



Letter to 207-2
A/C Pipe
Producers Association

Internal Correspondence

Public Affairs Committee
International Affairs Committee

FRC

J. F. Welch
J. F. Welch, Director, Public Affairs

DATE
May 19, 1981

SUBJECT

State of Connecticut - Report on Health Hazards of Vinyl Lined A/C Pipe

ACTION REQUIRED: Review for information

Connecticut Public Act 80-359, which established a task force to study the public health hazards of asbestos, also required the Commissioner of Health Services to report on the health hazards associated with vinyl lined A/C pipe. Enclosed is the Commissioner's report, presumably prepared by Richard S. Woodhull (Chief, Bureau of Water Supplies) since it carries the initials "RSW".

The report is quite short and thus, barely scratches the surface of the scientific evidence regarding the potential health hazards of tetrachloroethylene (TCE) in drinking water and the role of vinyl lined A/C pipe in releasing tetrachloroethylene. Moreover, it makes no mention of the efforts made by the industry to assist utilities in controlling TCE in drinking water and removing the product from the marketplace.

The report mentions the "extensive testing" done by the Department of Health Services to determine the presence of other solvent residues in water systems using other pipes. Staff will request special counsel to file a Freedom of Information Act request for the results of this testing.

If you have any questions, please do not hesitate to call.

JFW/ajb

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JOHN LA COMMISSIONER

STATE OF CONNECTICUT DEPARTMENT OF HEALTH SERVICES

Report On Public Act 80-359, Establishing A Task Force To Study Public Health Hazards of Asbestos

INTRODUCTION

Public Act 80-359*, An Act Establishing a Task Force to Study Public Health Hazards of Asbestos, banned the installation of vinyl-lined pipe containing tetrachloroethylene or other potentially toxic substances through July 1, 1981. The Act calls for the Commissioner of Health Services to report on the health hazards associated with the use of vinyl-lined pipe as well as to give recommendations concerning its future installation in Connecticut. The following report is presented to the General Assembly in fulfillment of the requirements of this Act.

HISTORICAL PERSPECTIVE

Vinyl lined asbestos cement (A-C) pipe was manufactured to eliminate the corrosion of A-C pipe by aggressive water and to reduce possible taste and odor complaints. The liner was applied with a solvent containing tetrachloroethylene (TCE). Vinyl lined pipe has been installed in New England for approximately 12 years and in Connecticut since about 1978.

Tetrachloroethylene is an organic chemical which is slightly soluble in water. When used as a solvent in the application of the vinyl liner, most of the TCE evaporates with only small amounts remaining.

The finding of tetrachloroethylene (TCE) in drinking water came to the attention of the State Department of Health Services through information obtained at a meeting of the New England Water Works Association held in Randolph, Massachusetts on March 24, 1980. Further information was made available at a state Environmental Protection Agency (EPA) regional conference held in Boston, Massachusetts on April 2 and 3, 1980.

The first laboratory results of TCE in drinking water in Connecticut were obtained through a private laboratory monitoring the public water supply in Simsbury. When it was determined that TCE could be found in Connecticut's drinking water, a review of all utilities using vinyl-lined asbestos pipe was conducted by the State Department of Health Services and an active sampling and monitoring program was put in place.

There are 146 water utilities in Connecticut that use some amount of asbestos-cement (A-C) pipe to convey drinking water to consumers. A total of 900 miles of A-C pipe is in use. About 20 miles of the vinyl-lined A-C pipe has been installed in Connecticut.

*See Attachment

In April of 1980 all 146 utilities using A-C pipe in Connecticut were contacted to learn where any of the vinyl-lined pipe had been used. Water samples were collected and tested for TCE wherever vinyl-lined pipe was found to have been used. Significant quantities of TCE were found present in 5 water systems.

The control of TCE levels in water in the five affected Connecticut water utilities was accomplished by installing bleeder taps at the end of deadend lines or where water flow was not continuous. This control was achieved by May 1, 1980. Water supplied by the five utilities is tested on a monthly basis to monitor TCE levels and to ensure that the EPA limits for TCE in drinking water are not exceeded.

There is no evidence that vinyl-linings have ever been used in Connecticut on any drinking water pipe other than asbestos-cement. This is verified by the fact that extensive testing by the Department of Health Services and by water utilities has not disclosed the presence of solvent leachings in systems using other pipe materials.

TCE HEALTH EFFECTS/STANDARDS

Tetrachloroethylene (TCE) is rapidly absorbed through the skin and lungs. The chemical properties of TCE indicate that it should be rapidly absorbed through the gastrointestinal tract, a conclusion which the federal Environmental Protection Agency (EPA) used in setting its suggested No Adverse Response Level (SNARL).

Exposure to elevated levels of TCE has been shown to cause damage to the liver and kidneys and to affect the central nervous system. In most inhalation studies, doses in excess of 100 parts per million (ppm) were used before any toxic effects could be detected.

Several studies conducted to assess the carcinogenic effect of TCE have given conflicting results. In 1977 the National Cancer Institute (NCI) completed one of the most comprehensive studies. The results indicated a carcinogenic response in mice to massive doses of TCE, but not in rats. However, the results of the response in rats should be interpreted with caution since the rat studies suffered from problems in their experimental design.

There is evidence that TCE is likely to be a human carcinogen based on the NCI mouse study and studies involving occupational exposures to TCE by dry cleaning workers which suggest evidence of increased cancer. These latter studies were conducted by the National Cancer Institute (NCI) on dry cleaning workers in St. Louis and by the Oklahoma University on dry cleaning workers in Oklahoma.

Based on the data on toxicity and potential carcinogenicity, the EPA set Suggested No Adverse Response Levels (SNARLS) for TCE at low levels to avoid these problems. The Connecticut Department of Health Services monitors the five water supplies which have installed vinyl-lined asbestos cement pipe to ensure that the water has levels of TCE below the SNARL.

CONCLUSIONS AND RECOMMENDATIONS

There are reasonable alternative water distribution pipes available which can be used in place of vinyl-lined asbestos cement pipe. The use of alternative water pipe will not expose any additional Connecticut water consumers to TCE.

Those pipe systems where vinyl-lined asbestos pipe has been installed are currently being monitored to assure that levels of TCE released into the water are kept at very low levels.

We recommend that a ban be placed on the future installation of TCE vinyl-lined pipe. We also recommend the continued periodic monitoring of those systems in which this pipe has been installed until such time as TCE is no longer leaching into the water.

RSW/ch
4/23/81

PUBLIC ACT 80-359 - Attachment 1

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. There is established an asbestos hazards task force consisting of thirteen members, including (1) the commissioners of environmental protection, health services, and economic development or their designees, (2) a representative of the asbestos manufacturing industry, a representative of the construction industry and one public member appointed by the president pro tempore of the senate, (3) a physician experienced in the field of pulmonary disease, a physician experienced in the field of cancer and one public member appointed by the speaker of the house of representatives. The remaining members shall be members of the general assembly appointed as follows: The president pro tempore of the senate shall appoint one member, the minority leader of the senate shall appoint one member, the speaker of the house of representatives shall appoint one member and the minority leader of the house of representatives shall appoint one member. The task force members shall not receive compensation and shall not be reimbursed for expenses incurred in the performance of their duties as task force members.

Sec. 2. The task force shall (1) evaluate and inventory the existing and potential public health hazards related to asbestos and (2) develop recommendations for the adoption and implementation of measures to reduce and eliminate such hazards. On or before January, 1981, the task force shall report its findings and recommendations to the governor and the general assembly. Upon completion of such report, said task force's existence shall terminate.

Sec. 3. (NEW) From the effective date of this act to July 1, 1981, no person, firm, corporation or municipality may install any vinyl-lined pipe containing tetrachloroethylene or other solvents deemed toxic by the commissioner of health services, in any water supply system in the state. On or before February 15, 1981, the commissioner of health services shall report to the general assembly his recommendations concerning the future installation of such vinyl-lined pipe and any public health hazards associated with its use.

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form, identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

D. Reporting of Intake Data: You are not required to report data under the "Intake" columns unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, under the "Intake" columns report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and discuss the requirements for a net limitation with your permitting authority.

Part V-A

Part V-A must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. However, at your request, the Director may waive the requirement to test for one or more of these pollutants, upon a determination that available information is adequate to support issuance of the permit with less stringent reporting requirements for these pollutants. You also may request a waiver for one or more of these pollutants for your category or subcategory from the Director, Office of Water Enforcement and Permits. See discussion in General Instructions to item V for definitions of the columns in Part A. The "Long Term Average Values" column (column 2-c) and "Maximum 30-day Values" column (column 2-b) are not compulsory but should be filled out if data are available.

Part V-B

Part V-B must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. You must report quantitative data if the pollutant(s) in question is limited in an effluent limitations guideline either directly, or indirectly but expressly through limitation on an indicator (e.g., use of TSS as an indicator to control the discharge of iron and aluminum). For other discharged pollutants you must provide quantitative data or explain their presence in your discharge. Upon request the Director, Office of Water Enforcement and Permits, may waive the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in the category or subcategory discharge substantially identical levels of the pollutant or discharge the pollutant uniformly at sufficiently low levels. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available.

Part V-C

Table 2c-2 lists the 34 "primary" industry categories in the left-hand column. For each outfall, if any of your processes which contribute wastewater falls into one of those categories, you must mark "X" in "Testing Required" column (column 2-a) and test for (1) all of the toxic metals, cyanide, and total phenols, and (2) the organic toxic pollutants contained in Table 2c-2 as applicable to your category, unless you qualify as a small business (see below). The organic toxic pollutants are listed by GC/MS fractions on pages V-4 to V-9 in Part V-C. For example, the Organic Chemicals Industry has an asterisk in all four fractions; therefore, applicants in this category must test for all organic toxic pollutants in Part V-C. The inclusion of total phenols in Part V-C is not intended to classify total phenols as a toxic pollutant. If you are applying for a permit for a privately owned treatment works, determine your testing requirements on the basis of the industry categories of your contributors. When you determine which industry category you are in to find your testing requirements,

you are not determining your category for any other purpose and you are not giving up your right to challenge your inclusion in that category (for example, for deciding whether an effluent guideline is applicable) before your permit is issued. For all other cases (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), you must mark "X" in either the "Believed Present" column (column 2-b) or the "Believed Absent" column (column 2-c) for each pollutant. For every pollutant you know or have reason to believe is present in your discharge in concentrations of 10 ppb or greater, you must report quantitative data. For acrolein, acrylonitrile, 2, 4 dinitrophenol, and 2-methyl-4, 6 dinitrophenol, where you expect these four pollutants to be discharged in concentrations of 100 ppb or greater, you must report quantitative data. For every pollutant expected to be discharged in concentrations less than the thresholds specified above, you must either submit quantitative data or briefly describe the reasons the pollutant is expected to be discharged. At your request the Director, Office of Water Enforcement and Permits, may waive the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in question discharge substantially identical levels of the pollutant, or discharge the pollutant uniformly at sufficiently low levels. If you qualify as a small business (see below) you are exempt from testing for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. For pollutants in intake water, see discussion in General Instructions to this item. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available. You are required to mark "Testing Required" for dioxin if you use or manufacture one of the following compounds:

- (a) 2,4,5-trichlorophenoxy acetic acid, (2,4,5-T);
- (b) 2-(2,4,5-trichlorophenoxy) propanoic acid, (Silvex, 2,4,5-TP);
- (c) 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate, (Erbon);
- (d) 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate, (Ronnell);
- (e) 2,4,5-trichlorophenol, (TCP); or
- (f) hexachlorophene, (HCP).

