NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER QUALITY

INSTRUCTIONS

Form RF

This form shall accompany all NJPDES-DSW individual permit applications for a "stormwater discharge associated with industrial activity" as defined at N.J.A.C. 7:14A-1.2 unless:

- ***The stormwater discharge is associated with construction activity and you are not required to submit Form RF under N.J.A.C. 7:14A-11.5(c)1ii and (c)1v; or***

- ***The stormwater discharge is mixed with:***

  1. ***An industrial nonstormwater discharge that requires a NJPDES-DSW permit — instead submit Form C with the application.***

  2. ***Domestic sewage — instead submit Form 2A with the application. (Note also that a stormwater discharge to any conveyance that leads to a domestic treatment works (DTW) is not a "stormwater discharge associated with industrial activity," and does not require a NJPDES-DSW permit.)***

  3. ***An industrial nonstormwater discharge that requires a NJPDES-DSW permit, and is also mixed with domestic sewage — instead submit with the application Form C if the mixed discharge is primarily industrial, or Form 2A if the mixed discharge is primarily domestic.***

Item 1 - Provide the name of your facility as it appears in Item 3 of the NJPDES - 1 Form. (Also provide this name on the top of each page of Form RF.)

Item 2 - If this application is for renewal, revocation and reissuance, or major modification of an existing NJPDES permit, provide the NJPDES permit number of that permit. If this is an application for a new NJPDES permit, leave Item 2 blank.

Item 3A - Attach a site map of your facility that clearly and legibly contains the information required below. This site map shows the topography of your facility, or indicates (if a map of your facility's topography is unavailable) the outline of drainage areas covered in the application, including generalized stormwater flow and drainage patterns. (The delineation of the drainage area of each stormwater outfall and each drainage area not served by a stormwater outfall can be based on site observations which identify drainage patterns.) The site map shall distinctly mark the facility boundaries, and shall also include:

- The location and size (approximate size for earthen structures or channels) of each of your facility's drainage and discharge structures and natural drainage channels;

- The location, drainage area, and number (from Item 4) of each stormwater outfall and each "drainage area not served by a stormwater outfall" (DANS) listed in Item 4;

- Paved areas and buildings within each drainage area, each area known to be used at present or in the three years prior to the submittal of this application for outdoor storage or disposal of "significant materials" (see the Instructions for Item 8B), each existing structural control measure to reduce pollutants in stormwater runoff, materials loading and access areas (e.g., loading docks and truck routes on facility property used by carriers of industrial materials), and areas where pesticides, herbicides, soil conditioners and fertilizers are applied;

- Each onsite residual or hazardous waste treatment, storage or disposal facility (including each area not required to have a RCRA permit which is used for accumulating hazardous waste for less than 90 days under 40 CFR 262.34);

- The location (to the extent practicable) of all sites at which solid or liquid waste is stored at your facility;

- Springs, streams, rivers, canals, lakes, ponds, bays, the ocean, or other surface water bodies which receive stormwater discharges from your facility; and

- Each sampling location for data reported in Item 11 or the Alternative Discharge Information Form.

The site map must indicate whether the drainage system immediately receiving stormwater discharged from your facility is a surface water body, an offsite public or private storm drainage system, or other system as applicable.

During the preparation of the site drainage map (or the review of an existing site drainage map), emphasis should be placed on the identification of all inflow sources at your facility to ensure that nonstormwater discharges are identified (see Item 9 and its Instructions). The site drainage map should identify discrete points of entry to (or within) your facility's stormwater drainage system, including catch basins, floor drains, and roof leaders.

Item 3B - Attach an 8.5" x 11" copy of a portion of a U.S. Geological Survey Topographic Map(s), 7.5 minute Quadrangle Series extending one mile beyond the facility boundaries. The copy must be clear and legible, and the facility boundaries must be distinctly marked on the copy. Also, the name of the specific quadrangle(s) must be provided on the face of the copy.

