

L. Infrastructure

The City's "infrastructure" comprises the physical systems that support its population—water supply; wastewater; sanitation; energy; even roadways, bridges, tunnels, and public transportation. Many of these topics are discussed elsewhere in this Manual (Chapters 3M, "Solid Waste and Sanitation Services; 3N, "Energy;" 3O, "Traffic and Parking;" and 3P, "Transit and Pedestrians"). This chapter discusses water supply, sewage treatment, and stormwater management.

100. Definitions

110. WATER SUPPLY

111. New York City Water Supply System

Most of New York City obtains water from three surface water supply systems, operated by the Department of Environmental Protection, that form a network of reservoirs, aqueducts, and tunnels extending as far as 125 miles north of the City. The watersheds of the three systems cover almost 2,000 square miles, with 19 reservoirs and three controlled lakes, which have a storage capacity of 550 billion gallons. The water flows to the City through aqueducts, reaching most consumers by gravity alone; some four percent of the City's water must be pumped to its final destination.

Two of the three surface water systems, the Delaware and Catskill systems, collect water from watershed areas in the Catskill Mountains and deliver it to the Hillview Reservoir in Yonkers. From there, it is distributed to the City through three tunnels, City Tunnel No. 1, which goes through the Bronx and Manhattan to Brooklyn, and City Tunnel No. 2, which goes through the Bronx, Queens, and Brooklyn (and from there through the Richmond Tunnel to Staten Island), and City Tunnel No. 3 (Stage 1), which goes through the Bronx, Manhattan, and terminates in Queens. The extension of City Tunnel No. 3 is under construction in Queens and Brooklyn.

The third watershed, the Croton system, collects water from watershed areas in Westchester and Putnam Counties and delivers it to the Jerome Park Reservoir in the Bronx. From there, it is distributed to the Bronx and Manhattan through the New Croton Aqueduct, which goes through the Bronx and Manhattan.

In addition to the surface water supply system, customers in southeastern Queens also receive water from the underground aquifers beneath Queens (the Jameco and Magothy Aquifers).

Within the City, a grid of underground distribution mains distribute water to consumers. Large mains—up to 96 inches in diameter—feed smaller mains, such as 12, 20 and 8-inch mains, that distribute water to individual locations. These mains also provide water to fire hydrants along many of the City's streets. Water pressure throughout the City water supply system is controlled by pressure regulators.

New York City consumes some 1.2 billion gallons of water per day through this water supply system. To reduce this consumption, the City has instituted a number of water conservation programs, including installation of or incentives to install low-flow fixtures, water metering, hydrant locking, and public education.

120. SANITARY SEWAGE AND STORMWATER DISPOSAL

New York City's sewer system consists of a grid of sewers beneath the streets that send wastewater flows to 14 different treatment plants, known as "water pollution control plants," or "WPCPs." The areas served by each of these plants are called "drainage basins." Most of this system is a "combined" sewer system—it carries both sanitary sewage from buildings and stormwater collected in catch basins and storm drains. However, some areas of the City, primarily in Queens and Staten Island, operate with separate systems for sanitary sewage and stormwater. In addition, small areas of Staten Island, Brooklyn, and Queens use septic systems to dispose of sanitary sewage. Also, some developments in Staten Island also use small privately owned and operated sewage treatment plants to treat sanitary sewage.

121. City Sewer System

Sewers beneath the City's streets collect sewage from the buildings along the streets. Collection sewers can be one to two feet in diameter on side streets, and three or four feet in diameter under larger roadways. They connect to trunk sewers, generally five to seven feet in diameter, which bring the sewage to interceptor sewers. These large interceptor sewers (often 11 or 12 feet in diameter) bring the wastewater collected from the

various smaller mains to the water pollution control plants for treatment.

121.1. Combined Sewer Systems

About 85 percent of the City's sewer system collects both "dry-weather" wastewater (primarily sanitary sewage as well as wastewater from industries) and stormwater. During dry weather, combined sewers function as sanitary sewers, conveying all flows to the WPCPs for treatment. During wet weather, however, large volumes of rainfall runoff (10 to 50 times the dry-weather flow) can enter the system through catch basins along the City's streets. If this water were conveyed to the treatment plants, it would exceed their design capacity; the plants are designed to handle only twice their average design dry-weather flow for limited periods. To avoid flooding the plants, "regulators" are built into the combined sewers to act as relief valves. These are chambers set to allow two times the average design dry-weather flow into the interceptor (WPCPs have capacity to treat twice the average design dry weather flow); during storms, if a greater amount of wastewater reaches the regulator, the excess is directed to outfalls into the nearest waterway (e.g., the Hudson River, East River, etc.). During such overflow periods, a portion of the sanitary sewage entering or already in the combined sewers discharges into the waterway along with the stormwater and debris washed from the streets. This untreated overflow is known as "combined sewer overflow," or "CSO."

Combined sewer overflow is a concern because it contains oil and gasoline from street traffic, floating debris (also called "floatables," and usually consisting primarily of street litter), various pollutants from industrial facilities (both pollutants discharged into the sewer system and pollutants in the runoff from these facilities), and untreated sewage. To reduce the amount of pollution currently reaching the City's waters because of these overflows, the City has initiated a Combined Sewer Overflow Abatement Program. This program includes assessment of CSO problem areas, and measures to reduce problems such as infiltration and inflow control, to address and eliminate extraneous flows into the sewer system, which can result from conditions such as groundwater infiltration into broken or leaky pipes; placement of containment booms at some CSO outfall locations which capture floatables that are discharged into the receiving water during wet weather; and CSO retention (the use of storage areas for CSO, from

which the overflow can be pumped back to the WPCP for treatment during dry-weather periods of lower flows).