If you mark "Testing Required" or "Believed Present," you must perform a screening analysis for dioxins, using gas chromatography with an electron capture detector. A TCDD standard for quantitation is not required. Describe the results of this analysis in the space provided; for example, "no measurable baseline deflection at the retention time of TCDD" or "a measurable peak within the tolerances of the retention time of TCDD." The permitting authority may require you to perform a quantitative analysis if you report a positive result. The Effluent Guidelines Division of EPA has collected and analyzed samples from some plants for the pollutants listed in Part C in the course of its BAT guidelines development program. If your effluents are sampled and analyzed as part of this program in the last three years, you may use these data to answer Part C provided that the permitting authority approves, and provided that no process change or change in raw materials or operating practices has occurred since the samples were taken that would make the analyses unrepresentative of your current discharge.

Small Business Exemption: If you qualify as a "small business," you are exempt from the reporting requirements for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. There are two ways in which you can qualify as a "small business." If your facility is a coal mine, and if your probable total annual production is less than 100,000 tons per year, you may submit past production data or estimated future production (such as a schedule of estimated total production under 30 CFR § 795.14(c)) instead of conducting analyses for the organic toxic pollutants. If your facil-

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

ity is not a coal mine, and if your gross total annual sales for the most recent three years average less than \$100,000 per year (in second quarter 1980 dollars), you may submit sales data for those years instead of conducting analyses for the organic toxic pollutants. The production or sales data must be for the facility which is the source of the discharge. The data should not be limited to production or sales for the process or processes which contribute to the discharge, unless those are the only processes at your facility. For sales data, in situations involving intracorporate transfer of goods and services, the transfer price per unit should approximate market prices for those goods and services as closely as possible. Sales figures for years after 1980 should be indexed to the second quarter of 1980 by using the gross national product price deflator (second quarter of 1980 = 100). This index is available in *National Income and Product Accounts of the United States* (Department of Commerce, Bureau of Economic Analysis).

Part V-D

List any pollutants in Table 2c-3 that you believe to be present and explain why you believe them to be present. No analysis is required, but if you have analytical data, you must report it.

Note: Under 40 CFR 117.12(a)(2), certain discharges of hazardous substances (listed in Table 2c-4 of these instructions) may be exempted from the requirements of section 311 of CWA, which establishes reporting requirements, civil penalties and liability for cleanup costs for spills of oil and hazardous substances. A discharge of a particular substance may be exempted if the origin, source, and amount of the discharged substances are identified in the NPDES permit application or in the permit, if the permit contains a requirement for treatment of the discharge, and if the treatment is in place. To apply for an exclusion of the discharge of any hazardous substance from the requirements of section 311, attach additional sheets of paper to your form, setting forth the following information:

1. The substance and the amount of each substance which may be discharged.
2. The origin and source of the discharge of the substance.
3. The treatment which is to be provided for the discharge by:
 - a. An onsite treatment system separate from any treatment system treating your normal discharge;
 - b. A treatment system designed to treat your normal discharge and which is additionally capable of treating the amount of the substance identified under paragraph 1 above; or
 - c. Any combination of the above.

See 40 CFR §117.12(a)(2)(C), published on August 29, 1979, in 44 FR 50766, or contact your Regional Office (Table 1 on Form 1, Instructions), for further information on exclusions from section 311.

Item VI

This requirement applies to current use or manufacture of a toxic pollutant as an intermediate or final product or byproduct. The Director may waive or modify the requirement if you demonstrate that it would be unduly burdensome to identify each toxic pollutant and the Director has adequate information to issue your permit. You may not claim this information as confidential; however, you do not have to distinguish between use or production of the pollutants or list the amounts. Under NPDES regulations your permit will contain limits to control all pollutants you report in answer to this question, as well as all pollutants reported in Item V at levels exceeding the technology-based limits appropriate to your facility.

Item VII

Self explanatory. The permitting authority may ask you to provide additional details after your application is received.

Item IX

The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(12) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application, ... shall upon conviction, be punished by a fine of no more than \$10,000 or by imprisonment for more than six months, or both."

40 CFR Part 122.22 requires the certification to be signed as follows:

(A) For a corporation: by a responsible corporate official. For purposes of this section, a responsible corporate official means (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegation of authority to responsible corporate officers identified in §122.22(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate position under §122.22(a)(1)(ii) rather than to specific individuals.

(B) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(C) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes (i) the chief executive officer of the Agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the Agency (e.g., Regional Administrators of EPA). Applications for Group II stormwater discharges may be signed by a duly authorized representative (as defined in 40 CFR 122.22(b)) of the individuals identified above.

HAZARDOUS SUBSTANCES

1. Acetaldehyde	70. Calcium cyanide	136. Ferric ammonium citrate
2. Acetic acid	71. Calcium dodecylbenzenesulfonate	137. Ferric ammonium oxalate
3. Acetic anhydride	72. Calcium hypochlorite	138. Ferric chloride
4. Acetone cyanohydrin	73. Captan	139. Ferric fluoride
5. Acetyl bromide	74. Carbaryl	140. Ferric nitrate
6. Acetyl chloride	75. Carbofuran	141. Ferric sulfate
7. Acrolein	76. Carbon disulfide	142. Ferrous ammonium sulfate
8. Acrylonitrile	77. Carbon tetrachloride	143. Ferrous chloride
9. Adipic acid	78. Chlordane	144. Ferrous sulfate
10. Aldrin	79. Chlorine	145. Formaldehyde
11. Allyl alcohol	80. Chlorobenzene	146. Formic acid
12. Allyl chloride	81. Chloroform	147. Fumaric acid
13. Aluminum sulfate	82. Chloropyrifos	148. Furfural
14. Ammonia	83. Chlorosulfonic acid	149. Guthion
15. Ammonium acetate	84. Chromic acetate	150. Heptachlor
16. Ammonium benzoate	85. Chromic acid	151. Hexachlorocyclopentadiene
17. Ammonium bicarbonate	86. Chromic sulfate	152. Hydrochloric acid
18. Ammonium bichromate	87. Chromous chloride	153. Hydrofluoric acid
19. Ammonium bifluoride	88. Cobaltous bromide	154. Hydrogen cyanide
20. Ammonium bisulfite	89. Cobaltous formate	155. Hydrogen sulfite
21. Ammonium carbonate	90. Cobaltous sulfamate	156. Isoprene
22. Ammonium carbonate	91. Coumaphos	157. Isopropenolamine
23. Ammonium chloride	92. Cresol	dodecylbenzenesulfonate
24. Ammonium chromate	93. Crotonaldehyde	158. Kalthene
25. Ammonium citrate	94. Cupric acetate	159. Kepone
26. Ammonium fluoroborate	95. Cupric acetoarsenite	160. Lead acetate
27. Ammonium fluoride	96. Cupric chloride	161. Lead arsenate
28. Ammonium hydroxide	97. Cupric nitrate	162. Lead chloride
29. Ammonium oxalate	98. Cupric oxalate	163. Lead fluoroborate
30. Ammonium silicofluoride	99. Cupric sulfate	164. Lead flourite
31. Ammonium sulfamate	100. Cupric sulfate ammoniated	165. Lead iodide
32. Ammonium sulfide	101. Cupric tartrate	166. Lead nitrate
33. Ammonium sulfite	102. Cyanogen chloride	167. Lead stearate
34. Ammonium tartrate	103. Cyclohexane	168. Lead sulfate
35. Ammonium thiocyanate	104. 2,4-D acid (2,4-Dichlorophenoxyacetic acid)	169. Lead sulfide
36. Ammonium thiosulfate	105. 2,4-D esters (2,4-Dichlorophenoxyacetic acid esters)	170. Lead thiocyanate
37. Amyl acetate	106. DDT	171. Lindane
38. Aniline	107. Diazinon	172. Lithium chromate
39. Antimony pentachloride	108. Dicamba	173. Malathion
40. Antimony potassium tartrate	109. Dichlobenil	174. Maleic acid
41. Antimony tribromide	110. Dichlorone	175. Maleic anhydride
42. Antimony trichloride	111. Dichlorobenzene	176. Mercaptodimethur
43. Antimony trifluoride	112. Dichloropropene	177. Mercuric cyanide
44. Antimony trioxide	113. Dichloropropene	178. Mercuric nitrate
45. Arsenic disulfide	114. Dichloropropene-dichloropropene mix	179. Mercuric sulfate
46. Arsenic pentoxide	115. 2,2-Dichloropropionic acid	180. Mercuric thiocyanate
47. Arsenic trichloride	116. Dichlorvos	181. Mercurous nitrate
48. Arsenic trioxide	117. Dieldrin	182. Methoxychlor
49. Arsenic trisulfide	118. Diethylamine	183. Methyl mercaptan
50. Barium cyanide	119. Dimethylamine	184. Methyl methacrylate
51. Benzene	120. Dinitrobenzene	185. Methyl parathion
52. Benzoic acid	121. Dinitrophenol	186. Mevinphos
53. Benzoinitrile	122. Dinitrotoluene	187. Mexacarbate
54. Benzoyl chloride	123. Diquat	188. Monoethylamine
55. Benzyl chloride	124. Disulfoton	189. Monomethylamine
56. Beryllium chloride	125. Duron	190. Naled
57. Beryllium fluoride	126. Dodecylbenzenesulfonic acid	191. Naphthalene
58. Beryllium nitrate	127. Endosulfan	192. Naphthalic acid
59. Butylacetate	128. Endrin	193. Nickel ammonium sulfate
60. n-Butylphthalate	129. Epichlorohydrin	194. Nickel chloride
61. Butylamine	130. Ethion	195. Nickel hydroxide
62. Butyric acid	131. Ethylbenzene	196. Nickel nitrate
63. Cadmium acetate	132. Ethylenediamine	197. Nickel sulfate
64. Cadmium bromide	133. Ethylene dibromide	198. Nitric acid
65. Cadmium chloride	134. Ethylene dichloride	199. Nitrobenzene
66. Calcium arsenate	135. Ethylene diaminetetraacetic acid (EDTA)	200. Nitrogen dioxide
67. Calcium arsenite		201. Nitrophenol
68. Calcium carbide		202. Nitrotoluene
69. Calcium chromate		203. Paraformaldehyde

TABLE 2C-4

HAZARDOUS SUBSTANCES (continued)

