
COD	250 mg/l	30 kg/ton MSG product
Total Suspended Solid substance	100 mg/l	12 kg/ton MSG product
pH	6–9	--

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg parameter per ton of MSG product.

APPENDIX XIV :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

EFFLUENT QUALITY STANDARD FOR PLYWOOD INDUSTRY

Maximum Effluent Flow of 2.8 m^3 effluent per m^3 of plywood product		
Parameter	Maximum Concentration	Maximum Pollution Load
BOD_5	100 mg/l	0.28 kg/m^3
COD	250 mg/l	0.70 kg/m^3
Total Suspended Solid substances	100 mg/l	0.28 kg/m^3
Total Phenol	1.0 mg/l	2.8 g/m^3
pH	6–9	–

Notes:
1. Except pH, maximum concentration of each parameter in the aforementioned table shall be stated in milligram parameter per liter of waste water.
2. Maximum pollution load of each parameter in the aforementioned table is stated in kg or gram parameter per m^3 of plywood product.
3. 1,000 m^2 of product = 3.6 m^3 of product of 3.6 mm thick.
4. 2.8 m^3 of waste water per m^3 of product = 10 m^3 of waste water per 3.6 m^3 of product of 3.6 mm thick.

APPENDIX XV :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER: KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

WASTE WATER QUALITY STANDARD *)

Parameter	Unit	Effluent Quality Standard Category			
		I	II	III	IV
Physical					
1. Temperature	°C	35	38	40	45
2. TDS	mg/l	1500	2000	4000	5000
3. TSS	mg/l	100	200	400	500
Chemical					
1. pH		6–9	6–9	6–9	5–9
2. Dissolved Iron	mg/l	1	5	10	20
3. Dissolved Manganese	mg/l	0.5	2	5	10
4. Barium	mg/l	1	2	3	5
5. Copper	mg/l	1	2	3	5
6. Zinc	mg/l	2	5	10	15
7. Hexavalent Chromium (Cr+6)	mg/l	0.05	0.1	0.5	1
8. Total Chrom	mg/l	0.1	0.5	1	2
9. Cadmium	mg/l	0.01	0.05	0.1	0.5
10. Mercury	mg/l	0.001	0.002	0.005	0.01
11. Lead	mg/l	0.03	0.1	1	2
12. Tin	mg/l	1	2	3	5
13. Arsenic	mg/l	0.05	0.1	0.5	1
14. Selenium	mg/l	0.01	0.05	0.5	1
15. Nickel	mg/l	0.1	0.2	0.5	1
16. Cobalt	mg/l	0.2	0.4	0.6	1
17. Cyanide	mg/l	0.02	0.05	0.5	1
18. Sulfide (H_2S)	mg/l	0.01	0.05	0.1	1
19. Fluoride	mg/l	1.5	2	3	5
20. Free Chlorine	mg/l	0.5	1	2	5
21. Free amonia (NH_3-N)	mg/l	0.02	1	5	20
22. Nitrate (NO_3-N)	mg/l	10	20	30	50
23. Nitrite	mg/l	0.06	1	3	5

Notes:

*) It is not allowable to dilute the effluent with water from a water source in order to meet the maximum waste water quality standard requirement.
The waste concentration is the allowable maximum, except pH which also includes the minimum concentration.

WASTE WATER QUALITY STANDARD (Continued)

Parameter	Unit	Effluent Quality Standard Category			
		I	II	III	IV
24. BOD_5	mg/l	20	50	150	300
25. COD	mg/l	40	100	300	600
26. MBAS	mg/l	0.5	5	10	15
27. Phenol	mg/l	0.01	0.5	1	2
28. Organic Oil	mg/l	1	5	10	20
29. Mineral Oil	mg/l	1	10	50	100
30. Radioactivity **)					
31. Pesticide including PCB ***)					

Notes:

**) Radioactivity content according to the prevailing regulations.

***) Pesticide waste originating from formulating or producing industries, and consumers using them for agricultural and other purposes, shall not pollute water.

APPENDIX XVI :
TO DECREE OF THE STATE MINISTER FOR POPULATION AND ENVIRONMENT
NUMBER : KEP-03/MENKLH/II/1991
DATED : FEBRUARY 1, 1991

ELUCIDATION ON MAXIMUM LIQUID WASTE INTAKE AND MAXIMUM POLLUTION LOAD CALCULATION

1. **Maximum Effluent Flow**
   Determination of Effluent Quality Standard in terms of maximum effluent flow rate, as contained in Appendices I through XIV for respective industries, is based on actual monthly production rates. For that purpose the following calculation shall apply:

$$DM = Dm \times Pb$$

Notes:
DM – allowable maximum effluent flow for the relevant industry, stated in m^3/month.

Dm – maximum effluent flow as contained in Appendices I through XIV applicable to the relevant industry, stated in m^3 of liquid waste per unit of product.

Pb – actual production per month, stated in production unit applicable to the relevant industry, as indicated in Appendices I through XIV for the relevant industry.

Actual effluen flow is calculated as follows:

$$DA = Dp \times H$$

Notes:
DA – actual effluent flow, stated in m^3/month.
Dp – measured effluent flow, stated in m^3/day.

So, the flow evaluation is
– DA shall not exceed DM.

2. Pollution Load

Application of Effluent Quality Standard to liquid waste disposal in terms of Maximum Pollution Load, as contained in appendices I through XIV for respective industries is based on total pollutant contained in the effluent. For that purpose the calculation is as follows:

a. $BPM = (CM)j \times Dm \times f$

Notes:

BPM : Maximum pollution Load per unit product, stated in kg parameter per unit product.

(CM)j : Maximum concentration of pollutant j, stated in mg/l.

Dm : Maximum effluent flow as contained in Appendices I through XIV applicable to the relevant industry, stated in m^3 of liquid waste per product unit.

f : Conversion factor $= \frac{1000\ l}{m^3} \times \frac{1\ kg}{1.000.000\ mg}$

$= 1/1000$

Actual pollution load is calculated as follows:

$$BPA = (CA)j \times DA/Pb \times f$$

Notes:

BPA : actual pollution load, stated in kg parameter per unit product.

(CA)j : actual concentration of pollutant j, stated in mg/l.

DA : actual effluent flow stated in m^3/month.

Pb : actual production per month, stated in product unit pursuant to that contained in Appendices I through XIV for the relevant Industry.

f : conversion factor = 1/1000

b. $BPMi = BPM \times Pb/H$

Notes:

BPMi : Allowable maximum pollution load per day for the relevant Industry stated in kg parameter per day.

Pb : Actual production per month, stated in unit product, pursuant to that contained in Appendices I through XIV for the relevant Industry.

H : Total working days in the relevant month.

Actual Maximum Pollution Load is calculated as follows:

$$BPAi = (CA)j \times Dp \times x\ f$$

Notes:

BPAi : Actual pollution Load per day, stated in kg parameter per day.

(CA)j : Actual concentration of pollutant j, stated in mg/l.

Dp : Measured effluent flow, stated in m^3/day.

f : Conversion factor = 1/1000.

This pollution load evaluation is:

BPA shall not exceed BPM.

BPAi shall not exceed BPMi.