Item 4 - Follow directions in Item 4 of the form. For purposes of Form RF, a "stormwater outfall" or "outfall" is **(a)** a point within your facility at which stormwater associated with your facility's industrial activity enters a surface water body from a discernible, confined, and discrete conveyance; or **(b)** a point at which stormwater associated with your facility's industrial activity leaves the facility through a discernible, confined, and discrete conveyance for transport as stormwater to an offsite surface water body. A "discernible, confined, and discrete conveyance" includes, but is not limited to, a pipe, ditch, or channel. Examples of such conveyances include storm sewer pipes, drainage ditches, spillways, gullies, swales, gutters, curbs, and streets.

For purposes of Form RF, a "drainage area not served by a stormwater outfall" (DANS) is an area that is not served by a "stormwater outfall" as described above, but that is an area from which stormwater associated with your facility's industrial activity is drained from your facility to one or more onsite or offsite surface water bodies. (For example, such stormwater may enter a surface water body at your facility, or leave your facility, through sheet flow where there is no "discernible, confined, and discrete conveyance.") At your option, you may consider all contiguous locations within your facility that are not served by "stormwater outfalls" to be within a single DANS, which may have more than one receiving water.

Do not list any conveyance or drainage area with a stormwater discharge that you intend to have authorized under a different NJPDES-DSW permit, or that is mixed with another industrial discharge or with domestic sewage.

In the left-hand column, list stormwater outfall numbers (if any) first (e.g., 001, 002, etc.). If a stormwater outfall already has a Discharge Serial Number (DSN) in your facility's existing NJPDES-DSW permit, list that DSN for that stormwater outfall. Then list numbers for each DANS (if any) (e.g., N-003, N-004, etc.), beginning (after the prefix "N-") with the number that follows the last stormwater outfall number (if any) you listed.

For each stormwater outfall and DANS, list the name of the receiving surface water(s) (or indicate that the discharge is to an unnamed tributary to a surface water named in the "Receiving Water(s)" column). In addition, if stormwater is discharged to a receiving surface water through an offsite public or private storm drainage system, also list the name of the owner(s) of that system.

Item 5 (New Sources or New Discharges Only) - Provide your best estimate of the first date upon which there may be a "stormwater discharge associated with industrial activity" from your facility.

Item 6 - Follow directions in Item 6 of the form.

Item 7 - Follow directions in Item 7 of the form. "Conditions, Agreements, etc." include, but are not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

Item 8A - Follow directions in Item 8A of the form. For the purpose of this application, impervious surfaces are surfaces where stormwater runs off at rates that are significantly higher than background rates (e.g., predevelopment levels), and include paved areas, building roofs, parking lots, and roadways. Also provide an estimate of the total area (including all impervious and pervious areas) drained by each stormwater outfall, and an estimate of the total area (including all impervious and pervious areas) of each drainage area not served by a stormwater outfall. The site map required under Item 3A can be used to estimate these total areas. When reporting areas covered by impervious surfaces and total areas, include the units (e.g., acres or square feet).

Item 8B - Follow directions in Item 8B of the form. Significant materials should be identified by chemical name, form (e.g., powder, liquid, etc.), and type of container or treatment unit. Indicate any materials treated, stored, or disposed of together. "Significant materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

Item 8C - Follow directions in Item 8C of the form. Structural controls include structures which enclose material handling or storage areas, covering materials, berms, dikes, or diversion ditches around manufacturing, production, storage or treatment units, retention ponds, etc. Nonstructural controls include practices such as spill prevention plans, employee training, visual inspections, preventive maintenance, and housekeeping measures that are used to prevent or minimize the potential for releases of pollutants.

Treatment units should be listed in order, and the proper code from Appendix RF-1 (page 8 of these instructions) should be listed for each treatment unit. Insert "XX" into the column if no code corresponds to a treatment unit you list. If you are applying for a new individual NJPDES permit, you must report the existence of any technical evaluation concerning your stormwater treatment, along with the name and location of similar treatment plants of which you have knowledge.

Item 9 - Follow directions in Item 9 of the form. Tests for nonstormwater discharges may include smoke tests, fluorometric dye tests, analysis of accurate schematics, as well as other appropriate tests. If a "stormwater discharge associated with industrial activity" is mixed with an industrial nonstormwater discharge that requires a NJPDES-DSW permit, or is mixed with domestic sewage, then submit Form C or Form 2A for the mixed discharge (see page 1 of these instructions).