121.2. Separate Systems

Certain areas of the City are served by separate storm and sanitary sewers. In these areas, sanitary sewage is sent to the water pollution control plants, but stormwater is sent through separate pipes into the nearest waterway. Areas served by separate sewers include certain areas in Queens and Staten Island.

122. City Water Pollution Control System

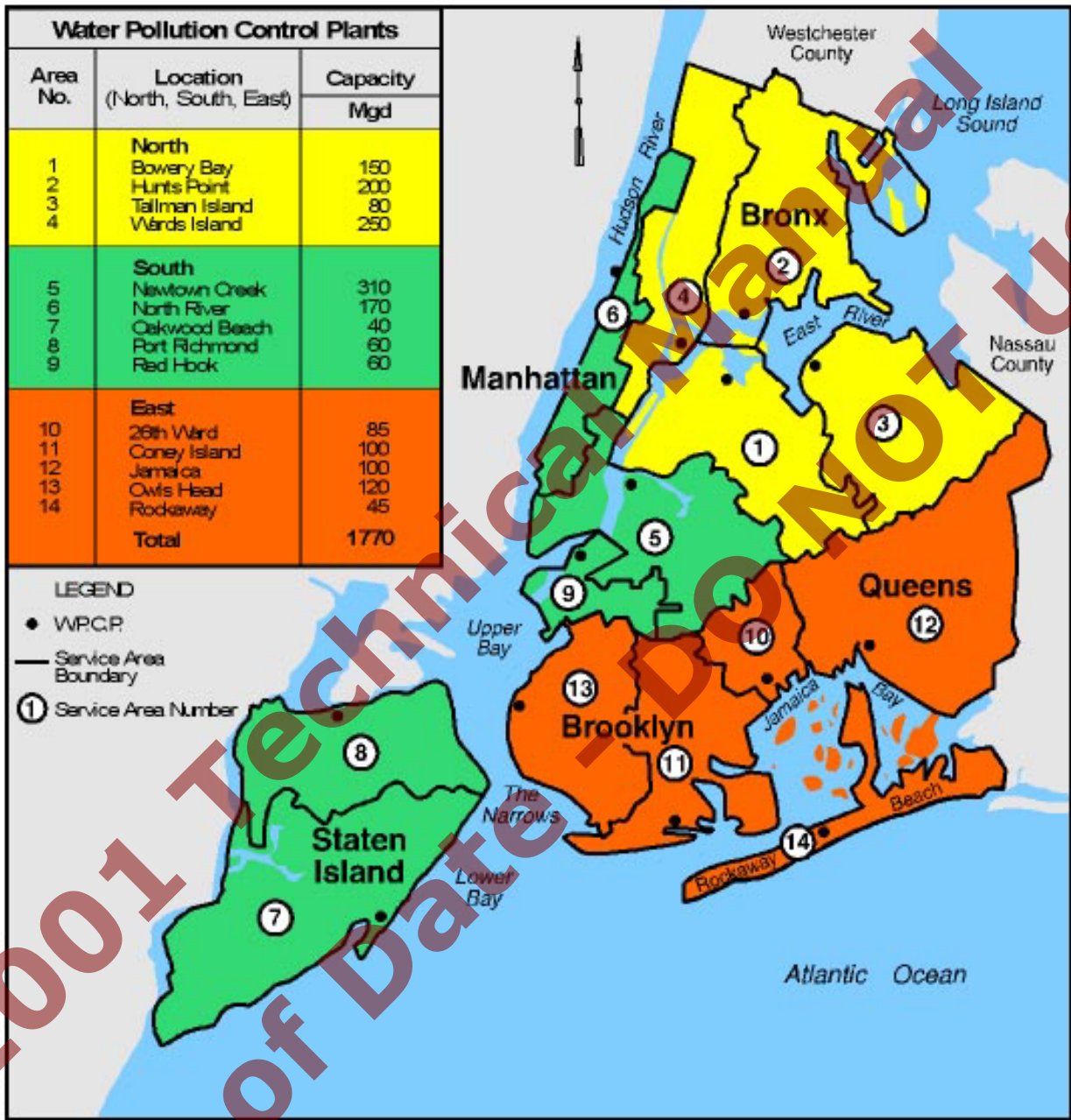
122.1. Sanitary Sewage Treatment

New York City's sewage is treated at 14 water pollution control plants: Coney Island, Newtown Creek, Owls Head, Red Hook, and 26th Ward in Brooklyn; Hunts Point in the Bronx; North River and Wards Island in Manhattan; Bowery Bay, Jamaica, Rockaway, and Tallman Island in Queens; and Oakwood Beach and Port Richmond on Staten Island. Together, these plants treat some 1.7 billion gallons of sewage per day. The drainage basins of each of these plants are shown in Figure 3L-1.

The City's water pollution control plants treat the wastewater through a variety of physical and biological processes that remove solids so that, when treatment is complete, the water can be discharged into one of the City's waterways without adversely affecting water quality. This treated wastewater to be discharged is called "effluent." The major processes used in the City's treatment plants are as follows:

- Mechanical and physical removal of trash, grit, scum, and sludge (this is "preliminary" or "primary" treatment);
- Biological treatment of remaining sewage ("secondary" treatment);
- Concentration, biological decomposition through anaerobic digestion, with energy recovery, and disposal of sludge; and
- Disinfection of liquid effluent.

