

APPENDIX J₂

Consultation with DWS

Please find attached hereto information on the General and Special Effluent Standards, as published in the Government Gazette dated 18 May 1984

**ANNEXURE: GENERAL AND SPECIAL EFFLUENT
STANDARDS**

GOVERNMENT GAZETTE 18 MAY 1984 NO 9225

REGULATION No. 991 18 May 1984

REQUIREMENTS FOR THE PURIFICATION OF WASTE WATER OR EFFLUENT

By virtue of the powers vested in me by section 21 (l) (a) of the Water Act, 1956 (Act 54 of 1956) I, Sarel

Antoine Strydom Hayward, in my capacity as Minister of Environment Affairs and Fisheries, hereby prescribe the following requirements for the purification of waste water or effluent produced by or resulting from the use of water for industrial purposes.

1. SPECIAL STANDARD:

Quality standards for waste water or effluent arising in the catchment area draining water to any river specified in Schedule I or a tributary thereof at any place between the source thereof and the point mentioned in the Schedule, in so far as such catchment area is situated within the territory of the Republic of South Africa.

1.1 Colour, odour or taste:

The waste water or effluent shall not contain any substance in a concentration capable of producing any colour, odour or taste.

1.2 pH:

Shall be between 5,5 and 7,5.

1.3 Dissolved oxygen:

Shall be at least 75 per cent saturation.

1.4 Typical (faecal) coli:

The waste water or effluent shall contain no typical (faecal) coli per 100 millilitres.

1.5 Temperature:

Shall be a maximum of 25°C.

1.6 Chemical oxygen demand:

Not to exceed 30 milligrams per litre after applying the chloride correction.

1.7 Oxygen absorbed:

The oxygen absorbed from acid N/80 potassium permanganate in 4 hours at 27°C shall not exceed 5 milligrams per litre.

1.8 Conductivity:

1.8.1 Not to be increased by more than 15 per cent above that of the intake water.

1.8.2 The conductivity of any water, waste water or effluent seeping or draining from any area referred to in section 21 (6) of the aforementioned Water Act shall not exceed 250 milli-Siemens per metre (determined at 25°C).

1.9 Suspended solids:

Not to exceed 10 milligrams per litre.

1.10 Sodium content:

Not to be increased by more than 50 milligrams per litre above that of the intake water.

1.11 Soap, oil or grease:

None.

1.12 Other constituents:

1.12.1 Constituents:

.....	Maximum concentration in milligrams per litre
Residual chlorine (as CP)	Nil
Free and saline ammonia (as N)	1,0
Nitrates (as N)	1,5
Arsenic (as As)	0,1
Boron (as B)	0,5
Total chromium (as Cr)	0,05
Copper (as Cu)	0,02
Phenolic compounds (as phenol)	0,01
Lead (as Pb)	0,1
Soluble ortho phosphate (as P)	1,0
Iron (as Fe)	0,3
Manganese (as Mn)	0,1
Cyanides (as Cn)	0,5
Sulphides (as S)	0,05
Fluoride (as F)	1,0
Zinc (as Zn)	0,3
Cadmium (as Cd)	0,05
Mercury (as Hg)	0,02
Selenium (as Se)	0,05

1.12.2 The waste water or effluent shall contain no other constituents in concentrations which are poisonous or injurious to trout or other fish or other forms of aquatic life.

2. SPECIAL STANDARD FOR PHOSPHATE:

Waste water or effluent arising in the catchment area within which water is drained to any river specified in Schedule II or a tributary thereof at any place between the source thereof and the point mentioned in the

schedule, in so far as such catchment area is situated within the territory of the Republic of South Africa shall not contain soluble orthophosphate (as P) in a higher concentration than 1,0 milligram per litre.

3. GENERAL STANDARD:

Quality standards for waste water or effluent arising in any area other than an area in which the SPECIAL STANDARD is applicable, as described in paragraph 1.

3.1 Colour, odour or taste:

The waste water or effluent shall not contain any substance in a concentration capable of producing any colour, odour or taste.

3.2 pH:

Shall be between 5,5 and 9,5.

3.3 Dissolved oxygen:

Shall be at least 75 per cent saturation.

3.4 Typical (faecal) coli:

The waste water or effluent shall not contain any typical (faecal) coli per 100 millilitres.

3.5 Temperature:

Shall be a maximum of 35°C.

3.6 Chemical oxygen demand:

Not to exceed 75 milligrams per litre after applying the chloride correction.

3.7 Oxygen absorbed:

The oxygen absorbed from acid N/80 potassium permanganate in 4 hours at 27°C shall not exceed 10 milligrams per litre.