204. Parathion	238. Sodium dodecylbenzenesulfonate	266. Trichloroethylene
205. Pentachlorophenol	239. Sodium fluoride	267. Trichlorophenol
206. Phenol	240. Sodium hydrosulfide	268. Triethanolamine
207. Phosgene	241. Sodium hydroxide	dodecylbenzenesulfonate
208. Phosphoric acid	242. Sodium hypochlorite	269. Triethylamine
209. Phosphorus	243. Sodium methylate	270. Trimethylamine
210. Phosphorus oxychloride	244. Sodium nitrite	271. Uranyl acetate
211. Phosphorus pentasulfide	245. Sodium phosphate (dibasic)	272. Uranyl nitrate
212. Phosphorus trichloride	246. Sodium phosphate (tribasic)	273. Vanadium pentoxide
213. Polychlorinated biphenyls (PCB)	247. Sodium selenite	274. Vanadyl sulfate
214. Potassium arsenate	248. Strontium chromate	275. Vinyl acetate
215. Potassium arsenite	249. Strychnine	276. Vinylidene chloride
216. Potassium bichromate	250. Styrene	277. Xylene
217. Potassium chromate	251. Sulfuric acid	278. Xylenol
218. Potassium cyanide	252. Sulfur monochloride	279. Zinc acetate
219. Potassium hydroxide	253. 2,4,5-T acid (2,4,5-Trichlorophenoxyacetic acid)	280. Zinc ammonium chloride
220. Potassium permanganate	254. 2,4,5-T ammes (2,4,5-Trichlorophenoxyacetic acid ammes)	281. Zinc borate
221. Propargite	255. 2,4,5-T esters (2,4,5-Trichlorophenoxyacetic acid esters)	282. Zinc bromide
222. Propionic acid	256. 2,4,5-T salts (2,4,5-Trichlorophenoxyacetic acid salts)	283. Zinc carbonate
223. Propionic anhydride	257. 2,4,5-TP acid (2,4,5-Trichlorophenoxypropenoic acid)	284. Zinc chloride
224. Propylene oxide	258. 2,4,5-TP acid esters (2,4,5-Trichlorophenoxypropenoic acid esters)	285. Zinc cyanide
225. Pyrethrins	259. TDE (Tetrachlorodiphenyl ethane)	286. Zinc fluoride
226. Quinoline	260. Tetraethyl lead	287. Zinc formate
227. Resorcinol	261. Tetraethyl pyrophosphate	288. Zinc hydrosulfonate
228. Selenium oxide	262. Thallium sulfate	289. Zinc nitrate
229. Silver nitrate	263. Toluene	290. Zinc phenolsulfonate
230. Sodium	264. Toxaphene	291. Zinc phosphide
231. Sodium arsenate	265. Trichlorofox	292. Zinc silicofluoride
232. Sodium arsenite		293. Zinc sulfate
233. Sodium bichromate		294. Zirconium nitrate
234. Sodium bifluoride		295. Zirconium potassium fluoride
235. Sodium bisulfite		296. Zirconium sulfate
236. Sodium chromate		297. Zirconium tetrachloride
237. Sodium cyanide		

TABLE 2C-4 (continued)

LINE DRAWING

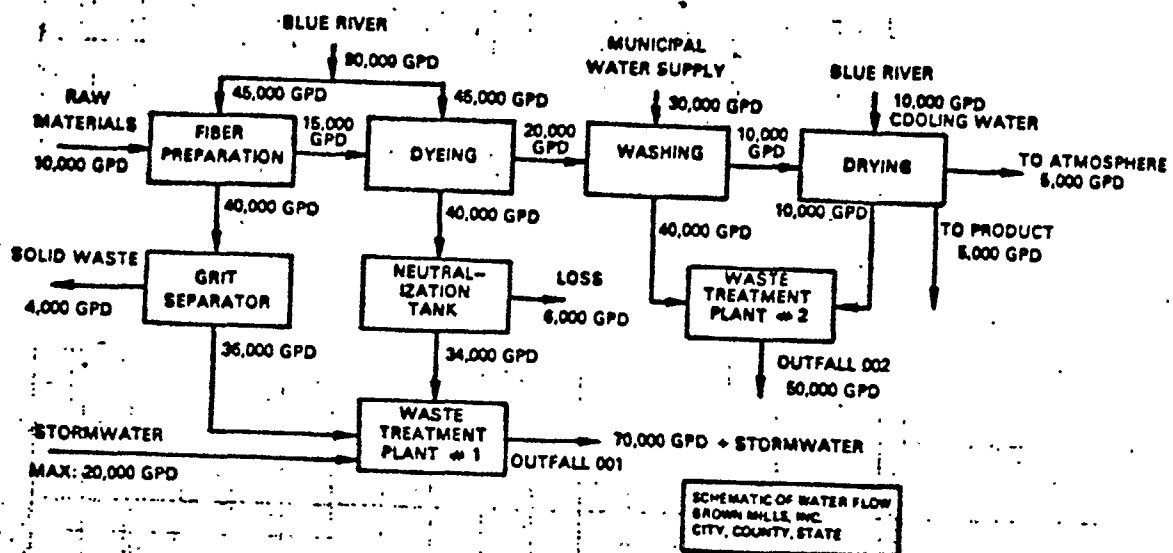


FIGURE 2C-1

CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A	Ammonia Stripping	1-M	Grit Removal
1-B	Dialysis	1-N	Microstraining
1-C	Diatomaceous Earth Filtration	1-O	Mixing
1-D	Distillation	1-P	Moving Bed Filters
1-E	Electrodialysis	1-Q	Multimedia Filtration
1-F	Evaporation	1-R	Rapid Sand Filtration
1-G	Flocculation	1-S	Reverse Osmosis (Hyperfiltration)
1-H	Flotation	1-T	Screening
1-I	Foam Fractionation	1-U	Sedimentation (Settling)
1-J	Frazzing	1-V	Slow Sand Filtration
1-K	Gas-Phase Separation	1-W	Solvent Extraction
1-L	Grinding (Comminutors)	1-X	Sorption

CHEMICAL TREATMENT PROCESSES

2-A	Carbon Adsorption	2-G	Disinfection (Ozone)
2-B	Chemical Oxidation	2-H	Disinfection (Other)
2-C	Chemical Precipitation	2-I	Electrochemical Treatment
2-D	Coagulation	2-J	Ion Exchange
2-E	Dechlorination	2-K	Neutralization
2-F	Disinfection (Chlorine)	2-L	Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A	Activated Sludge	3-E	Pre-Aeration
3-B	Aerated Lagoons	3-F	Sewer Irrigation/Land Application
3-C	Anaerobic Treatment	3-G	Stabilization Ponds
3-D	Nitrification-Denitrification	3-H	Trickling Filtration

OTHER PROCESSES

4-A	Discharge to Surface Water	4-C	Reuse/Recycle of Treated Effluent
4-B	Ocean Discharge Through Outfall	4-D	Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A	Aerobic Digestion	5-M	Heat Drying
5-B	Anaerobic Digestion	5-N	Heat Treatment
5-C	Belt Filtration	5-O	Incineration
5-D	Centrifugation	5-P	Land Application
5-E	Chemical Conditioning	5-Q	Landfill
5-F	Chlorine Treatment	5-R	Pressure Filtration
5-G	Composting	5-S	Pyrolysis
5-H	Drying Beds	5-T	Sludge Lagoons
5-I	Elutriation	5-U	Vacuum Filtration
5-J	Flotation Thickening	5-V	Vibration
5-K	Freezing	5-W	Wet Oxidation
5-L	Gravity Thickening		

TABLE 2C-1

TESTING REQUIREMENTS FOR ORGANIC TOXIC POLLUTANTS INDUSTRY CATEGORY*

INDUSTRY CATEGORY	GC/MS FRACTION [†]			
	Volatile	Acid	Base/Neutral	Pesticide
Adhesives and sealants	X	X	X	-
Aluminum forming	X	X	X	-
Appl. and other laundries	X	X	X	X
Battery manufacturing	X	-	X	-
Coal mining	X	X	X	X
Coil coating	X	X	X	-
Copper forming	X	X	X	-
Electric and electronic compounds	X	X	X	X
Electroplating	X	X	X	-
Explosives manufacturing	-	X	X	-
Foundries	X	X	X	X
Gum and wood chemicals	X	X	X	X
Inorganic chemicals manufacturing	X	X	X	-
Iron and steel manufacturing	X	X	X	-
Leather tanning and finishing	X	X	X	X
Mechanical products manufacturing	X	X	X	-
Nonferrous metals manufacturing	X	X	X	X
Ore mining	X	X	X	X
Organic chemicals manufacturing	X	X	X	X
Paint and ink formulation	X	X	X	X
Pesticides	X	X	X	X
Petroleum refining	X	X	X	X
Pharmaceutical preparations	X	X	X	-
Photographic equipment and supplies	X	X	X	X
Plastic and synthetic materials manufacturing	X	X	X	X
Plastic processing	X	-	-	-
Porcelain enameling	X	-	X	X
Printing and publishing	X	X	X	X
Pulp and paperboard mills	X	X	X	X
Rubber processing	X	X	X	-
Soap and detergent manufacturing	X	X	X	-
Steam electric power plants	X	X	X	-
Textile mills	X	X	X	X
Timber products processing	X	X	X	X

*See note at conclusion of 40 CFR Part 122, Appendix D (1983) for explanation of effect of suspensions on testing requirements for primary industry categories.

[†]The pollutants in each fraction are listed in Item V-C.

X = Testing required.

- = Testing not required.

TABLE 1C-2

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

mediate and final products and byproducts, and any previous analyses known to you of your effluent or similar effluent. (For example, if you manufacture pesticides, you should expect those pesticides to be present in contaminated stormwater runoff.) If you would expect a pollutant to be present solely as a result of its presence in your intake water, you must mark "Believe Present" but you are not required to analyze for that pollutant. Instead, mark an "X" in the "Intake" column.

A. Reporting. All levels must be reported as concentration and as total mass. You may report some or all of the required data by attaching separate sheets of paper instead of filling out pages V-1 to V-9 if the separate sheets contain all the required information in a format which is consistent with pages V-1 to V-9 in spacing and in identification of pollutants and columns. (For example, the data system used in your GC/MS analysis may be able to print data in the proper format.) Use the following abbreviations in the columns headed "Units" (column 3, Part A, and column 4, Parts B and C).

Concentration	Mass
ppm parts per million	lbs pounds
mg/l milligrams per liter	ton tons (English tons)
ppb parts per billion	mg milligrams
ug/l micrograms per liter	g grams
	kg kilograms
	T tonnes (metric tons)

All reporting of values for metals must be in terms of "total recoverable metal," unless:

- (1) An applicable, promulgated effluent limitation or standard specifies the limitation for the metal in dissolved, valent, or total form; or
- (2) All approved analytical methods for the metal inherently measure only its dissolved form (e.g., hexavalent chromium); or
- (3) The permitting authority has determined that in establishing case-by-case limitations it is necessary to express the limitations on the metal in dissolved, valent, or total form to carry out the provisions of the CWA.