Figure 3L-1
 NEW YORK CITY WATER POLLUTION CONTROL DRAINAGE AREAS
Plant Locations and Capacities



Each of the City's 14 WPCPs is regulated through a State Pollutant Discharge Elimination System (SPDES) permit issued by the New York State Department of Environmental Conservation (DEC) to ensure that water quality in the receiving water body is not adversely affected by WPCP effluent. The permits specify the maximum average monthly dry-weather flow in millions of gallons per day, or mgd (based on the quantity of wastewater that the plants can adequately treat), and such effluent parameters as the minimum percent (85 percent) of biological oxygen demand (BOD) that must be removed (BOD, a measure of the amount of oxygen consumed in decomposition of organic matter, is an indicator of the quantity of organic pollution in wastewater); the minimum percent of suspended solid loading that must be removed (also 85 percent); the maximum concentrations of suspended solids, fecal coliform, settleable solids, and other pollutants; and the range of acceptable pH levels. The permits also stipulate monitoring requirements for the regulated parameters, as well as for odor control, and require infiltration/inflow assessments and correction programs if the plants reach a certain percent of their permitted capacity. The permitted capacity of each of the City's water pollution control plants is shown in Table 3L-1.

**Table 3L-1
Permitted Capacity at New York City
Water Pollution Control Plants**

Plant	Rated Capacity (mgd)
Brooklyn	
Coney Island	100
Newtown Creek	310
Owls Head	120
Red Hook	60
26th Ward	85
Bronx	
Hunts Point	200
Manhattan	
North River	170
Wards Island	250
Queens	
Bowery Bay	150
Jamaica	100
Rockaway	45
Tallman Island	80
Staten Island	
Oakwood Beach	40
Port Richmond	60

SPDES flow and effluent parameters must be used as the basis for assessing impacts on water pollution control plants.

122.2. Industrial Pretreatment

In addition to the parameters described above, the City accepts industrial effluent into the sewer system if it complies, or has been treated to comply, with certain standards. This additional treatment is required to protect human health, the environment, and the sewers and WPCPs from toxic and hazardous discharges. The City's Industrial Pretreatment Program identifies and monitors industrial users that discharge pollutants of concern into the sewer system. This program is administered by the Department of Environmental Protection, Bureau of Wastewater Treatment. The Division of Pollution Prevention and Monitoring uses permits and directives, which are similar to discharge permits, to notify each industrial user of its effluent requirements. The directives summarize the Industrial Pretreatment Program's legal authority (see Section 710) and monitoring and inspection requirements, and list discharge limits that each of the identified industries must meet.

123. Septic Systems

The southwestern part of Staten Island and parts of Queens use septic systems to dispose of sanitary sewage, until a time when the City's sanitary sewer system can be extended. Septic systems consist of underground tanks that retain sewage for decomposition, and surrounding soils that filter the wastewater once it is released from the tank. In the septic tank, the solids in the sewage settle to the bottom, and the liquid undergoes some anaerobic decomposition before being discharged through perforations into the surrounding soils. These are specially prepared, absorbent soils, generally termed "filter fields." Here, the effluent undergoes additional treatment: it is strained and absorbed by the soils, and microbial organisms in the soil convert it into minerals, gases, and nutrients. Septic systems are subject to approval by the Department of Buildings (DOB), and those that process more than 1,000 gallons of wastewater per day, or are industrial or commercial sites, require SPDES permits from DEC.

124. Privately Operated Treatment Plants

Small privately owned and operated sewage treatment plants serve only a local area. Some of these are in use on Staten Island. These are sewage treatment plants that operate in much the same way as larger, municipal water pollution control plants, but with a smaller capacity. They can be on- or off-site, and may be constructed as "package treatment plants." As at municipal plants, the effluent from these plants is discharged to a nearby waterway, subject to the regulations of a SPDES permit. Privately owned and operated treatment plants are used in areas where City sewers and treatment by a municipal WPCP are not available.

125. Stormwater Management

On undeveloped sites, rainfall is normally absorbed into the ground through permeable surfaces. In urban settings, however, where permeable surfaces are less common, it typically flows across land ("sheet flows") toward low points – most often, water bodies or storm sewers. The storm sewers direct this stormwater through underground pipes to an outfall that discharges into a waterway. As described above, in New York City, these can be either combined or separate systems. Generally, in either system, stormwater flows to the waterway without treatment.

200. Determining Whether an Infrastructure Assessment is Appropriate

210. WATER SUPPLY

211. New York City Water Supply System

As described in Section 320, because of the size of the City's water supply system and because the City is committed to maintaining adequate water supply and pressure for all users, few actions would have the potential to result in significant adverse impacts on that system. Certain actions that would not increase water demand would not affect the system and therefore would not require an assessment of water supply. Actions that could affect water pressure, and that therefore need assessment, are as follows:

- Actions that would have exceptionally large demand for water, such as power plants, very large cooling systems, or large developments (e.g., those that use more than one million

gallons per day). For these actions, a detailed assessment of effects on water pressure and supply may be needed.

- Actions in the Rockaway Peninsula and Coney Island, which are at the end of the water system, where water pressure can be low.

In addition to these specified areas, the following guidelines may help to indicate whether an area may experience weak water pressure and therefore require assessment. The following types of locations may have weaknesses in their local water supply distribution systems:

1. Locations at the extremities of the water distribution system.
2. Locations at extremely high elevations.
3. Locations near pressure boundaries.
4. Locations with a one-way flow of water.
5. Locations far away from the nearest pressure regulator.
6. Locations far away from the nearest trunk main.
7. Locations which contain a large number of six inch (or smaller) water mains.

Where the strength of the water supply distribution system is in question, a hydrant flow test may be needed in conjunction with an assessment of the impact on water pressure and supply. Review of the engineer's assessment by the Division of System Operations may be helpful in determining the strength of the water supply distribution system.

220. WASTEWATER TREATMENT

221. City WPCPs

The City is committed to adequately treating all wastewater generated in the City and to maintaining its wastewater treatment plants at or below the capacity permitted by applicable state and federal permits, orders, and decrees. To achieve this goal, Citywide programs and policies have been and will continue to be developed to accommodate expected flows through the City's plants and ensure that they fall within authorized capacities. Therefore, only unusual actions with very large flows could have the potential for significant impacts on sewage treatment. Actions that would be consistent with the Consent Orders and other programs enacted for the WPCP that would serve the action would not result in signifi-

cant adverse impacts.