3.8 Conductivity:

3.8.1 Not to be increased by more than 75 milli-Siemens per metre (determined at 25°C) above that of the intake water.

3.8.2 The conductivity of any water, waste water or effluent seeping or draining from any area referred to in section 21(6) of the aforementioned Water Act shall not exceed 250 milli-Siemens per metre (determined at 25°C).

3.9 Suspended solids:

Not to exceed 25 milligrams per litre.

3.10 Sodium content:

Not to be increased by more than 90 milligrams per litre above that of the intake water.

3.11 Soap, oil or grease:

Not to exceed 2,5 milligrams per litre.

3.12 Other constituents:

3.12.1 Constituents:

.....	Maximum concentration in milligrams per litre
Residual chlorine (as CP)	0,1
Free and saline ammonia (as N)	10,0
Arsenic (as As)	0,5
Boron (as B)	1,0
Hexavalent chromium (as Cr)	0,05
Total chromium (as Cr)	0,5
Copper (as Cu)	1,0
Phenolic compounds (as phenol)	0,1
Lead (as Pb).....	0,1
Cyanides (as Cn)	0,5
Sulphides (as S)	1,0
Fluoride (as F).....	1,0
Zinc (as Zn)	5,0
Manganese (as Mn)	0,4
Cadmium (as Cd)	0,05
Mercury (as Hg)	0,02
Selenium (as Se)	0,05

3.12.2 The sum of the concentrations of the following metals shall not exceed 1 mg/l:
Cadmium (as Cd), chromium (as Cr), copper (as Cu), mercury (as Hg) and lead (as Pb).

3.12.3 The waste water or effluent shall contain no other constituents in concentrations which are poisonous or injurious to humans, animals, fish other than trout, or other forms of aquatic life, or which are deleterious to agricultural use.

4. METHODS OF TESTING:

All tests shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards, referred to in the Standards Act, No. 30 of 1982, as listed in Schedule III.

NOTE(a) Further information and elucidation may be obtained from the Director-General: Environment Affairs, Private Bag X313, Pretoria, 0001.

(b) Government Notices R. 553 of 5 April 1962, R. 969 of 22 June 1962 and R. 1567 of 1 August 1980 are hereby withdrawn.

SCHEDULE I

CATCHMENT AREAS WITHIN THE TERRITORY OF THE REPUBLIC OF SOUTH AFRICA IN WHICH WASTE WATER OR EFFLUENT MUST BE PURIFIED TO COMPLY WITH THE SPECIAL STANDARD

- Division or district**
1. Hout Bay River to tidal water Cape
 2. Eerste River to tidal water Stellenbosch
 3. Lourens River to tidal water Stellenbosch
 4. Steenbras River to tidal water Caledon
 5. Berg and Dwars Rivers to their confluence Stellenbosch
 6. Little Berg River to Vogelvlei weir Tulbagh
 7. Elands and Sonderend Rivers to their confluence Caledon
 8. Witte River to confluence with Breede River Paarl, Wellington, Worcester, Tulbagh
 9. Dwars River to Ceres divisional boundary Ceres
 10. Olifants River to the Ceres divisional boundary ... Ceres
 11. Helsloot and Smalblaar (or Molenaars) Rivers to their confluence with Breede River Paarl and Worcester
 12. Hex River to its confluence with Breede River Ceres and Worcester
 13. Van Stadens River to tidal water Port Elizabeth
 14. Buffalo River from the Ciskei border to where it enters the King William's Town municipal area King William's Town
 15. Swart Kei and Klipplaat Rivers to their confluence Tarka, Queenstown and Cathcart
 16. Bongola River to Bongola Dam Queenstown
 17. Kubusie River to the Stutterheim municipal boundary Stutterheim
 18. Langkloof and Kraai Rivers to their confluence .. Barkly East
 19. Little Tsomo River to the Transkei border St Marks
 20. Xuka River to the Elliot district boundary Elliot
 21. Tsitsa and Inxu Rivers to their confluence Maclear, Mount Fletcher, Tsolo and Qumbu
 22. Mvenyane and Umzimvubu Rivers to the Transkei border Matatiele, Mount Currie and Mount Ayliff
 23. Umzimhlara River to the Transkei border Mount Currie
 24. Ingwangwana River to its confluence with Umzimkulu River Umzimkulu, Mount Currie, Polela and Underberg
 25. Umzimkulu and Polela Rivers to their confluence Underberg and Polela
 26. Elands River to the Pietermaritzburg-Bulwer main road Impendle
 27. Umtamvuma and Weza Rivers to their confluence Bizana and Alfred
 28. Umkomaas and Isinga Rivers to their confluence Impendle, Polela and Underberg
 29. Lurane River to its confluence with the Umkomaas River Polela
 30. Sitnundjwana Spruit to its confluence with the Umkomaas River Impendle
 31. Inudwini River to the Polela district boundary Polela
 32. Inkonza River to the bridge on the Donnybrook-Creighton road Polela and Ixopo
 33. Umlaas to the bridge on District Road 334 on the farm Maybole Richmond
- Division or district**
35. Mooi River to the road bridge at Rosetta..... Estcourt and Lions River