If you measure only one daily value, complete only the "Maximum Daily Values" columns and insert "1" into the "Number of Analyses" column (columns 2-a and 2-d, Part A, and column 3-a, 3-d, Parts B and C). The permitting authority may require you to conduct additional analyses to further characterize your discharges. For composite samples, the daily value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24-hour period; for grab samples, the daily value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24-hour period.

If you measure more than one daily value for a pollutant and those values are representative of your wastestream, you must report them. You must describe your method of testing and data analysis. You also must determine the average of all values within the last year and report the concentration and mass under the "Long Term Average Values" columns (column 2-c, Part A, and column 3-c, Parts B and C), and the total number of daily values under the "Number of Analyses" columns (column 2-d, Part A, and columns 3-d, Parts B and C). Also, determine the average of all daily values taken during each calendar month, and report the highest average under the "Maximum 30-day Values" columns (column 2-c, Part A, and column 3-b, Parts B and C).

B. Sampling: The collection of the samples for the reported analyses should be supervised by a person experienced in performing sampling of industrial wastewater. You may contact your EPA or State permitting authority for detailed guidance on sampling techniques and for answers to specific questions. Any specific requirements contained in the applicable analytical methods should be followed for sample containers, sample preservation,

holding times, the collection of duplicate samples, etc. The time when you sample should be representative of your normal operation, to the extent feasible, with all processes which contribute wastewater in normal operation, and with your treatment system operating properly with no system upsets. Samples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your present permit, or at any site adequate for the collection of a representative sample.

For pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, and fecal coliform, grab samples must be used. For all other pollutants 24-hour composite samples must be used. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period of greater than 24 hours. For stormwater discharges a minimum of one to four grab samples may be taken, depending on the duration of the discharge. One grab must be taken in the first hour (or less) of discharge, with one additional grab (up to a minimum of four) taken in each succeeding hour of discharge for discharges lasting four or more hours. The Director may waive composite sampling for any outfall for which you demonstrate that use of an automatic sampler is infeasible and that a minimum of four grab samples will be representative of your discharge.

Grab and composite samples are defined as follows:

Grab sample: An individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

Composite sample: A combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically. For GC/MS Volatile Organic Analysis (VOA), aliquots must be combined in the laboratory immediately before analysis. Four (4) (rather than eight) aliquots or grab samples should be collected for VOA. These four samples should be collected during actual hours of discharge over a 24 hour period and need not be flow proportioned. Only one analysis is required.

The Agency is currently reviewing sampling requirements in light of recent research on testing methods. Upon completion of its review, the Agency plans to propose changes to the sampling requirements.

Data from samples taken in the past may be used, provided that:

- All data requirements are met;
- Sampling was done no more than three years before submission; and
- All data are representative of the present discharge.

Among the factors which would cause the data to be unrepresentative are significant changes in production level, changes in raw materials, processes, or final products, and changes in wastewater treatment. When the Agency promulgates new analytical methods in 40 CFR Part 136, EPA will provide information as to when you should use the new methods to generate data on your discharges. Of course, the Director may request additional information, including current quantitative data, if she or he determines it to be necessary to assess your discharges.

C. Analysis: You must use test methods promulgated in 40 CFR Part 136; however, if none has been promulgated for a particular pollutant, you may use any suitable method for measuring the level of the pollutant in your discharge provided that you submit a description of the method or a reference to a published method. Your description should include the sample holding time, preservation techniques, and the quality control measures which you used. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis

**TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES REQUIRED TO
BE IDENTIFIED BY APPLICANTS IF EXPECTED TO BE PRESENT**

TOXIC POLLUTANT

Asbestos

HAZARDOUS SUBSTANCES

Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl acetate
Aniline
Benzonitrile
Benzyl chloride
Butyl acetate
Butylamine
Captan
Carbaryl
Carbofuran
Carbon disulfide
Chlorpyrifos
Coumaphos
Cresol
Crotonaldehyde
Cyclohexane
2,4-D (2,4-Dichlorophenoxyacetic acid)
Diazinon
Dicamba
Dichlobenil
Dichloro
2,2-Dichloropropionic acid

HAZARDOUS SUBSTANCES

Dichlorvos
Diethyl amine
Dimethyl amine
Dinitrobenzene
Diquat
Disulfoton
Duron
Epichlorohydrin
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion
Isoprene
Isopropanolamine
Kelthane
Kepone
Malathion
Mercaptodimethur
Methoxychlor
Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Mexacarbate
Monomethyl amine
Monomethyl amine

HAZARDOUS SUBSTANCES

Naled
Naphthene acid
Nitrotoluene
Parathion
Phenolsulfonate
Phosgene
Propargite
Propylene oxide
Pyrethrin
Quinoline
Resorcinol
Strontium
Strychnine
Styrene
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
TDE (Tetrachlorodiphenyl ethane)
2,4,5-TP (2-(2,4,5-Trichlorophenoxy)
propenoic acid)
Trichlorofon
Triethanolamine
Triethylamine
Trimethylamine
Uranium
Vanadium
Vinyl acetate
Xylene
Xylenol
Zirconium

TABLE 2C-3

INSTRUCTIONS — FORM 2c
Application for Permit to Discharge Wastewater
EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL OPERATIONS

This form must be completed by all applicants who check "yes" to item II-C in Form 1.

Public Availability of Submitted Information.

Your application will not be considered complete unless you answer every question on this form and on Form 1. If an item does not apply to you, enter "NA" (for not applicable) to show that you considered the question.

You may not claim as confidential any information required by this form or Form 1, whether the information is reported on the form or in an attachment. This information will be made available to the public upon request.

Any information you submit to EPA which goes beyond that required by this form or Form 1 you may claim as confidential, but claims for information which is effluent data will be denied. If you do not assert a claim of confidentiality at the time of submitting the information, EPA may make the information public without further notice to you. Claims of confidentiality will be handled in accordance with EPA's business confidentiality regulations at 40 CFR Part 2.

Definitions

All significant terms used in these instructions and in the form are defined in the glossary found in the General Instructions which accompany Form 1.

EPA ID Number

Fill in your EPA Identification Number at the top of each page of Form 2c. You may copy this number directly from item I of Form 1.

Item I

You may use the map you provided for item XI of Form 1 to determine the latitude and longitude of each of your outfalls and the name of the receiving water.

Item II-A

The line drawing should show generally the route taken by water in your facility from intake to discharge. Show all operations contributing wastewater, including process and production areas, sanitary flows, cooling water, and stormwater runoff. You may group similar operations into a single unit, labeled to correspond to the more detailed listing in item II-B. The water balance should show average flows. Show all significant losses of water to products, atmosphere, and discharge. You should use actual measurements whenever available; otherwise use your best estimate. An example of an acceptable line drawing appears in Figure 2c-1 to these instructions.

Item II-B

List all sources of wastewater to each outfall. Operations may be described in general terms (for example, "dye-making reactor" or "distillation tower"). You may estimate the flow contributed by each source if no data are available. For stormwater discharges you may estimate the average flow, but you must indicate the rainfall event upon which the estimate is based and the method of estimation. For each treatment unit, indicate its size, flow rate, and retention time, and describe the ultimate disposal of any solid or liquid wastes not discharged. Treatment units should be listed in order and you should select the proper code from Table 2c-1 to fill in column 3-b for each treatment unit. Insert "XX" into column 3-b if no code corresponds to a treatment unit you list. If you are applying for a permit for a privately owned treatment works, you must also identify all of your contributors in an attached listing.

Item II-C

A discharge is intermittent unless it occurs without interruption during the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities. A discharge is seasonal if it occurs only during certain parts of the year. Fill in every applicable column in this item for each source of intermittent or seasonal discharges. Base your answers on actual data whenever available; otherwise, provide your best estimate. Report the highest daily value for flow rate and total volume in the

"Maximum Daily" columns (columns 4-1-2 and 4-3-2). Report the average of all daily values measured during days when discharge occurred within the last year in the "Long Term Average" columns (columns 4-5-1 and 4-5-2).

Item III-A

All effluent guidelines promulgated by EPA appear in the Federal Register and are published annually in 40 CFR Subchapter N. A guideline applies to you if you have any operations contributing process wastewater in any subcategory covered by a BPT, SBT, or BAT guideline. If you are unsure whether you are covered by a promulgated effluent guideline, check with your EPA Regional office (Table 1 in the Form 1 Instructions). You must check "yes" if an applicable effluent guideline has been promulgated, even if the guideline limitations are being contested in court. If you believe that a promulgated effluent guideline has been remanded for reconsideration by a court and does not apply to your operations, you may check "no."

Item III-B

An effluent guideline is expressed in terms of production (or other measure of operation) if the limitation is expressed as mass of pollutant per operational parameter; for example, "pounds of BOD per cubic foot of logs from which bark is removed," or "pounds of TSS per megawatt hour of electrical energy consumed by smelting furnace". An example of a guideline not expressed in terms of a measure of operation is one which limits the concentration of pollutants.

Item III-C

This item must be completed only if you checked "yes" to item III-B. The production information requested here is necessary to apply effluent guidelines to your facility and you cannot claim it as confidential. Report quantities in the units of measurement used in the applicable effluent guideline. The production figures provided must be based on actual daily production and not on design capacity or on predictions of future operations. To obtain alternate limits under 40 CFR 122.45(b)(2)(ii), you must define your maximum production capability and demonstrate to the Director that your actual production is substantially below maximum production capability and that there is a reasonable potential for an increase above actual production during the duration of the permit.

Item IV-A

If you check "yes" to this question, complete all parts of the chart, or attach a copy of any previous submission you have made to EPA containing same information.

Item IV-B

You are not required to submit a description of future pollution control projects if you do not wish to or if none is planned.

Item V-A, B, C, and D

The items require you to collect and report data on the pollutants discharged for each of your outfalls. Each part of this item addresses a different set of pollutants and must be completed in accordance with the specific instructions for that part. The following general instructions apply to the entire item.

General Instructions

Part A requires you to report at least one analysis for each pollutant listed. Parts B and C require you to report analytical data in two ways. For some pollutants, you may be required to mark "X" in the "Testing Required" column (column 2-a, Part C), and text (sample and analyze) and report the levels of the pollutants in your discharge whether or not you expect them to be present in your discharge. For all others, you must mark "X" in either the "Believe Present" column or the "Believe Absent" column (columns 2-a or 2-b, Part B, and columns 2-b or 2-c, Part C) based on your best estimate, and text for those which you believe to be present. (See specific instructions on the form and below for Parts A through D.) Base your determination that a pollutant is present in or absent from your discharge on your knowledge of your raw materials, maintenance chemicals, inter-

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

mediate and final products and byproducts, and any previous analyses known to you of your effluent or similar effluent. (For example, if you manufacture pesticides, you should expect those pesticides to be present in contaminated stormwater runoff.) If you would expect a pollutant to be present solely as a result of its presence in your intake water, you must mark "Believe Present" but you are not required to analyze for that pollutant. Instead, mark an "X" in the "Intake" column.