The availability of capacity within a collection sewer may need to be assessed. In certain cases, the allowable discharge flows from a particular site may need to be detained or retained on site. A draft sewer hook up permit application or a conceptual drainage plan should be filed with the DEP's Office of Environmental Planning and Assessment to determine the appropriateness of a proposed or conceptual drainage plan. For CEQR review, it may be appropriate to disclose the increase in expected sewage generated by the action. This would allow the lead agency to confirm that the proposed action would be consistent with flow limits or pollutant controls or other applicable programs. The methods for this disclosure are presented in Section 322.1 below.

222. Industrial Pretreatment Program

For industrial facilities, the following criteria indicate that the facility would be subject to the City's Industrial Pretreatment Program as a significant industrial user:

- The facility would discharge an average of 25,000 gallons per day or more of process wastewater other than sanitary, noncontact cooling, and boiler blowdown wastewaters.
- The facility would contribute industrial flows—including contact flows (those that come into contact with a manufacturing process or product) and noncontact flows (including, but not limited to, cooling water for equipment and boiler blowdown wastewaters)—that make up 5 percent or more of the average dry-weather hydraulic or organic capacity of the water pollution control plant to which flows would be directed.
- The facility would be subject to Federal categorical pretreatment standards (the industry categories for such facilities are included in a table at the end of this chapter).
- The facility has reasonable potential for adversely affecting water pollution control plant operation, or for violating any pretreatment standard.
- The facility's Standard Industrial Code (SIC) is listed in the table at the end of this chapter.

Generally, if such facilities comply with the City's Industrial Pretreatment Program, no significant impacts would occur. For disclosure purposes, however, it is often appropriate to provide a description of the facility's effluent and how it would comply with the Industrial Pretreatment Program. This allows the lead agency to confirm that the industrial facility would be in compliance.

223. Septic Systems

Similarly, actions that would use new or existing private septic systems rather than the City's water pollution control plants would not be expected to have significant adverse impacts if all applicable regulations are followed. However, for these actions it may also be appropriate to disclose details about sanitary sewage treatment and compliance with applicable regulations.

224. Privately Operated Treatment Plants

Actions that would use existing privately owned and operated treatment plants, rather than the City's WPCPs, would not be expected to have significant adverse impacts if these plants are operated properly and within their SPDES permit levels. For actions that involve construction of a new privately owned treatment plant, a water quality assessment would be appropriate. For those plants currently operating under a valid SPDES permit, it would be appropriate to disclose whether the permit condition for flow would be met with implementation of the proposed action.

230. STORMWATER MANAGEMENT

An assessment of stormwater may be appropriate for the following actions:

- Any of the industrial activities listed in the table at the end of this chapter, including manufacturing, processing, or raw materials storage areas at those sites. These activities must obtain a SPDES permit for any stormwater discharges to a storm sewer outfall in a separate sewer system. More information on SPDES permits is available from DEC. Discharges to a separate or combined sewer system may require on-site pretreatment in sediment traps, oil and water separators or other control measures requiring DEP approval.

- Actions that would be served by separate sewers, if the action would greatly increase the amount of paved area on the site (such as could occur if an undeveloped site were developed into a parking lot or paved area). Stormwater from paved areas can carry oils and other pollutants and may require the installation of pretreatment systems such as oil and water separators. In certain cases where the stormwater would outlet to a stream or wetland, the use of stormwater attenuation structures such as outlet stilling basins or detention basins are necessary. Various types of stormwater control techniques or Best Management Practices reduce the impact of velocity pollutant loads created by the capture and conveyance of stormwater.
- Actions that would be served by a separate storm system and that would involve construction activities including clearing, grading, and excavation. Such construction activities involving more than five acres also require a SPDES permit from DEC.
- Construction of a new stormwater outfall. For more information on this type of action, see Chapter 3I, "Natural Resources."

300. Assessment Methods

310. STUDY AREA

311. Water Supply

The study area for analysis of water supply is the project site itself and the system it could affect – usually, the area served by the water pressure regulator that serves the site.

312. Wastewater Treatment

312.1. City WPCPs

The analysis of sewage typically focuses on the effects of increased flows to the water pollution control plant(s) that would serve the site. Therefore, the study area includes that plant, and may also consider its drainage basin.

312.2. Septic Systems

The study area for septic systems is that area that could be adversely affected by the systems. This is usually an area immediately surrounding

the system, unless wetlands or water bodies are located within and extending past that radius. If so, the effects on those resources are also assessed.

312.3. Privately Operated Treatment Plants

Analysis of new privately operated treatment plants focuses on the effect of effluent from those plants on the receiving water unless a SDPES permit has already been issued. In flowing water, such as rivers or streams, and in tidally affected areas, those effects may occur near the discharge point; the analysis is generally restricted to the area close to the outfall. In still water bodies, such as ponds, the whole water body may be analyzed. More information about water quality and natural resources impacts is provided in Chapter 3I, "Natural Resources." Analysis of existing privately operated treatment plants would typically focus on whether those plants had adequate capacity to handle additional wastewater flows resulting from the proposed action and effluent pollutant discharges based on the existing SPDES permit limits for flow.

313. Stormwater Management

Analysis of stormwater also focuses on the effects of that stormwater on the water body to which it is released. As described above in Section 100, stormwater can be released to the City's water bodies during combined sewer overflows for areas served by a combined sewer system; or during each storm event for areas served by a separate system. More information about this analysis is also provided in Chapter 3I, "Natural Resources."