Item 10 - Follow directions in Item 10 of the form. For purposes of Item 10, significant leaks or spills at a facility generally include releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 C.F.R. 110.10 and 40 C.F.R. 117.21) or Section 302 of CERCLA (see 40 C.F.R. 302.4).

Item 11 - Follow directions in Item 11 of the form. Please complete the Pollutant Analysis Summary (PAS) in Items 11A and 11B, if appropriate. If you sample more than storm event or discharge location, make copies of blank page 3, or blank pages 4 and 5, to complete Items 11A or 11B for each sampled storm event or discharge location, respectively.

NOTE: As the directions in Item 11 of the form explain, certain applications must include the Alternative Discharge Information Form (ADI Form) instead of the PAS. If you cannot use the PAS, or if you choose not to use the PAS, you must use the ADI Form which requires additional discharge information (including pollutant concentrations and loadings based on flow-weighted composite samples), and which is available from the Bureau of Permit Management at (609) 984-4428. The Department does **not** need to be contacted in advance of the decision to complete the PAS or the ADI Form. However, the Department may require you to conduct additional analyses to further characterize your discharges. Do not complete the PAS if you instead complete the ADI Form.

Item 11A - Follow directions in Item 11A of the form (if you decide to complete the PAS). As explained in the Instructions for Item 11B, grab sampling of stormwater must be conducted to complete the PAS. A grab sample may be taken during **any storm event that produces a stormwater discharge and has not been preceded by another storm event within the last 72 hours**. On the "*Total Rainfall (inches)*" line, provide (except as noted in the Form RF *General Sampling and Reporting Guidance*) measurements or estimates of the total rainfall during the storm event (including the liquid equivalent of any snow or other frozen precipitation during that storm event).

Item 11B - Follow directions in Item 11B of the form (if you decide to complete the PAS). Record the time at which the stormwater discharge begins at your sampling location, the time at which you take your grab sample, and the sampling date. The grab sample (an individual sample of at least 100 milliliters) must be collected within **90 minutes** from the onset of discharge. Also provide (except as noted in the Form RF *General Sampling and Reporting Guidance*) measurements or estimates (in inches) of the rainfall from the beginning of the storm event sampled until the time of sampling (including the liquid equivalent of any snow or other frozen precipitation that fell during that time period).

The Form RF *General Sampling and Reporting Guidance* contains additional general instructions and guidance for sampling, analysis, and reporting. Tables 11B-1, 11B-2, and 11B-3 each address a different set of pollutants, and must also be completed in accordance with the specific instructions below for each of those tables. The following general reporting instructions apply to all of those tables.

On each page containing Tables 11B-1 and 11B-2 or Table 11B-3, report information for the single stormwater outfall or DANS whose number you specify on that page. All pollutant levels (except pH) reported in those tables must be reported as concentration, except that for pollutants which cannot be appropriately expressed in terms of concentration, levels must be reported in units appropriate to the pollutant (even though such pollutants are reported for convenience under the "concentration" column). Report sources (see the Form RF *General Sampling and Reporting Guidance*) for each Table 11B-1 pollutant (except pH), and for each pollutant you list in Tables 11B-2 or 11B-3 (including each pollutant listed in Table 11B-3 but not analyzed).

Table 11B-1. - Follow directions in Table 11B-1 of the form. You must analyze for "Oil and Grease" (rather than for "Petroleum Hydrocarbons") unless the oil and grease in the discharge is petroleum-based only, in which case you must analyze either for "Oil and Grease" or "Petroleum Hydrocarbons" (check the appropriate box to identify which analysis you performed).

Sampling requirements for maximum holding time, preservation, and type of container are summarized in Exhibit PAS-1, "Sampling Requirements for Table 11B-1." Your laboratory should also be consulted in regard to these and other sampling requirements, including the minimum sample sizes for the specific analytical methods to be used.