A. Reporting. All levels must be reported as concentration and as total mass. You may report some or all of the required data by attaching separate sheets of paper instead of filling out pages V-1 to V-9 if the separate sheets contain all the required information in a format which is consistent with pages V-1 to V-9 in spacing and in identification of pollutants and columns. (For example, the data system used in your GC/MS analysis may be able to print data in the proper format.) Use the following abbreviations in the columns headed "Units" (column 3, Part A, and column 4, Parts B and C).

Concentration	Mass
ppm parts per million	lbs pounds
mg/l milligrams per liter	ton tons (English tons)
ppb parts per billion	mg milligrams
ug/l micrograms per liter	g grams
	kg kilograms
	T tonnes (metric tons)

All reporting of values for metals must be in terms of "total recoverable metal," unless:

- (1) An applicable, promulgated effluent limitation or standard specifies the limitation for the metal in dissolved, valent, or total form; or
- (2) All approved analytical methods for the metal inherently measure only its dissolved form (e.g., hexavalent chromium); or
- (3) The permitting authority has determined that in establishing case-by-case limitations it is necessary to express the limitations on the metal in dissolved, valent, or total form to carry out the provisions of the CWA.

If you measure only one daily value, complete only the "Maximum Daily Values" columns and insert "1" into the "Number of Analyses" column (columns 2-a and 2-d, Part A, and column 3-a, 3-d, Parts B and C). The permitting authority may require you to conduct additional analyses to further characterize your discharges. For composite samples, the daily value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24-hour period; for grab samples, the daily value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24-hour period.

If you measure more than one daily value for a pollutant and those values are representative of your wastestream, you must report them. You must describe your method of testing and data analysis. You also must determine the average of all values within the last year and report the concentration and mass under the "Long Term Average Values" columns (column 2-c, Part A, and column 3-c, Parts B and C) and the total number of daily values under the "Number of Analyses" columns (column 2-d, Part A, and columns 3-d, Parts B and C). Also, determine the average of all daily values taken during each calendar month, and report the highest average under the "Maximum 30-day Values" columns (column 2-c, Part A, and column 3-b, Parts B and C).

B. Sampling: The collection of the samples for the reported analyses should be supervised by a person experienced in performing sampling of industrial wastewater. You may contact your EPA or State permitting authority for detailed guidance on sampling techniques and for answers to specific questions. Any specific requirements contained in the applicable analytical methods should be followed for sample containers, sample preservation,

holding times, the collection of duplicate samples, etc. The time when you sample should be representative of your normal operation, to the extent feasible, with all processes which contribute wastewater in normal operation, and with your treatment system operating properly with no system upsets. Samples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your permit, or at any site adequate for the collection of a representative sample.

For pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, and fecal coliform, grab samples must be used. For all other pollutants 24-hour composite samples must be used. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period of greater than 24 hours. For stormwater discharges a minimum of one to four grab samples may be taken, depending on the duration of the discharge. One grab must be taken in the first hour (or less) of discharge, with one additional grab (up to a minimum of four) taken in each succeeding hour of discharge for discharges lasting four or more hours. The Director may waive composite sampling for any outfall for which you demonstrate that use of an automatic sampler is infeasible and that a minimum of four grab samples will be representative of your discharge.

Grab and composite samples are defined as follows:

Grab sample: An individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

Composite sample: A combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period. The composite must be flow proportional: either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically. For GC/MS Volatile Organic Analysis (VOA), aliquots must be combined in the laboratory immediately before analysis. Four (4) (rather than eight) aliquots or grab samples should be collected for VOA. These four samples should be collected during actual hours of discharge over a 24-hour period and need not be flow proportional. Only one analysis is required.

The Agency is currently reviewing sampling requirements in light of recent research on testing methods. Upon completion of its review, the Agency plans to propose changes to the sampling requirements.

Data from samples taken in the past may be used, provided that:

- All data requirements are met;
- Sampling was done no more than three years before submission; and
- All data are representative of the present discharge.

Among the factors which would cause the data to be unrepresentative are significant changes in production level, changes in raw materials, processes, or final products, and changes in wastewater treatment. When the Agency promulgates new analytical methods in 40 CFR Part 136, EPA will provide information as to when you should use the new methods to generate data on your discharges. Of course, the Director may request additional information, including current quantitative data, if she or he determines it to be necessary to assess your discharges.

C. Analysis: You must use test methods promulgated in 40 CFR Part 136; however, if none has been promulgated for a particular pollutant, you may use any suitable method for measuring the level of the pollutant in your discharge provided that you submit a description of the method or a reference to a published method. Your description should include the sample holding time, preservation techniques, and the quality control measures which you used. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form, identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

D. Reporting of Intake Data: You are not required to report data under the "Intake" columns unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, under the "Intake" columns report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and discuss the requirements for a net limitation with your permitting authority.

Part V-A

Part V-A must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. However, at your request, the Director may waive the requirement to test for one or more of these pollutants, upon a determination that available information is adequate to support issuance of the permit with less stringent reporting requirements for these pollutants. You also may request a waiver for one or more of these pollutants for your category or subcategory from the Director, Office of Water Enforcement and Permits. See discussion in General Instructions to item V for definitions of the columns in Part A. The "Long Term Average Values" column (column 2-c) and "Maximum 30-day Values" column (column 2-b) are not compulsory but should be filled out if data are available.

Part V-B

Part V-B must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. You must report quantitative data if the pollutant(s) in question is limited in an effluent limitations guideline either directly, or indirectly but expressly through limitation on an indicator (e.g., use of TSS as an indicator to control the discharge of iron and aluminum). For other discharged pollutants you must provide quantitative data or explain their presence in your discharge. Upon request the Director, Office of Water Enforcement and Permits, may waive the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in the category or subcategory discharge substantially identical levels of the pollutant or discharge the pollutant uniformly at sufficiently low levels. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available.

Part V-C

Table 2c-2 lists the 34 "primary" industry categories in the left-hand column. For each outfall, if any of your processes which contribute wastewater falls into one of those categories, you must mark "X" in "Testing Required" column (column 2-a) and test for (1) all of the toxic metals, cyanide, and total phenols, and (2) the organic toxic pollutants contained in Table 2c-2 as applicable to your category, unless you qualify as a small business (see below). The organic toxic pollutants are listed by GC/MS fractions on pages V-4 to V-9 in Part V-C. For example, the Organic Chemicals Industry has an asterisk in all four fractions; therefore, applicants in this category must test for all organic toxic pollutants in Part V-C. The inclusion of total phenols in Part V-C is not intended to classify total phenols as a toxic pollutant. If you are applying for a permit for a privately owned treatment works, determine your testing requirements on the basis of the industry categories of your contributors. When you determine which industry category you are in to find your testing requirements,

you are not determining your category for any other purpose and you are not giving up your right to challenge your inclusion in that category (for example, for deciding whether an effluent guideline is applicable) before your permit is issued. For all other cases (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), you must mark "X" in either the "Believed Present" column (column 2-b) or the "Believed Absent" column (column 2-c) for each pollutant. For every pollutant you know or have reason to believe is present in your discharge in concentrations of 10 ppb or greater, you must report quantitative data. For acrolein, acrylonitrile, 2,4-dinitrophenol, and 2-methyl-4,6-dinitrophenol, where you expect these four pollutants to be discharged in concentrations of 100 ppb or greater, you must report quantitative data. For every pollutant expected to be discharged in concentrations less than the thresholds specified above, you must either submit quantitative data or briefly describe the reasons the pollutant is expected to be discharged. At your request the Director, Office of Water Enforcement and Permits, may waive the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in question discharge substantially identical levels of the pollutant, or discharge the pollutant uniformly at sufficiently low levels. If you qualify as a small business (see below) you are exempt from testing for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. For pollutants in intake water, see discussion in General Instructions to item V. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available. You are required to mark "Testing Required" for dioxin if you use or manufacture one of the following compounds:

- (a) 2,4,5-trichlorophenoxy acetic acid, (2,4,5-T);
- (b) 2-(2,4,5-trichlorophenoxy) propanoic acid, (Silvex, 2,4,5-TP);
- (c) 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate, (Erlon);
- (d) O,O-dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate, (Rannel);
- (e) 2,4,5-trichlorophenol, (TCP) or
- (f) hexachlorophene, (HCP).

If you mark "Testing Required" or "Believed Present," you must perform a screening analysis for dioxins, using gas chromatography with an electron capture detector. A TCDD standard for quantitation is not required. Describe the results of this analysis in the space provided; for example, "no measurable baseline deflection at the retention time of TCDD" or "a measurable peak within the tolerances of the retention time of TCDD." The permitting authority may require you to perform a quantitative analysis if you report a positive result. The Effluent Guidelines Division of EPA has collected and analyzed samples from some plants for the pollutants listed in Part C in the course of its BAT guidelines development program. If your effluents are sampled and analyzed as part of this program in the last three years, you may use these data to answer Part C provided that the permitting authority approves, and provided that no process change or change in raw materials or operating practices has occurred since the samples were taken that would make the analyses unrepresentative of your current discharge.

Small Business Exemption: If you qualify as a "small business," you are exempt from the reporting requirements for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. There are two ways in which you can qualify as a "small business." If your facility is a coal mine, and if your probable total annual production is less than 100,000 tons per year, you may submit past production data or estimated future production (such as a schedule of estimated total production under 30 CFR § 750.14(c)) instead of conducting analyses for the organic toxic pollutants. If your facil-

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

ity is not a coal mine, and if your gross total annual sales for the most recent three years average less than \$100,000 per year (in second quarter 1980 dollars), you may submit sales data for those years instead of conducting analyses for the organic toxic pollutants. The production or sales data must be for the facility which is the source of the discharge. The data should not be limited to production or sales for the process or processes which contribute to the discharge, unless those are the only processes at your facility. For sales data, in situations involving intracorporate transfer of goods and services, the transfer price per unit should approximate market prices for those goods and services as closely as possible. Sales figures for years after 1980 should be indexed to the second quarter of 1980 by using the gross national product price deflator (second quarter of 1980 = 100). This index is available in *National Income and Product Accounts of the United States* (Department of Commerce, Bureau of Economic Analysis).

Part V-D

List any pollutants in Table 2c-3 that you believe to be present and explain why you believe them to be present. No analysis is required, but if you have analytical data, you must report it.

Note: Under 40 CFR 117.12(a)(2), certain discharges of hazardous substances (listed in Table 2c-4 of these instructions) may be exempted from the requirements of section 311 of CWA, which establishes reporting requirements, civil penalties and liability for cleanup costs for spills of oil and hazardous substances. A discharge of a particular substance may be exempted if the origin, source, and amount of the discharged substances are identified in the NPDES permit application or in the permit, if the permit contains a requirement for treatment of the discharge, and if the treatment is in place. To apply for an exclusion of the discharge of any hazardous substance from the requirements of section 311, attach additional sheets of paper to your form, setting forth the following information:

1. The substance and the amount of each substance which may be discharged.
2. The origin and source of the discharge of the substance.
3. The treatment which is to be provided for the discharge by:
 - a. An onsite treatment system separate from any treatment system treating your normal discharge;
 - b. A treatment system designed to treat your normal discharge and which is additionally capable of treating the amount of the substance identified under paragraph 1 above; or
 - c. Any combination of the above.