320. ANALYSIS TECHNIQUES

321. Water Supply

321.1. New York City Water Supply System

The assessment of effects on water supply and water pressure can be performed as follows:

1. Assess existing water use on the project site.
2. Assess the likely water usage on the project site for future no action conditions, and characterize the effects on the existing system. This projection should take into consideration any water conservation measures that would be implemented by the build year.

3. Predictions of an action's average and peak daily water demand are made based on the uses expected with the action. The rates provided in Table 3L-2 can be used for this assessment for most actions. Water usage for industries depends on the manufacturing processes involved, and should be documented.
4. Describe the existing water distribution system serving the project area, based on information obtained from DEP.
5. Assess the effects of the proposed action's incremental demand on the system and determine if there would be sufficient capacity to maintain adequate supply and pressure. This analysis, which considers the pipe sizes and grid of the water system to determine water pressure loss, is usually performed by an engineer. The engineer may contact DEP for assistance.

321.2 Groundwater Input

Issues related to an action's potential effects on water quality of the groundwater are discussed in Chapter 3L, "Natural Resources."

322. Wastewater Treatment

322.1. City WPCPs

An assessment of sanitary sewage typically consists of identifying the water pollution control plant to which the flows would be sent, and estimating expected flows that the action would generate. Figure 3L-1 shows each water pollution control plant's drainage basin. For sites near the boundaries of several drainage basins, DEP's Office of Environmental Planning and Assessment can assist in determining which plant would serve the action. In certain areas near such boundaries, sewage could be routed to either of the WPCPs; DEP would make the determination as to which WPCP should be used. For assessment purposes, the rates provided in Table 3L-2 (excluding air conditioning rates) can be used to estimate an action's daily sanitary sewage generation. As part of this assessment, the lead agency may also choose to obtain the actual average annual dry-weather flows to the WPCP that would serve the action, and consider the effect of the flows from the action on the total flows to the plant. This information, which is typically examined for the latest 12-month period, is available from DEP's

**Table 3L-2
Water Usage and Sewage Generation
Rates for Use in Impact Assessment**

Use	Rate (Gallons Per Day)
Residential	112 gpd/person
Retail/Public Use	
Domestic	0.17 gpd/sf
Air Conditioning	0.17 gpd/sf
Health Club	
Domestic	65 gpd/patron
Air Conditioning	0.17 gpd/sf
Commercial/Office	
Domestic	25 gpd/person
Air Conditioning	0.10 gpd/sf
Movie/Theater	
Domestic	5 gpd/seat
Air Conditioning	0.17 gpd/sf
Fast Food Restaurant	
Domestic	2 gpd/meal
Air Conditioning	0.17 gpd/sf
Restaurant	
Domestic	10 gpd/meal
Air Conditioning	0.17 gpd/sf
Hotel	
Domestic	150 gpd/rm/occupant
Function Space	0.17 gpd/sf
Air Conditioning	0.10 gpd/sf
Schools	
Domestic	30 gpd/seat
Air Conditioning	0.10 gpd/sf
Hospitals	
Domestic	300 gpd/bed
Air Conditioning	0.17 gpd/sf

Note: These rates are for new uses incorporating low-flow fixtures, as required by law.

Office of Environmental Planning and Assessment. DEP's Office of Environmental Planning and Assessment can also be contacted for assistance in determining whether the action would be consistent with a plant's SPDES flow and effluent limits.

To estimate total annual average flows in the build year, the analysis separates background growth in population and employment from new development in the drainage basin. To calculate sewage from no action developments, the rates listed in Table 3L-2 would be applicable. For background growth, multiply the number of new residents by 137 gallons per day and the number of new employees by 85 gallons per day. (DEP's Office of Environmental Planning and Assessment can provide population and employment projections for each treatment plant drainage area.) Add the background flows and known no action development flows to the plant's latest 12-month annual average to obtain the total no action flows in the drainage basin.

322.2. Industrial Pretreatment

The assessment of effluent from a proposed industrial facility identifies the pollutants in that effluent, and considers whether the effluent would comply with the discharge limits set by the City's Industrial Pretreatment Program. The concentrations of various pollutants in the process wastewater, before any treatment, should be determined. Then, the short- and long-term effective removal rates of the proposed treatment measures should be evaluated to calculate the expected concentrations in the wastewater. The Division of Pollution Prevention and Monitoring of DEP's Bureau of Wastewater Treatment can provide more information about methods of compliance with the Industrial Pretreatment Program.

322.3. Septic Systems

The assessment of septic systems focuses on whether those systems can function properly, given their proposed setting and design. It considers the systems' compliance with ordinances, requirements, and good engineering practice. As part of this assessment, percolation tests are performed to determine the rate at which effluent would percolate through the site's soils. Information on the depth of groundwater and bedrock is also important; the bottom of the septic leaching field must be a specified distance from groundwa-

ter and rock for the system to function properly. All available information related to those septic systems, including the results of the percolation tests, is submitted to the DOB for review.

322.4. Privately Operated Treatment Plants

The assessment of potential environmental impacts from new privately operated treatment plants without a SPDES permit focuses on the water body to which the plant's effluent would be discharged, and whether the plant would affect its water quality. Adverse effects on water quality from sewage treatment plants can occur, principally because of reductions in dissolved oxygen from the addition of organic pollution to the receiving water. Sewage plants can also contribute to the levels of fecal and total coliforms and other pollutants, if they are not functioning properly. The methodology for assessing effects on water quality is described in 3I, "Natural Resources," and summarized below.

The first step in the assessment of a new plant's effects on dissolved oxygen levels is collecting data on available water quality in the receiving water, or, when these data are not available, water quality sampling. Then, the loads of BOD, suspended solids, and other pollutants expected from the plant are calculated. In some cases, the total pollutant loading from the action is so small compared with the size of the water body that there would only be the need to analyze the effect within a mixing zone and not in the entire water body. To determine the potential effect on water quality, computer-simulated models can be used to determine the effects of the various pollutants in sewage effluent on the water quality.