Exhibit PAS-1
Sampling Requirements for Table 11B-1[*]

Pollutant	Maximum Holding Time	Preservation	Required Container
Biochemical Oxygen Demand (BOD_5)	48 hours	Cool 4ºC	polyethylene or glass
Chemical Oxygen Demand (COD)	28 days	Cool 4ºC H_2SO_4 to pH < 2	polyethylene or glass
Total Suspended Solids (TSS)	7 days	Cool 4ºC	polyethylene or glass
Total Kjeldahl Nitrogen	28 days	Cool 4ºC H_2SO_4 to pH < 2	polyethylene or glass
Nitrate plus Nitrite Nitrogen	28 days	Cool 4ºC H_2SO_4 to pH < 2	polyethylene or glass
Total Phosphorus	28 days	Cool 4ºC H_2SO_4 to pH < 2	polyethylene or glass
Oil and Grease	28 days	Cool 4ºC HCl or H_2SO_4 to pH < 2	glass
Petroleum Hydrocarbons	7 days	HCl to pH < 2	glass
pH	15 minutes[**]	None	polyethylene or glass

[*] Source: 40 CFR Part 136, N.J.A.C. 7:18
[**] Unless you use the alternative protocol for pH analysis described on the following two pages

The following protocol for **pH** analysis shall be exclusively used for **stormwater** effluent characterization and monitoring only when the 15 minute maximum holding time must be exceeded due to the difficulties in predicting rainfall events. This alternative protocol does not require prior Department approval. However, you must document the reason(s) why it was necessary to use the alternative protocol and submit it with your Form RF.

Do not use this protocol for NJPDES permits with effluent limitation requirements, or for pH analysis used in other Department programs. **This protocol is for purposes of stormwater pH analysis only.**

Stormwater samples for **pH** analysis must be collected and analyzed as follows.

- When possible, collect samples directly into the cleaned sample container.
- When the sample cannot be collected directly into the sample container, use a clean sampling device.
- Rinse the sample container and/or sampling device a minimum of three times with the stormwater to be sampled.
- The sample container must be glass or plastic with at least a 200 mL capacity, and have a leak proof cap.
- The sample must fill the container completely not allowing for any head space within the container.
- The sample must be either analyzed on-site, or stored at 4°C until analysis.
- All samples for stormwater pH must be analyzed within 24 hours of collection.
- All analysis for pH must be performed by a New Jersey Certified Laboratory as per the procedure outlined in "Regulations Governing the Certification of Laboratories and Environmental Measurements," N.J.A.C. 7:18.
- A chain of custody must be completed for pH with the following information (Exhibit PAS-2). The exceeded holding time must be documented on the chain of custody.

Exhibit PAS-2
Chain of Custody Requirements for pH

The chain of custody procedures must be employed in collecting and handling pH samples and the information must be reported on the sample report form or a chain of custody form. (N.J.A.C. 7:18-9.3(b))

1. Decontaminated containers must be used for sampling.

2. Tie-on or affixed labels with an identification number must be used for labeling all samples.

3. After the sample has been collected, the appropriate information as to identity the sample must be written on the label. If the label has been removed, it must be reaffixed before removing the label from any other container.

4. After collecting the sample, the label must remain affixed to the sample container and must not be removed until the required analyses have been completed and the surplus sample has been discarded.

5. Immediately upon delivery of the sample to the laboratory, the sample collector must complete the appropriate chain of custody section of the sample report form or chain of custody form.

6. The chain of custody information reported on the sample report form or the chain of custody form must list at a minimum the following information:

    i. Sample number;
    ii. Description of samples;
    iii. Specific location of sample collection;
    iv. Identity of person collecting the sample;
    v. Date and time of sample collection;

vi. Date and time of custody transfer to laboratory (if the sample was collected by a person other than laboratory personnel);
vii. Identity of person accepting custody (if the sample was collected by a person other than laboratory personnel);
viii. Date and time of initiation of analysis;
ix. Identity of person(s) performing analysis; and
x. Name of laboratory performing the analysis;

7. Prior to accepting custody of the sample, the laboratory personnel who will accept the sample must be reasonably assured that the sample has met the preservation requirements. If the sample fails to meet those requirements, the chain of custody section of the sample report form or the chain of custody form must so indicate and the sample must be refused.

8. The laboratory personnel accepting responsibility for the sample as well as all other laboratory personnel performing analysis on that sample must sign the form containing the chain of custody information.