36. Little Mooi and Hlatikula Rivers to their confluence Estcourt
37. Bushmans River to Wagendrift Dam Estcourt
38. Little Tugela River and Sterkspruit to their confluence Estcourt
39. M'Lambonjwa and Mhlawazeni Rivers to their confluence Bergville
40. Mnweni and Sandhlwana Rivers to their confluence Bergville
41. Tugela River to its confluence with the Kombe Spruit Bergville
42. Inyamvubu (or Mnyamvubu) River to Craigie Burn Dam Umvoti
43. Umvoti River to the bridge on the Seven Oaks-Rietvlei road Umvoti
44. Yarrow River to its confluence with the Karkloof River Lions River
45. Incandu and Ncibidwane rivers to their confluence Newcastle
46. Ingogo River to its confluence with the Harte River Newcastle
47. Pivaan River to its confluence with Soetmelkspruit Utrecht
48. Slang River and the Wakkerstroom to their confluence Utrecht and Wakkerstroom
49. Elands and Swartkops Rivers to their confluence Belfast and Carolina
50. All tributaries of the Komati River between Nooitgedacht Dam and its confluence with and including Zevenfontein Spruit Belfast and Carolina
51. Seekoeispruit to its confluence with Buffelspruit .Carolina
52. Crocodile River and Buffelskloofspruit to their confluence Belfast and Lydenburg
53. All tributaries of the Steelpoort River down to its confluence with and including the Dwars River Lydenburg, Belfast, Middleburg, Groblersdal
54. Potspruit to its confluence with the Waterval River Lydenburg
55. Dorps River (or Spekboom River) to its confluence with the Marambanspmiit Lydenburg
56. Ohrigstad River to the Ohrigstad Dam Lydenburg
57. Klein-Spekboom River to its confluence with the Spekboom River Lydenburg
58. Blyde River to the Pilgrim's Rest municipal boundary Pilgrim's Rest
59. Sabie River to the Sabie municipal boundary Pilgrim's Rest
60. Nels River to the Pilgrim's Rest district boundary . Pilgrim's Rest
61. Houtbosloop River to the Lydenburg district boundary Lydenburg, and Pilgrim's Rest
62. Blinkwaterspruit to Longmere Dam Nelspruit
63. All streams flowing into Ebenezer Dam on the Great Letaba River Pietersburg and Letaba
64. Dokolewa River to its confluence with the Politzi River Pietersburg and Letaba
65. Ramadiepa River to the Merensky Dam on the farm Westfalia 223, Letaba Letaba
66. Pienaars River and tributaries up to Bophuthatswana boundary Pretoria, Cullinan and Warmbad

SCHEDULE II

CATCHMENT AREAS WITHIN THE TERRITORY OF THE REPUBLIC OF SOUTH AFRICA IN WHICH WASTE WATER OR EFFLUENT MUST BE PURIFIED TO CONTAIN NO SOLUBLE

ORTHO PHOSPHATE (AS P) IN A HIGHER CONCENTRATION THAN 1,0 MILLIGRAM PER LITRE

- (i) Vaal River upstream and inclusive of the Bloemhof Dam;
- (ii) Pienaars and Crocodile Rivers upstream of their confluence;
- (iii) Great Olifants River upstream and inclusive of the Loskop Dam;
- (iv) Umgeni River upstream of the influence of tidal water;
- (v) Umlaas River upstream of its point of discharge into the sea;
- (vi) Buffels River upstream and inclusive of the Bridle Drift Dam;
- (vii) Berg River upstream of the influence of tidal water.

SCHEDULE III

EFFLUENT ANALYSIS: SABS STANDARD TEST METHODS

.....	Reference number of SABS
Ammonia - free and saline	217
Arsenic	200
Bacteriological- faecal coliform, etc. ..	221
Boron	1053
Cadmium	201
Calcium hardness	216
Chemical oxygen demand	1 048
Chloride	202
Chlorine- residual	1052
Chromium- total	1054
Chromium VI	206
Colour	198
Conductivity	1057
Copper	203
Cyanide	20
Fluoride	205
Hardness- total	215
Iron.....	207
Lead	208
Magnesium	1071
Manganese	209
Mercury	1059
Nitrate plus nitrite	210
Nitrite	219
Oil and grease	1 051
Oxygen absorbed	220
Oxygen demand(chemical)	1 048
Oxygen dissolved	1 047
pH	11
Phenolic compound	211
Phosphate- ortho	1055
Selenium	1058
Sodium	1050

Solids- suspended	1049
Sulphate	212
Sulphide	1056
Turbidity	197
Zinc	214