For actions that would affect existing private treatment plants with valid SPDES permits, the analysis typically focuses on whether the plant would have adequate capacity to treat the additional wastewater generated by the action.

323. Stormwater Management

Stormwater can be of concern if it transmits new or increased levels of pollutants to the City's water bodies. This is an issue for industrial facilities, development sites that would be covered with large areas of impervious surfaces and for project activities or construction that would increase the potential for soil erosion and sedimentation of water bodies. An assessment of these potential

impacts can be conducted as follows:

1. Describe the way stormwater currently drains from the site. This description can include an estimate of the amount of stormwater that currently enters the City sewer system, based on the amount of area covered by impervious materials.
2. Describe any changes to that drainage that would result in the future if the action is not implemented.
3. Describe any changes that would result because of the action (paving, development, etc.). Also include a discussion of how stormwater would be managed on the site (i.e., retention, detention, etc.). Determine the volume (in gallons) and peak discharge rates (in cubic feet per second) of stormwater expected from the site with the action. A number of methods can be used to estimate these rates, including TR-20 and TR-55, computerized models developed by the U.S. Department of Agriculture, Soil Conservation Service; the "rational method;" the U.S. Environmental Protection Agency's Stormwater Management Model (SWMM); and others.

Estimate the types and loadings of pollutants that could be in the stormwater. Techniques for this assessment range from simple calculations to sophisticated models. One model is the U.S. Environmental Protection Agency's SWMM, which has four different levels of evaluation for urban water management analysis. The simplest, Level I, is useful for assessment of environmental impacts. If a serious problem is identified, other more sophisticated levels of analysis can be used to determine the extent of the problem.

Pollutant loadings from industrial sites will depend on the processes involved. Note that the SPDES permits for industrial sites (SPDES permits are required for certain industrial sites served by separate sewers; see Section 230, above) will require development and use of a stormwater pollution prevention plan. This plan must identify potential sources of pollution and describe and ensure the implementation of practices to reduce those pollutants. More information on the

applicability and requirements of such SPDES permits is available from DEC.

Given the quantity and quality of the stormwater that would be discharged, the effects on the receiving water body are then assessed. This assessment considers overall flow, circulation, elevation, salinity, and water quality. More information about water quality is provided in Chapter 31, "Natural Resources."

400. Determining Impact Significance

410. WATER SUPPLY

Because of the large volume of the City's water supply system, any given action's water consumption would not be likely to be significant relative to the total Citywide demand. Significant impacts on water supply could occur, however, if an action demanded enough water to reduce water pressure in a localized area to below acceptable levels. Generally, this would occur if the action resulted in water pressure of less than 20 pounds per square inch. Significant impacts could also occur for actions that would demand very large quantities of water, which could overburden the existing system and require a change in the system. This is unlikely, however, except for projects that draw extremely large volumes of water.

420. WASTEWATER TREATMENT

421. City WPCPs

Because of the large volumes of wastewater treated at the City's water pollution control plants relative to the incremental flows contributed by an action, and because the City is committed to maintaining adequate wastewater treatment, any given action would not likely have a significant impact on any of those plants, unless the action would not be consistent with the provisions of a Consent Order or other applicable program.

422. Industrial Pretreatment

Actions that facilitate industrial development that sends effluent to the City's sewer system can result in significant adverse impacts on the operations of the WPCP or sewer system if that effluent does not meet the standards of the City's Industrial Pretreatment Program.

Additionally, significant adverse impacts would occur if the effluent discharged from the facility into a sewer would not be in compliance with the City's sewer regulations. This would occur if the effluent has a pH lower than 5 or greater than 11.0 (which would result in a significant adverse impact on the sewer system), or would exceed any of the following concentrations (resulting in significant impacts on the water pollution control plant; cyanide levels above those listed below could also result in a significant adverse impact on the sewer system):

Substance	Concentration (mg/l)
Petroleum hydrocarbons	50
Cadmium	2
Chromium (hexavalent)	5
Copper	5
Cyanide (amenable)	0.2
Lead	2
Mercury	0.05
Nickel	3
Zinc	5

423. Septic Systems

Significant adverse impacts from septic systems would occur if those systems could not function properly, because of their placement or design. This could occur if, because of the permeability of the soil, the needed leaching area could not be provided within the lot size. In addition, septic systems located close to a surface or groundwater body or wetland could have significant adverse impacts on those resources (see Chapter 3I, "Natural Resources").

424. Privately Operated Treatment Plants

Privately operated treatment plants that would result in lowered water quality in the receiving water body would have significant adverse impacts on that water body. An action that would increase flows at a privately operated treatment plant to above allowable flows indicated in the SPDES permit would have significant adverse impacts.

430. STORMWATER

Generally, significant adverse impacts from stormwater would occur if the stormwater would degrade water quality in the receiving body; would result in appreciable flooding; or would cause sedimentation or erosion due to construction or operation of a project site. Significant degradation

may include adverse impacts on aquatic biota and vegetation.

500. Developing Mitigation

510. WATER SUPPLY

For significant impacts on water supply that result in reduced water pressure, mitigation measures can include water conservation measures incorporated into the project, or, for very large users of water, alternative water supplies. Changes to the water distribution system, implemented by DEP, may also assist in maintaining adequate water pressure. For very large water supply demands, the use of suction (surge) tanks may be necessary in order to avoid reduced water pressure in the NYC water supply system.

520. WASTEWATER TREATMENT

521. City WPCPs

In general, water conservation and wastewater reduction measures can help to reduce the flows to the City's water pollution control plants. Gray-water recycling for nonpotable uses can also be considered, if appropriate and if any public health concerns are met.