9. When it is necessary to send samples by mail, bus, courier service, or private shipping, the chain of custody form must be completed by the sampler prior to the shipping of the sample and must accompany the sample during shipping. Upon receipt of the sample in the laboratory, steps 6 through 8 above must be followed.

Table 11B-2 - Follow directions in Table 11B-2 of the form. In accordance with those directions, the pollutants that must be listed in Table 11B-2 may include one or more pollutants shown in Appendix RF-2, RF-3, or RF-4, or other pollutants. Do not, however, list any Table 11B-1 pollutants. See 40 CFR Subchapter N to determine which pollutants are directly or indirectly limited in effluent guidelines. (For example, if iron and aluminum are indirectly limited by an applicable effluent guideline limitation through use of total suspended solids as an indicator, you must analyze for iron and aluminum, and report the data in Table 11B-2.)

Table 11B-3 - Follow directions in Table 11B-3 of the form, which requires you to list each pollutant shown in Appendix RF-2, RF-3, or RF-4 that you know or have reason to believe is discharged (see the Form RF *General Sampling and Reporting Guidance*), even if you list that pollutant in Table 11B-2. As set forth in the following instructions concerning Appendix RF-2, RF-3, and RF-4, Table 11B-3 does **not** require you in some instances to analyze a grab sample for a pollutant you list in Table 11B-3. (In some of those instances, however, Table 11B-2 may require you to analyze for that pollutant. See the directions in Table 11B-2 of the form.) Pollutants shown in each Appendix are addressed differently. For each of the pollutants (if any) for which you do report analyses under Table 11B-3, collect and analyze a grab sample (as described in the general instructions above).

APPENDIX RF-2 (CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS) - For each pollutant shown in Appendix RF-2 that you know or have reason to believe is discharged, Table 11B-3 requires you to either report quantitative data or briefly describe the reasons the pollutant is expected to be discharged.

APPENDIX RF-3 (TOXIC POLLUTANTS AND TOTAL PHENOLS) - For each pollutant shown in Appendix RF-3 (other than acrolein, acrylonitrile, 2,4-dinitrophenol, and 4,6-dinitro-o-cresol) that you know or have reason to believe is discharged in concentrations of 10 μg/L or greater, Table 11B-3 requires you to submit quantitative data. For acrolein, acrylonitrile, 2,4-dinitrophenol, and 4,6-dinitro-o-cresol, you must submit quantitative data if any of these four pollutants is expected to be discharged in concentrations of 100 μg/L or greater. For every pollutant expected to be discharged in concentrations of less than 10 μg/L (or 100 μg/L for the four pollutants listed above), you must either submit quantitative data or briefly describe the reasons the pollutant is expected to be discharged.

If you qualify as a **small business**, you are exempt from the Table 11B-3 requirements (but not the Table 11B-2 requirements) to submit quantitative data for the pollutants shown in Appendix RF-3, with the exception of all of the toxic metals, total cyanide, and total phenols (the first 15 pollutants shown in Appendix RF-3). You qualify if gross total annual sales for an average of the most recent three years is less than $100,000 per year (in second quarter 1980 dollars). If you want this exemption and feel you qualify for it, check the corresponding box in Table 11B-3 and submit sales data for those years to the Department (see the Form RF *General Sampling and Reporting Guidance*).

APPENDIX RF-4 (TOXIC POLLUTANT (ASBESTOS) AND HAZARDOUS SUBSTANCES) - For each pollutant shown in Appendix RF-4 that you know or have reason to believe is discharged, Table 11B-3 requires you to describe briefly the reasons the pollutant is expected to be discharged, and report any quantitative data you have for that pollutant.

Item 12 - Follow directions in Item 12 of the form. All pollutants shown in Appendix RF-3 are “toxic pollutants” except for “Phenols, Total.” Asbestos is the sole “toxic pollutant” shown in Appendix RF-4.

List TCDD (2,3,7,8 tetrachlorodibenzo-p-dioxin) if you know or have reason to believe that TCDD is discharged, or if you use or manufacture 2,4,5-trichlorophenoxy acetic acid (2,4,5,-T); 2-(2,4,5-trichlorophenoxy) propanoic acid(Silvex, 2,4,5,-TP); 2-(2,4,5-trichlorophenoxy) ethyl, 2,2-dichloropropionate (Erbon); O,O-dimethyl O-(2,4,5-trichlorphenyl) phosphorothioate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophene (HCP).