See 40 CFR §117.12(a)(2) and (C), published on August 29, 1979, in 44 FR 50766, or contact your Regional Office (Table 1 on Form 1, Instructions), for further information on exclusions from section 311.

Item VI

This requirement applies to current use or manufacture of a toxic pollutant as an intermediate or final product or byproduct. The Director may waive or modify the requirement if you demonstrate that it would be unduly burdensome to identify each toxic pollutant and the Director has adequate information to issue your permit. You may not claim this information as confidential; however, you do not have to distinguish between use or production of the pollutants or list the amounts. Under NPDES regulations your permit will contain limits to control all pollutants you report in answer to this question, as well as all pollutants reported in Item V at levels exceeding the technology-based limits appropriate to your facility.

Item VII

Self explanatory. The permitting authority may ask you to provide additional details after your application is received.

Item IX

The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(12) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application, ... shall upon conviction, be punished by a fine of no more than \$10,000 or by imprisonment for more than six months, or both."

40 CFR Part 122.22 requires the certification to be signed as follows:

(A) *For a corporation:* by a responsible corporate official. For purposes of this section, a responsible corporate official means (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegation of authority to responsible corporate officers identified in §122.22(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate position under §122.22(a)(1)(ii) rather than to specific individuals.

(B) *For a partnership or sole proprietorship:* by a general partner or the proprietor, respectively; or

(C) *For a municipality, State, Federal, or other public agency:* by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes (i) the chief executive officer of the Agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the Agency (e.g., *Regional Administrators of EPA*). Applications for Group II stormwater dischargers may be signed by a duly authorized representative (as defined in 40 CFR 122.22(b)) of the individuals identified above.

CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A	Ammonia Stripping	1-M	Grit Removal
1-B	Dryness	1-N	Microstraining
1-C	Detonaceous Earth Filtration	1-O	Mixing
1-D	Distillation	1-P	Moving Bed Filters
1-E	Electrodialysis	1-Q	Multimedia Filtration
1-F	Evaporation	1-R	Rapid Sand Filtration
1-G	Flocculation	1-S	Reverse Osmosis (Hyperfiltration)
1-H	Flotation	1-T	Screening
1-I	Foam Fractionation	1-U	Sedimentation (Settling)
1-J	Freezing	1-V	Slow Sand Filtration
1-K	Gas-Phase Separation	1-W	Solvent Extraction
1-L	Grinding (Comminutors)	1-X	Sorption

CHEMICAL TREATMENT PROCESSES

2-A	Carbon Adsorption	2-G	Disinfection (Ozone)
2-B	Chemical Oxidation	2-H	Disinfection (Other)
2-C	Chemical Precipitation	2-I	Electrochemical Treatment
2-D	Coagulation	2-J	Ion Exchange
2-E	Dechlorination	2-K	Neutralization
2-F	Disinfection (Chlorine)	2-L	Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A	Activated Sludge	3-E	Pre-Aeration
3-B	Aerated Lagoons	3-F	Spray Irrigation/Land Application
3-C	Anaerobic Treatment	3-G	Stabilization Ponds
3-D	Nitrification-Denitrification	3-H	Trickling Filtration

OTHER PROCESSES

4-A	Discharge to Surface Water	4-C	Reuse/Recycle of Treated Effluent
4-B	Ocean Discharge Through Outfall	4-D	Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A	Aerobic Digestion	5-M	Heat Drying
5-B	Anaerobic Digestion	5-N	Heat Treatment
5-C	Belit Filtration	5-O	Incineration
5-D	Centrifugation	5-P	Land Application
5-E	Chemical Conditioning	5-Q	Landfill
5-F	Chlorine Treatment	5-R	Pressure Filtration
5-G	Composting	5-S	Pyrolysis
5-H	Drying Beds	5-T	Sludge Lagoons
5-I	Ekstrusion	5-U	Vacuum Filtration
5-J	Flocculation Thickening	5-V	Vibration
5-K	Freezing	5-W	Wet Oxidation
5-L	Gravity Thickening		

TABLE 2C-1

TESTING REQUIREMENTS FOR ORGANIC TOXIC POLLUTANTS INDUSTRY CATEGORY*

INDUSTRY CATEGORY	GC/MS FRACTION [†]			
	Volatile	Acid	Base/Neutral	Pesticide
Adhesives and sealants	X	X	X	-
Aluminum forming	X	X	X	-
Appliances and other laundries	X	X	X	X
Battery manufacturing	X	-	X	-
Coal mining	X	X	X	X
Coil casting	X	X	X	-
Copper forming	X	X	X	-
Electric and electronic compounds	X	X	X	X
Electroplating	X	X	X	-
Explosives manufacturing	-	X	X	-
Feenamides	X	X	X	-
Gum and wood chemicals	X	X	X	X
Inorganic chemicals manufacturing	X	X	X	-
Iron and steel manufacturing	X	X	X	-
Leather tanning and finishing	X	X	X	X
Mechanical products manufacturing	X	X	X	-
Nonferrous metals manufacturing	X	X	X	X
Ore mining	X	X	X	X
Organic chemicals manufacturing	X	X	X	X
Paint and ink formulation	X	X	X	X
Pesticides	X	X	X	X
Petroleum refining	X	X	X	X
Pharmaceutical preparations	X	X	X	-
Photographic equipment and supplies	X	X	X	X
Plastic and synthetic materials manufacturing	X	X	X	X
Plastic processing	X	-	-	-
Porcelain enameling	X	-	X	X
Printing and publishing	X	X	X	X
Pulp and paperboard mills	X	X	X	X
Rubber processing	X	X	X	-
Soap and detergent manufacturing	X	X	X	-
Steam electric power plants	X	X	X	-
Textile mills	X	X	X	X
Timber products processing	X	X	X	X

*See note at conclusion of 40 CFR Part 122, Appendix D (1983) for explanation of effect of suspensions on testing requirements for primary industry categories.

[†]The pollutants in each fraction are listed in Item V-C.

X = Testing required.

- = Testing not required.

TABLE 2C-2

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**TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES REQUIRED TO
BE IDENTIFIED BY APPLICANTS IF EXPECTED TO BE PRESENT**

TOXIC POLLUTANT

Asbestos

HAZARDOUS SUBSTANCES

Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl acetate
Aniline
Benzonitrile
Benzyl chloride
Butyl acetate
Butylamine
Capten
Carbaryl
Carbaryl
Carbon disulfide
Chlorpyrifos
Cyanophos
Crab
Crotonaldehyde
Cyclohexane
2,4-D (2,4-Dichlorophenoxyacetic acid)
Diazinon
Dicamba
Dichlorodimethylamine
Dichloromethane
2,2-Dichloropropionic acid

HAZARDOUS SUBSTANCES

Dichloroacetic acid
Dimethylamine
Dimethylamine
Dinitrobenzene
Disulfide
Dursol
Epoxychlorohydrin
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion
Isoprene
Isopropylamine
Ketone
Kepone
Malathion
Mercaptodimethylamine
Methoxychlor
Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Methoxychlor
Monomethylamine
Monomethylamine

HAZARDOUS SUBSTANCES

Naled
Napthenic acid
Nitrotoluene
Parathion
Phenolsulfonate
Phosgene
Propylene oxide
Pyrethrin
Quinoline
Resorcinol
Strontium
Strychnine
Styrene
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
TDE (Tetrachlorodiphenyl ethane)
2,4,5-TP (2-(2,4,5-Trichlorophenoxy)
propionic acid)
Trichloroethylene
Triethanolamine
Triethylamine
Trimethylamine
Uranium
Vanadium
Vinyl acetate
Xylene
Xylenol
Zinc

TABLE 2C-3

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HAZARDOUS SUBSTANCES

1. Acetaldehyde	70. Calcium cyanide	136. Ferric ammonium citrate
2. Acetic acid	71. Calcium dodecylbenzenesulfonate	137. Ferric ammonium oxalate
3. Acetic anhydride	72. Calcium hypochlorite	138. Ferric chloride
4. Acetone cyanohydrin	73. Captan	139. Ferric fluoride
5. Acetyl bromide	74. Carbaryl	140. Ferric nitrate
6. Acetyl chloride	75. Carbofuran	141. Ferric sulfate
7. Acrolein	76. Carbon disulfide	142. Ferrous ammonium sulfate
8. Acrylonitrile	77. Carbon tetrachloride	143. Ferrous chloride
9. Adipic acid	78. Chlorane	144. Ferrous sulfate
10. Aldrin	79. Chlorobenzene	145. Formaldehyde
11. Allyl alcohol	80. Chloroform	146. Formic acid
12. Allyl chloride	81. Chloroform	147. Fumaric acid
13. Aluminum sulfate	82. Chloropyrifos	148. Furfural
14. Ammonia	83. Chlorosulfonic acid	149. Guthion
15. Ammonium acetate	84. Chromic acetate	150. Heptachlor
16. Ammonium benzoate	85. Chromic acid	151. Hexachlorocyclopentadiene
17. Ammonium bicarbonate	86. Chromic sulfate	152. Hydrochloric acid
18. Ammonium bichromate	87. Chromous chloride	153. Hydrofluoric acid
19. Ammonium bisulfite	88. Cobaltous bromide	154. Hydrogen cyanide
20. Ammonium bisulfite	89. Cobaltous formate	155. Hydrogen sulfite
21. Ammonium carbamate	90. Cobaltous sulfamate	156. Isoprene
22. Ammonium carbonate	91. Coumaphos	157. Isopropenolamine
23. Ammonium chloride	92. Cresol	dodecylbenzenesulfonate
24. Ammonium chromate	93. Crotonaldehyde	158. Kethene
25. Ammonium citrate	94. Cupric acetate	159. Kepone
26. Ammonium fluoroborate	95. Cupric acetoarsenite	160. Lead acetate
27. Ammonium fluoride	96. Cupric chloride	161. Lead arsenate
28. Ammonium hydrosulfide	97. Cupric nitrate	162. Lead chloride
29. Ammonium oxalate	98. Cupric oxalate	163. Lead fluoroborate
30. Ammonium silicofluoride	99. Cupric sulfate	164. Lead flourite
31. Ammonium sulfamate	100. Cupric sulfate ammoniated	165. Lead iodide
32. Ammonium sulfide	101. Cupric tartrate	166. Lead nitrate
33. Ammonium sulfate	102. Cyanogen chloride	167. Lead stearate
34. Ammonium tartrate	103. Cyclohexane	168. Lead sulfate
35. Ammonium thiocyanate	104. 2,4-D acid (2,4-Dichlorophenoxycetic acid)	169. Lead sulfide
36. Ammonium thiosulfate	105. 2,4-D esters (2,4-Dichlorophenoxycetic acid esters)	170. Lead thiocyanate
37. Amyl acetate	106. DDT	171. Lindane
38. Aniline	107. Diazinon	172. Lithium chromate
39. Antimony pentachloride	108. Dioxins	173. Malethion
40. Antimony potassium tartrate	109. Dichlorobenzil	174. Maleic acid
41. Antimony trichloride	110. Dichlorobenzil	175. Maleic anhydride
42. Antimony trichloride	111. Dichlorobenzene	176. Mercaptodimethylur
43. Antimony trifluoride	112. Dichloropropane	177. Mercuric cyanide
44. Antimony trioxide	113. Dichloropropane	178. Mercuric nitrate
45. Arsenic disulfide	114. Dichloropropane-dichloropropane mix	179. Mercuric sulfate
46. Arsenic pentoxide	115. 2,2-Dichloropropionic acid	180. Mercuric thiocyanate
47. Arsenic trichloride	116. Dichlorvos	181. Mercurous nitrate
48. Arsenic trioxide	117. Dieldrin	182. Methoxychlor
49. Arsenic trisulfide	118. Diethylamine	183. Methyl mercaptan
50. Barium cyanide	119. Dimethylamine	184. Methyl methacrylate
51. Benzene	120. Dinoseb	185. Methyl parathion
52. Benzoic acid	121. Dinoseb	186. Mevinphos
53. Benzotrifluoride	122. Dinoseb	187. Miconazole
54. Benzoyl chloride	123. Disulfoton	188. Monomethylamine
55. Benzyl chloride	124. Disulfoton	189. Monomethylamine
56. Beryllium chloride	125. Durox	190. Naled
57. Beryllium fluoride	126. Dodecylbenzenesulfonic acid	191. Naphthalene
58. Beryllium nitrate	127. Endosulfan	192. Naphthalic acid
59. Butylacetate	128. Endrin	193. Nickel ammonium sulfate
60. n-Butylphthalate	129. Epichlorohydrin	194. Nickel chloride
61. Butylamine	130. Ethion	195. Nickel hydroxide
62. Butyric acid	131. Ethylbenzene	196. Nickel nitrate
63. Cadmium acetate	132. Ethylenediamine	197. Nickel sulfate
64. Cadmium bromide	133. Ethylene dibromide	198. Nitric acid
65. Cadmium chloride	134. Ethylene dichloride	199. Nitrobenzene
66. Cadmium arsenate	135. Ethylene diaminetetraacetic acid (EDTA)	200. Nitrogen dioxide
67. Calcium arsenate		201. Nitrophenol
68. Calcium carbide		202. Nitrotoluene
69. Calcium chromate		203. Paraformaldehyde