522. Septic Systems

Mitigation for septic systems that would not function properly consists of redesign or relocation to a new part of the site.

523. Privately Operated Treatment Plants

Providing a higher level of treatment is the mitigation measure for new treatment plants that would result in significant adverse impacts on water quality. The level of treatment necessary would depend on what water quality parameter would be affected, exceeding the levels allowed by the SPDES permit. For impacts that would result from exceeding allowable flow limits, water conservation and wastewater reduction measures to reduce flows to the plant could serve as mitigation. Similarly, for significant impacts on existing privately operated plants, water conservation and wastewater reduction measures that would bring the plants' flows to within their permitted capacities would mitigate significant adverse impacts.

530. STORMWATER MANAGEMENT

Stormwater management systems can be incorporated into the project to mitigate potential significant impacts from stormwater. These systems can include infiltration devices—such as vegetated buffer areas, pervious surfaces, and exfiltration basins and trenches—that allow the stormwater to seep into the ground instead of entering the sewer system; retention systems, such as ponds or created wetlands, that collect runoff and allow for evaporation and exfiltration; and detention systems, such as dry detention areas or ponds, that store the stormwater and gradually release it during off-peak periods.

Certain industrial facilities that discharge stormwater to a separate sewer system are required by DEC to have a stormwater pollution prevention plan. This plan must identify potential sources of pollution and describe and ensure the implementation of practices to reduce those pollutants. Such a plan may also be appropriate for such industrial facilities even if they are served by the City's combined sewer system.

Soil Erosion and Sediment Control Plans during construction can prevent adverse impacts by incorporating measures which prevent the transport of sediments off site and prevent increased turbidity or pollution from affecting surface water or wetlands. Often measures such as silt fences, haybales, staking and filtering during dewatering activities, etc., can reduce the potential for significant impacts when designed and employed properly.

600. Developing Alternatives

Many of the mitigation measures described in Section 500 can also serve as alternatives. Actions that would involve septic systems or construction of privately operated treatment plants resulting in significant adverse impacts may consider hook-up to the City sewer system as an alternative.

700. Regulations and Coordination

710. REGULATIONS AND STANDARDS

- Section 301 of the Clean Water Act (33 USC 1311; 40 CFR 133) requires all municipal WPCPs to operate with secondary treatment and authorizes the U.S. Environmental Protection Agency (EPA) to set effluent

standards for all municipal discharges.

- Interstate Environmental Commission water quality standards. This entity, established by New York, New Jersey, and Connecticut through a congressionally approved Tri-State Compact, has established water quality standards for tidal waters in the vicinity of New York.
- Section 402 of the Clean Water Act: National Pollutant Discharge Elimination System (NPDES) Program (33 USC 1342). Under the NPDES program, any point source discharge and stormwater discharges associated with industrial activities and municipal separate storm sewer systems require a permit. The State of New York is authorized to administer the NPDES program under its own State program.
- State Pollutant Discharge Elimination System (SPDES) Program—Water Pollution Control Act (Environmental Conservation Law Article 17; 6 NYCRR Parts 750-757). The SPDES program is designed to eliminate the pollution of New York waters and to maintain the highest quality of water possible, consistent with public health and enjoyment of the resource, protection and propagation of fish and wildlife, and industrial development in the State. SPDES permits are required for construction or use of an outlet or discharge pipe ("point sources") of wastewater discharging into the surface waters or groundwaters of the state, or construction or operation of disposal systems such as sewage treatment plants.
- Each of the City's 14 water pollution control plants is regulated by a SPDES permit. Other activities that require SPDES permits include septic systems designed to process more than 1,000 gallons per day; new treatment plants; stormwater discharges from certain industrial facilities to separate sewer systems; and stormwater discharges from construction activities to separate sewer systems, if more than 5 acres of ground would be disturbed.
- Classification of Waters—Article 6 of the New York State Public Health Law; 6 NYCRR Part 800. Under this program, the State Water Pollution Control Board adopts and assigns classifications and standards on the basis of the existing or expected best usage of the

state's waters. All of the state's surface and ground waters are assigned a water quality classification.

- Stormwater SPDES General Permits Regarding Construction: Notice of Intent Prior to Start up of Site Clearing, Grading and Grubbing; Notice of Termination Upon Completion of Construction Activities.
- Section 307 of the Clean Water Act Federal Standards for Industrial Pretreatment (33 USC 1317). This section of the Clean Water Act establishes standards for certain pollutants discharged to a sewage system, requiring pretreatment for effluent that would otherwise not meet the standards.
- New York City Industrial Pretreatment Program. Like the Federal program (see above), this program establishes standards for concentrations of pollutants in industrial effluent.
- Combined Sewer Overflow Abatement Program. Under this program, implemented by DEP, New York City aims to reduce the amount of pollution reaching the City's waters. This program includes assessment of CSO problem areas, and such measures to reduce these problems as infiltration and inflow control, which will address and eliminate extraneous flows into the sewer system, such as groundwater infiltration into broken or leaky pipes; placement of containment booms at some CSO outfall locations to capture floatables that are discharged into the receiving water during wet weather; and CSO retention (the use of storage areas for CSO, from which the overflow can be pumped back into the sewer system during dry weather).
- Rules and Regulations Relating to the Use of the Public Sewers, issued by DEP, Bureau of Wastewater Treatment and Bureau of Water and Sewer Operations.
- Title 10 of the New York State Public Health Law, Part 75, Appendix 75 A. This is the State law that governs septic systems.
- New York State Design Standards for Wastewater Treatment, 1988.