The Department will waive or modify Item 12 requirements if you demonstrate that it would be unduly burden some to identify each toxic pollutant and the Department has adequate information to issue your permit. You may not claim Item 12 information as confidential; however, you do not have to distinguish between use or production of the pollutants or list the amounts.

Item 13 - Follow directions in Item 13 of the form.

Item 14 - All analyses must be performed by a laboratory certified by the Department under N.J.A.C. 7:18 (except for group application data submitted to USEPA under 40 CFR 122.26). Provide the name, telephone number, certification number, and the pollutant(s) or pollutant category(ies) analyzed by each certified laboratory.

Item 15 - This form must be certified by the applicant(s) for the NJPDES permit. On the top line in Item 15, provide the name of the applicant/operating entity as it appears in Item 1 of the NJPDES -1 Form. The signature must be an original signature. The Water Pollution Control Act provides for severe penalties for submitting false information on this application form.

BE ON NOTICE THAT any person who knowingly makes any false statement, representation, or certification in any application shall upon conviction be punished by a fine of not less than $5000.00 nor more than $75,000.00 or by imprisonment or both (N.J.S.A. 58:10A-10f 2&3).

WHO MUST SIGN?

A Responsible Official is defined in N.J.A.C. 7:14A – 4.9 as follows:

For a corporation: A president, secretary, treasurer, or vice-president of the corporation in charge of principal business function, or any other person who performs similar policy or decision making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities, provided:
(1) The manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of recommending major capital investment, initiating and directing comprehensive measures to assure long term compliance with environmental laws and regulations, and ensuring that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; or
(2) The authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

For a partnership or sole proprietorship: A general partner or the proprietor.

For a government agency: A ranking elected official; or the chief executive officer of the agency; or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator).

A duly authorized representative as defined in N.J.A.C. 7:14A – 4.9(b).

Appendix RF-1

Codes for Treatment Units

Physical Treatment Processes

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

Chemical Treatment Processes

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

Biological Treatment Processes

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

Sludge Treatment and Disposal Processes

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

Appendix RF-2

Conventional and Nonconventional Pollutants

Bromide (24959-67-9)

Chlorine, Total Residual

Color

Fecal Coliform

Fluoride (16984-48-8)

Nitrogen, Total Organic (as N)

Radioactivity

- Alpha, Total
- Beta, Total
- Radium, Total
- Radium 226, Total

Sulfide (as S)

Sulfite(as SO_3) (14265-45-3)

Sulfate (as SO_4) (14808-79-8)

Surfactants

Aluminum, Total (7429-90-5)

Barium, Total (7440-39-3)

Boron, Total (7440-42-8)

Cobalt, Total (7440-48-4)

Iron, Total (7439-89-6)

Magnesium, Total (7439-95-4)

Molybdenum, Total (7439-98-7)

Manganese, Total (7439-96-5)

Tin, Total (7440-31-5)

Titanium, Total (7440-32-6)

Appendix RF-3

Toxic Pollutants and Total Phenols

Metals, Cyanide, and Total Phenols

Antimony, Total (7440-36-0)
Arsenic, Total (7440-38-2)
Beryllium, Total (7440-41-7)
Cadmium, Total (7440-43-9)
Chromium, Total (7440-47-3)
Copper, Total (7550-50-8)
Lead, Total (7439-92-1)
Mercury, Total (7439-97-6)
Nickel, Total (7440-02-0)
Selenium, Total (7782-49-2)
Silver, Total (7440-22-4)
Thallium, Total (7440-28-0)
Zinc, Total (7440-66-6)
Cyanide, Total (57-12-5)
Phenols, Total