TABLE 2C-4

HAZARDOUS SUBSTANCES (continued)

204. Parathion	238. Sodium dodecylbenzenesulfonate	266. Trichloroethylene
205. Pentachlorophenol	239. Sodium fluoride	267. Trichlorophenol
206. Phenol	240. Sodium hydrosulfide	268. Triethanolamine
207. Phosgene	241. Sodium hydroxide	dodecylbenzenesulfonate
208. Phosphoric acid	242. Sodium hypochlorite	269. Triethylamine
209. Phosphorus	243. Sodium methylate	270. Trimethylamine
210. Phosphorus oxychloride	244. Sodium nitrate	271. Uranyl acetate
211. Phosphorus pentasulfide	245. Sodium phosphate (dibasic)	272. Uranyl nitrate
212. Phosphorus trichloride	246. Sodium phosphate (tribasic)	273. Vanadium pentoxide
213. Polychlorinated biphenyls (PCB)	247. Sodium selenite	274. Vanadyl sulfate
214. Potassium arsenate	248. Strontium chromate	275. Vinyl acetate
215. Potassium arsenite	249. Strychnine	276. Vinylidene chloride
216. Potassium bichromate	250. Styrene	277. Xylene
217. Potassium chromate	251. Sulfuric acid	278. Xylenol
218. Potassium cyanide	252. Sulfur monochloride	279. Zinc acetate
219. Potassium hydroxide	253. 2,4,5-T acid (2,4,5-Trichlorophenoxyacetic acid)	280. Zinc ammonium chloride
220. Potassium permanganate	254. 2,4,5-T amines (2,4,5-Trichlorophenoxyacetic acid amines)	281. Zinc borate
221. Propargite	255. 2,4,5-T esters (2,4,5-Trichlorophenoxyacetic acid esters)	282. Zinc bromide
222. Propionic acid	256. 2,4,5-T salts (2,4,5-Trichlorophenoxyacetic acid salts)	283. Zinc carbonate
223. Propionic anhydride	257. 2,4,5-TP acid (2,4,5-Trichlorophenoxypropionic acid)	284. Zinc chloride
224. Propylene oxide	258. 2,4,5-TP acid esters (2,4,5-Trichlorophenoxypropionic acid esters)	285. Zinc cyanide
225. Pyrethrin	259. TDS (Tetrachlorodiphenyl ethane)	286. Zinc fluoride
226. Quinoline	260. Tetraethyl lead	287. Zinc formate
227. Resorcinol	261. Tetraethyl pyrophosphate	288. Zinc hydrosulfonate
228. Selenium oxide	262. Thallium sulfate	289. Zinc nitrate
229. Silver nitrate	263. Toluene	290. Zinc phenyl sulfonate
230. Sodium	264. Toxaphene	291. Zinc phosphide
231. Sodium arsenate	265. Trichlorofox	292. Zinc silicofluoride
232. Sodium arsenite		293. Zinc sulfate
233. Sodium bichromate		294. Zirconium nitrate
234. Sodium bifluoride		295. Zirconium potassium fluoride
235. Sodium bisulfite		296. Zirconium sulfate
236. Sodium chromate		297. Zirconium tetrachloride
237. Sodium cyanide		

TABLE 2C-4 (continued)

LINE DRAWING

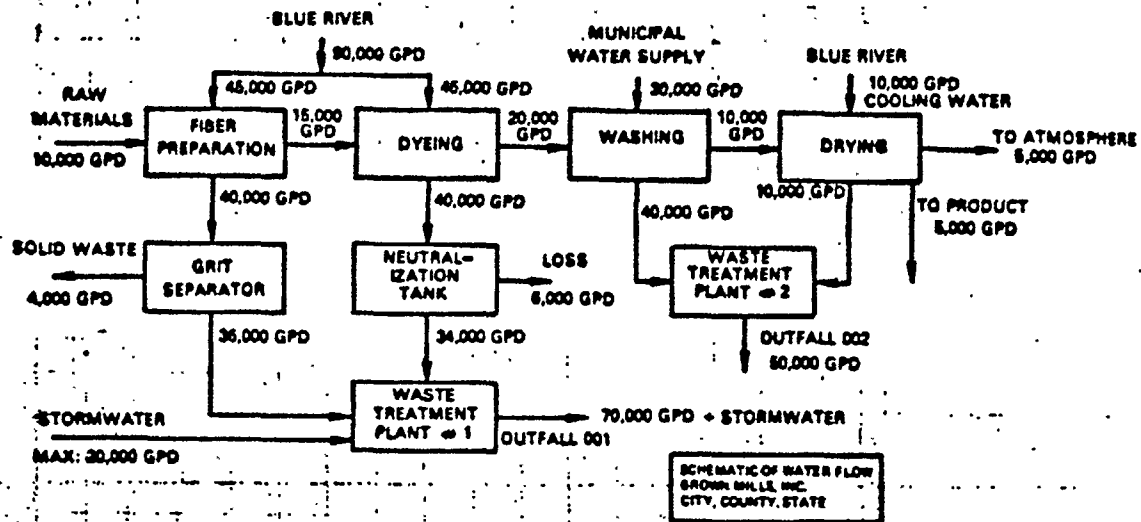


FIGURE 2C-1

EPA I.D. NUMBER (copy from Item 1 of Form 1)

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CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES (complete the following table)

☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				5. DUR- ATION (in days)
		A. DAYS PER WEEK (specify outflow)	B. MONTHS PER YEAR (specify outflow)	A. FLOW RATE (in mgd)		B. TOTAL VOLUME (specify with units)		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES (complete Item III-B)

☐ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production for other measure of operation?

☒ YES (complete Item III-C)

☐ NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall number)
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	
238	TONS PER DAY	ASBESTOS CEMENT PIPE	001

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (complete the following table)

☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. LINE ITEM	
	A. NO.	B. SOURCE OF DISCHARGE		ACT.	PLN.

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs for other environmental projects which may affect your discharges you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

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CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C See instructions before proceeding - Complete one set of tables for each outfall - Annotate the outfall number in the space provided.

NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-8.

2. Use the space below to list any of the pollutants listed in Table 2o-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
ASBESTOS	USED IN MANUFACTURE PIPE		

VL POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (list all such pollutants below)

~~SECRET~~ (ON 06 APR 67-2)

EPA LAB. NUMBER (copy from Item 1 of Form 1)

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)									
PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.									
1. POLLUTANT	2. EFFLUENT		3. EFFLUENT		4. INTAKE (optional)		5. LONG TERM AVERAGE VALUE		6. NO. OF ANALYSES
	a. MAXIMUM DAILY VALUE (1) concentration (2) mass	b. MAXIMUM 30-MINUTE VALUE (1) concentration (2) mass	c. MAXIMUM 15-MINUTE VALUE (1) concentration (2) mass	d. MAXIMUM 5-MINUTE VALUE (1) concentration (2) mass	e. CONCENTRATION	f. MASS	g. CONCENTRATION	h. MASS	
a. Biochemical Oxygen Demand (BOD)									
b. Chemical Oxygen Demand (COD)									
c. Total Organic Carbon (TOC)									
d. Total Suspended Solids (TSS)									
e. Ammonia (as N)									
f. Flow	VALUE	VALUE	VALUE	VALUE					
g. Temperature (celsius)	VALUE	VALUE	VALUE	VALUE	°C				
h. Temperature (fahrenheit)	VALUE	VALUE	VALUE	VALUE	°C				
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant which is listed either directly, or indirectly but indirectly, in an effluent limitation guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2-a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.									
1. POLLUTANT	2. MARK "X"		3. EFFLUENT		4. INTAKE (optional)		5. LONG TERM AVERAGE VALUE		6. NO. OF ANALYSES
	a. MAXIMUM DAILY VALUE (1) concentration (2) mass	b. MAXIMUM 30-MINUTE VALUE (1) concentration (2) mass	c. MAXIMUM 15-MINUTE VALUE (1) concentration (2) mass	d. MAXIMUM 5-MINUTE VALUE (1) concentration (2) mass	e. CONCENTRATION	f. MASS	g. CONCENTRATION	h. MASS	
a. Bromide (20000-87-8)									
b. Chlorine, Total Residual									
c. Copper									
d. Fecal Coliform									
e. Fluoride (10000-82-5)									
f. Nitrate-Nitrite (as N)									