Organic Toxic Pollutants - Volatiles

Acrolein (107-02-8)
Acrylonitrile (107-13-1)
Benzene (71-43-2)
Bromoform (75-25-2)
Carbon Tetrachloride (56-23-5)
Chlorobenzene (108-90-7)
Chlorodibromomethane (124-48-1)
Chloroethane (75-00-3)
2-Chloroethylvinyl Ether (110-75-8)
Chloroform (67-66-3)
Dichlorobromomethane (75-27-4)
1,1-Dichloroethane (75-34-3)
1,2-Dichloroethane (107-06-2)
1,1-Dichloroethylene (75-35-4)
1,2-Dichloropropane (78-87-5)
1,3-Dichloropropylene (542-75-6)
Ethylbenzene (100-41-4)
Methyl Bromide (74-83-9)
Methyl Chloride (74-87-4)
Methylene Chloride ((75-09-2)
1,1,2,2-Tetrachloroethane (79-34-5)
Tetrachloroethylene (127-18-4)
Toluene (108-88-3)
1,2-Trans-Dichloroethylene (156-60-5)
1,1,1-Trichloroethane (71-55-6)
1,1,2-Trichloroethane (79-00-5)
Trichloroethylene (79-01-6)
Vinyl Chloride (75-01-4)

Organic Toxic Pollutants - Acid Compounds

2-Chlorophenol (95-57-8)
2,4-Dichlorophenol (120-83-2)
2,4-Dimethylphenol (105-67-9)
4,6-Dinitro-O-Cresol (534-52-1)
2,4-Dinitrophenol (51-28-5)
2-Nitrophenol (88-75-5)
4-Nitrophenol (100-02-7)
P-Chloro-M-Cresol (59-50-7)
Pentachlorophenol (87-86-5)
Phenol (108-95-2)
2,4,6-Trichlorophenol (88-06-2)

Appendix RF-3 (Continued)

Organic Toxic Pollutants - Base/Neutral Compounds

Acenaphthene (83-32-9)
Acenaphthylene (208-96-8)
Anthracene (120-12-7)
Benzidine (92-87-5)
Benzo (a) Anthracene (56-55-3)
Benzo (a) Pyrene (50-32-8)
3,4-Benzofluoranthene (205-99-2)
Benzo (ghi) Perylene (191-24-2)
Benzo (k) Fluoranthene (207-08-9)
Bis (2-Chloroethoxy) Methane (111-91-1)
Bis (2-Chloroethyl) Ether (111-44-4)
Bis (2-Chloroisopropyl) Ether (102-60-1)
Bis (2-Ethylhexyl) Phthalate (117-81-7)
4-Bromophenyl Phenyl Ether (101-55-3)
Butyl Benzyl Phthalate (85-68-7)
2-Chloronaphthalene (91-58-7)
4-Chlorophenyl Phenyl Ether (7005-72-3)
Chrysene (218-01-9)
Dibenzo (a,h) Anthracene (53-70-3)
1,2-Dichlorobenzene (95-50-1)
1,3-Dichlorobenzene (541-73-1)
1,4-Dichlorobenzene (106-46-7)
3,3 -Dichlorobenzidine (91-94-1)
Diethyl Phthalate (84-66-2)
Dimethyl Phthalate (131-11-3)
Di-N-Butyl Phthalate (84-74-2)
2,4-Dinitrotoluene (121-14-2)
2,6-Dinitrotoluene (606-20-2)
Di-N-Octyl Phthalate (117-84-0)
1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)
Fluoranthene (206-44-0)
Fluorene (86-73-7)
Hexachlorobenzene (118-74-1)
Hexachlorobutadiene (87-68-3)
Hexachlorocyclopentadiene (77-47-4)
Hexachloroethane ((67-72-1)
Indeno (1,2,3-cd) Pyrene (193-39-5)
Isophorone (78-59-1)
Naphthalene (91-20-3)
Nitrobenzene (98-95-3)
N-Nitrosodimethylamine (62-75-9)
N-Nitrosodi-N-Propylamine (621-64-7)
N-Nitrosodiphenylamine (86-30-6)
Phenanthrene (85-01-8)
Pyrene (129-00-0)
1,2,4-Trichlorobenzene (120-82-1)

Organic Toxic Pollutants - Pesticides

Aldrin (309-00-2)
Alpha-BHC (319-84-6)
Beta-BHC (319-85-7)
Gamma-BHC (58-89-9)
Delta-BHC (319-86-8)
Chlordane (57-74-9)
4,4'-DDT (50-29-3)
4,4'-DDE (72-55-9)
4,4'-DDD (72-54-8)
Dieldrin (60-57-1)
Alpha-Endosulfan (115-29-7)
Beta-Endosulfan (115-29-7)
Endosulfan Sulfate (1031-07-8)
Endrin (72-20-8)
Endrin Aldehyde (7421-93-4)
Heptachlor (76-44-8)
Heptachlor Epoxide (1024-57-3)
PCB-1242 (53469-21-9)
PCB-1254 (11097-69-1)
PCB-1221 (11104-28-2)
PCB-1232 (11141-16-5)
PCB-1248 (12672-29-6)
PCB-1260 (11096-82-5)
PCB-1016 (12674-11-2)
Toxaphene (8001-35-2)

Appendix RF-4

Toxic Pollutant (Asbestos) and Hazardous Substances

Toxic Pollutant

Asbestos (1332-21-4)

Hazardous Substances

Acetaldehyde (75-07-0)
Allyl Alcohol (107-18-6)
Allyl Chloride (107-05-1)
Amyl Acetate (628-63-7)
Aniline (62-53-3)
Benzonitrile (100-47-0)
Benzyl Chloride (100-44-7)
Butyl Acetate (123-86-4)
Butylamine (109-73-9)
Captan (133-06-2)
Carbaryl (63-25-2)
Carbofuran (1563-66-2)
Carbon Disulfide (75-15-0)
Chlorpyrifos (2921-88-2)
Coumaphos (56-72-4)
Cresol (1319-77-3)
Crotonaldehyde (4170-30-3)
Cyclohexane (110-82-7)
2,4-D (2,4-Dichlorophenoxy Acetic Acid) (94-75-7)
Diazinon (333-41-5)
Dicamba (1918-00-9)
Dichlobenil (1194-65-6)
Dichlone (117-80-6)
2,2-Dichloropropionic Acid (75-99-0)
Dichlorvos (62-73-7)
Diethyl Amine (109-89-7)
Dimethyl Amine (124-40-3)
Dinitrobenzene (25154-54-5)
Diquat (85-00-7, 2764-72-9)
Disulfoton (298-04-4)
Diuron (330-54-1)
Epichlorohydrin (106-89-8)
Ethion (563-12-2)
Ethylene Diamine (107-15-3)
Ethylene Dibromide (106-93-4)
Formaldehyde (50-00-0)
Furfural (98-01-1)
Guthion (86-50-0)
Isoprene (78-79-5)
Isopropanolamine Dodecylbenzenesulfonate (42504-46-1)
Kelthane (115-32-2)
Kepone (143-50-0)
Malathion (121-75-5)
Mercaptodimethur (2032-65-7)
Methoxychlor (72-43-5)
Methyl Mercaptan (74-93-1)
Methyl Methacrylate (80-62-6)
Methyl Parathion (298-00-0)
Mevinphos (7786-34-7)
Mexacarbate (315-18-4)
Monoethyl Amine (75-04-7)
Monomethyl Amine (74-89-5)
Naled (300-76-5)
Napthenic Acid (1338-24-5)
Nitrotoluene (1321-12-6)
Parathion (56-38-2)
Phenolsulfanate
Phosgene (75-44-5)
Propargite (2312-35-8)
Propylene Oxide (75-56-9)
Pyrethrins (121-21-1, 121-29-9, 8003-34-7)
Quinoline (91-22-5)
Resorcinol (108-46-3)
Strontium (7440-24-6)
Strychnine (57-24-9)
Styrene (100-42-5)
2,4,5-T (2,4,5-Trichlorophenoxy Acetic Acid) (93-76-5)
TDE (Tetrachlorodiphenylethane) (72-54-8)
2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid] (93-72-1)
Trichlorofon (52-68-6)
Triethanolamine Dodecylbenzenesulfonate (27323-41-7)
Triethylamine (121-44-8)
Trimethylamine (75-50-3)
Uranium (7440-61-1)
Vanadium (7440-62-2)
Vinyl Acetate (108-05-4)
Xylene (1330-20-7)
Xylenol (1300-71-6)
Zirconium (7440-67-7)