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ITEMS CONTINUED FROM SHORT									
1. POLLUTANT AND CAS NO. (If applicable)	2. MAXIMUM DAILY VALUE (mg/L)	3. EFFLUENT		4. UNITS		5. WASTE (If applicable)		NO. OF ANAL. VES.	
		(1) max concentration	(2) max concentration	(1) max concentration	(2) max concentration	(1) max concentration	(2) max concentration		
S. Nitrogen, Total Organic (as N)									
S. Oil and Grease									
T. Phosphate (as P), Total (7723-14-8)									
I. Radioactivity									
(1) Alpha, Total									
(2) Beta, Total									
(3) Radium, Total									
(4) Radium 226, Total									
S. Sulfate (as SO ₄), Total (14808-79-9)									
S. Sulfide (as S), Total									
m. Sulfite (as SO ₃), Total (14288-48-3)									
a. Surfactants									
c. Aluminum, Total (7429-90-8)									
S. Boron, Total (7440-38-2)									
c. Boreon, Total (7440-38-2)									
r. Cadmium, Total (7440-43-8)									
S. Lead, Total (7440-48-4)									
S. Iron, Total (7439-89-8)									
S. Magnesium, Total (7439-95-4)									
M. Manganese, Total (7439-96-3)									
S. Manganese, Total (7439-96-3)									
W. Tin, Total (7440-31-9)									
S. Titanium, Total (7440-32-8)									

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EPA ID NUMBER (not from Item 1 of Form 1) OUTFALL NUMBER

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PART C. If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MAS fractions you must test for. Mark "X" in column 2-a for all such GC/MAS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary) wastewater effluents, and nonrequired GC/MAS fractions, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-c for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-d for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-e for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-f for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-g for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-h for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-i for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-j for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-k for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-l for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-m for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-n for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-o for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-p for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-q for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-r for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-s for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-t for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-u for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-v for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-w for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-x for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-y for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-z for any pollutant, you must provide the results of at least one analysis for that pollutant. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part, please review each carefully. Complete one table (of 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'		3. EFFLUENT				4. UNITS		5. INTAKE (optional)	
	WASTEWATER EFFLUENT	WASTEWATER EFFLUENT	MAXIMUM DAILY VALUE	MAXIMUM 30 DAY VALUE	CLOSEST TO OUTFALL VALUE	NO. OF ANALYSES	CONCENTRATION	MASS	NO. OF ANALYSES	AVERAGE VALUE
			(1) mass	(2) mass	(3) mass	(4) mass	(5) mass	(6) mass	(7) mass	(8) mass
10a. Antimony, Total (7440-38-2)	X									
10b. Arsenic, Total (7440-38-2)	X									
10c. Barium, Total (7440-41-7)	X									
10d. Cadmium, Total (7440-43-9)	X									
10e. Chromium, Total (7440-47-3)	X									
10f. Copper, Total (7440-50-9)	X									
10g. Lead, Total (7439-97-5)	X									
10h. Mercury, Total (7439-97-5)	X									
10i. Nickel, Total (7440-02-0)	X									
10j. Selenium, Total (7782-49-2)	X									
10k. Silver, Total (7440-22-4)	X									
10l. Thallium, Total (7440-28-0)	X									
10m. Zinc, Total (7440-06-4)	X									
10n. Cyanide, Total (13-12-1)	X									
10o. Phenols, Total	X									

DESCRIBE RESULTS

Dioxin

2,3,7,8-Tetra
Chlorodibenzo-p-
Dioxin (1746-01-6)

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1. POLLUTANT AND CAS NUMBER (if available)		2. MARK 'X'		3. EFFLUENT				4. UNITS		5. INTAKE (optional)	
		USE OF FACILITY	USE OF FACILITY	MAXIMUM DAILY VALUE (if concentration)	MAXIMUM 30 DAY VALUE (if concentration)	LONG TERM AVERAGE VALUE (if concentration)	NO. OF ANAL. YRS.	CONCENTRATION	MASS	LONG TERM AVERAGE VALUE (if concentration)	NO. OF ANAL. YRS.
DCM FRACTION - VOLATILE COMPOUNDS											
1V. Acetone (107-02-8)		X									
7V. Acrylonitrile (107-13-1)		X									
2V. Benzene (71-43-2)		X									
6V. Bis (Chloromethyl) Ether (542-88-1)		X									
6V. Bromoform (75-26-3)		X									
6V. Carbon Tetrachloride (54-23-5)		X									
7V. Chlorobenzene (108-90-7)		X									
6V. Chlorodibromomethane (124-48-1)		X									
6V. Chloroethane (75-00-3)		X									
10V. 2-Chloroethylvinyl Ether (110-78-8)		X									
11V. Chloroform (67-66-3)		X									
12V. Dichlorobromomethane (75-27-4)		X									
12V. Dichlorodifluoromethane (75-71-8)		X									
14V. 1,1-Dichloroethane (75-34-3)		X									
18V. 1,2-Dichloroethane (107-06-5)		X									
18V. 1,1-Dichloroethylene (75-35-4)		X									
17V. 1,2-Dichloropropane (78-57-6)		X									
19V. 1,2-Dichloropropane (542-79-6)		X									
18V. Ethylbenzene (100-41-4)		X									
20V. Methyl Bromide (74-83-6)		X									
21V. Methyl Chloride (74-87-3)		X									

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1. POLLUTANT AND CAS NUMBER (if available)		2. MARK 'M'		3. EFFLUENT		4. UNITS		5. INTAKE (optional)	
		MAX. CONC. (ppm)	MAX. DAILY VALUE (lb/day)	MAX. CONC. (ppm)	MAX. DAILY VALUE (lb/day)	CONCENTRATION	MASS	LONG TERM AVERAGE VALUE (i) concn (ii) mass	NO. OF ANAL. YRS
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)									
23V. Methylene Chloride (78-09-3)									
23V. 1,1,2,2-Tetrachloroethane (78-34-6)									
24V. Trichloroethylene (121-18-4)									
26V. Toluene (108-98-3)									
28V. 1,2-Trans-Dichloroethylene (196-90-4)									
27V. 1,1,1-Trichloroethane (71-95-8)									
28V. 1,1,2-Trichloroethane (78-00-5)									
29V. Trichloroethylene (78-01-4)									
30V. Trichlorofluoromethane (75-95-4)									
21V. Vinyl Chloride (78-01-4)									
GC/MS FRACTION - ACID COMPOUNDS									
1A. 2-Chlorophenol (95-67-8)									
2A. 2,4-Dichlorophenol (120-83-2)									
3A. 2,4-Dimethylphenol (105-67-8)									
4A. 4,6-Dinitro-Cresol (534-52-1)									
5A. 2,4-Dinitrophenol (81-20-3)									
6A. 2-Nitrophenol (89-75-5)									
7A. 4-Nitrophenol (100-02-7)									
8A. p-Chloro-Cresol (95-60-7)									
9A. p-Toluenesulfonic acid (87-96-3)									
10A. Phenol (105-90-2)									
11A. 2,4,6-Trichlorophenol (88-05-2)									

EPA ID. NUMBER (copy from Form 1 of Item 1) OCTAVE NUMBER 001

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EPA ID NUMBER (copy from Item 1 of Form 1) OUTFALL NUMBER 001

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'		3. EFFLUENT		4. UNITS		5. INTAKE (if applicable)	
	CONC. (mg/l)	CONC. (ppm)	MAXIMUM DAILY VALUE (mg/l)	MAXIMUM 30 DAY VALUE (mg/l)	CONCENTRATION	MASS	ANAL. VALUE (mg/l)	ANAL. VALUE (mg/l)
228. 1,4-Dichlorobenzene (106-46-7)								
228. 3,3'-Dichlorobenzidine (91-04-1)								
248. Dimethyl Phthalate (84-66-3)								
258. Dimethyl Phthalate (131-11-3)								
348. Di-n-Butyl Phthalate (84-74-3)								
378. 2,6-Dichlorobenzene (121-16-5)								
388. 2,6-Dichlorobenzene (806-26-3)								
398. Di-n-Octyl Phthalate (117-84-0)								
398. 1,2-Dichlorobenzene (95-50-1)								
318. Fluorenone (208-64-0)								
328. Fluorene (86-73-7)								
348. Hexachlorobenzene (118-74-1)								
368. Hexachlorocyclopentadiene (87-68-3)								
368. Hexachlorocyclopentadiene (77-47-4)								
368. Hexachlorocyclopentadiene (87-72-1)								
378. Indane (1,2,3-cd) Pyrene (193-36-3)								
388. Isophthalic acid (79-06-1)								
388. Naphthalene (91-20-3)								
408. Nitrobenzene (98-06-2)								
418. N-Nitro-p-nitrophenylamine (83-78-9)								
428. N-Nitro-p-nitrophenylamine (83-78-9)								

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CONTINUED FROM THE FRONT				3. EFFLUENT				4. UNITS		5. INTAKE (OPTIONAL)	
1. POLLUTANT AND CAS NUMBER (If available)	2. NAME 'N'		3. MAXIMUM DAILY VALUE (If available)		4. MAXIMUM DAILY VALUE (If available)		5. CONCENTRATION	6. MADE	7. LONG TERM ADDITIONAL VALUE (If available)	8. NO OF ANAL YES	
	USE	USE	USE	USE	USE	USE					
OC/NB FRACTION - BASE/NEUTRAL COMPOUNDS (non chlord)											
438 N,N-Dimethopropylamine (188 30 8)											
448 Phenanthrene (81-01-6)											
458 Pyrene (129-00-0)											
468 1,2,4,7-tetrahydronaphthalene (120 82-1)											
OC/NB FRACTION - PESTICIDES											
1P Atrazin (1309 00 2)											
2P D BHC (1318 84-8)											
3P D BHC (1318 85 7)											
4P D BHC (158 88 9)											
5P D BHC (1318 86-8)											
6P Chlordane (157 74 8)											
7P 4,4'-DDT (150 29 3)											
8P 4,4'-DDE (172 85 8)											
9P 4,4'-DDD (172 84 8)											
10P Dieldrin (180 97 1)											
11P D Endosulfan (115 29 7)											
12P D Endosulfan (115 29 7)											
13P D Endosulfan (115 29 7)											
14P Endrin (142 152 4)											
15P Imidacloprid (176 44 8)											

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'H'		3. EFFLUENT		4. UNIT		5. INTAKE (upstream)		6. NO. OF TREATMENT TANKS
	7. NAME	8. MAXIMUM DAILY VALUE (1) name	9. MAXIMUM DAILY VALUE (2) name	10. MAXIMUM DAILY VALUE (3) name	11. MAXIMUM DAILY VALUE (4) name	12. MAXIMUM DAILY VALUE (5) name	13. MAXIMUM DAILY VALUE (6) name	14. MAXIMUM DAILY VALUE (7) name	
OCMS FRACTION - PESTICIDES (continued)									
17P. Heptachlor Epoxide (102437-2)									
18P. PCP-1242 (10440-1)									
19P. PCP-1244 (11097-40-1)									
20P. PCP-1271 (11104-20-2)									
21P. PCP-1272 (11161-16-3)									
22P. PCP-1248 (12672-20-6)									
23P. PCP-1290 (11094-22-4)									
24P. PCP-1016 (12674-11-3)									
25P. Terbufos (000138-2)									

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