- Interim New York City regulations for septic systems, implemented by DOB.
- DEP rules as set forth in Chapter 23, Title 15 of the Rules of the City of New York Relating to the Construction of Private Sewers or Private Drains.

720. APPLICABLE COORDINATION

Any actions involving new hook-ups for water supply, wastewater or sewage treatment will need to coordinate with DEP, which is the agency responsible for the water mains and sewers, and hook-ups thereto. Industrial actions subject to the City's Industrial Pretreatment Program should coordinate with DEP, Division of Pollution Prevention and Monitoring regarding that program. Projects involving septic systems will need to consult with DOB. Actions involving privately operated treatment plants should coordinate with both DEP and DEC.

730. LOCATION OF INFORMATION

New York City Department of Environmental Protection
59-17 Junction Boulevard
Corona, NY 11373
Office of Environmental Planning and Assessment

New York City Department of Environmental Protection
59-17 Junction Boulevard Corona, NY 11368
Division of Permitting and Connections

New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101

New York State Department of Environmental Conservation
625 Broadway 4th Floor
Albany, NY 12233-1750
Stormwater Hotline

New York City Department of Environmental Protection
59-17 Junction Boulevard
Corona, NY 11368
Division of Pollution Prevention and Monitoring

New York City Department of Environmental
Protection
59-17 Junction Boulevard
Corona, NY 11368
Division of System Operations

800. Additional Information

As described in Section 222, certain industries would be subject to the City's Industrial Pretreatment Program. These include industries subject to Federal categorical pretreatment standards, which are listed in Table 3L-3, and industries with Standard Industrial Codes listed in Table 3L-4. In addition, those industries listed in Table 3L-5 must obtain a SPDES permit for any stormwater discharges to a separate sewer system. For all these actions, assessment under CEQR is usually appropriate, as described in Section 200.

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**Table 3L-3
Industry Categories for Federal
Categorical Pretreatment Standards**

This is a list of the industries subject to Federal Categorical Pretreatment Standards. SIC codes are included when available and are intended to be used as guidance only.

Category	Subcategory	SIC Code
Aluminum Forming		
	Rolling with Neat Oils	3353,3355
	Rolling with Emulsions	3353,3355
	Extrusion	3354, 3341
	Forging	3463
	Drawing with Neat Oils	3354,3355
	Drawing with Emulsions or Soaps	3354,3355
Battery Manufacturing		
	Cadmium	3691,3692
	Calcium	
	Lead	
	Leclanche	
	Lithium	
	Magnesium	
	Zinc	
Coil Coating		
	Steel Basis Material	3479
	Galvanized Basis Material	3479
	Aluminum Basis Material	3479,3497
	Canmaking	3411
Copper Forming		
Electrical and Electronic Components (Phase 1)		
	Semiconductors	3674
	Electronic Crystals	3679
Electrical and Electronic Components (Phase 2)		
	Cathode Ray Tube	3671
	Luminescent Materials	3672
Electroplating		
	Electroplating of Common Metals	3471, 3479
	Electroplating of Precious Metals	3471, 3479
	Electroplating of Specialty Metals	3471, 3479
	Anodizing	3471, 3479
	Coatings	3471, 3479
	Chemical Etching and Milling	2796, 3479
	Electroless Plating	3471
	Printed Circuit Boards	3672
Inorganic Chemicals Manufacturing (Phase 1 and Phase 2)		
	Phase 1	281
	Aluminum Chloride	
	Aluminum Sulfate	
	Calcium Carbide	
	Calcium Chloride	
	Calcium Oxide	
	Chlor-alkali	
	– Mercury Cell	

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Inorganic Chemicals Manufacturing (Phase 1 and Phase 2) (Continued)		
Phase 1 (Continued)		281
	– Diaphragm Cell	
	Hydrochloric Acid	
	Hydrofluoric Acid	
	Hydrogen Peroxide	
	Nitric Acid	2873
	Potassium Metal	
	Potassium Dichromate	
	Potassium Sulfate	
	Sodium Bicarbonate	
	Sodium Carbonate	
	Sodium Chloride	
	Sodium Dichromate and Sodium Sulfate	
	Sodium Metal	
	Sodium Silicate	
	Sodium Sulfite	
	Sulfuric Acid	
	Titanium Dioxide	
	– Sulfate	
	– Chloride	
	– Chlorine Ilmenite	
	Aluminum Fluoride	
	Ammonium Chloride	
	Ammonium Hydroxide	
	Barium Carbonate	
	Borax	
	Boric Acid	
	Bromine	
	Calcium Carbonate	
	Calcium Hydroxide	
	Carbon Dioxide	
	Carbon Monoxide and Byproduct Hydrogen	
	Chrome Pigments	
	Chromic Acid	
	Copper Sulfate	
	Cuprous Oxide	
	Ferric Chloride	
	Ferrous Sulfate	
	Fluorine	
	Hydrogen	
	Hydrogen Cyanide	
	Iodine	
	Lead Monoxide	
	Lithium Carbonate	
	Manganese Sulfate	
	Nickel Sulfate	
	Strong Nitric Acid	2873
	Oxygen and Nitrogen	
	Potassium Chloride	

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Inorganic Chemicals Manufacturing (Phase 1 and Phase 2) (Continued)		
Phase 1 (Continued)		281
	Potassium Iodide Potassium Permanganate Silver Nitrate Sodium Bisulfite Sodium Fluoride Sodium Hydrosulfide Sodium Hydrosulfite Sodium Silicofluoride Sodium Thiosulfate Stannic Oxide Sulfur Dioxide Zinc Oxide Zinc Sulfate Cadmium Pigments and Salts – Cadmium Pigments – Cadmium Salts Cobalt Salts Sodium Chlorate Zinc Chloride	
Phase 2		281
	Cadmium Compounds Cobalt Salts Copper Salts Nickel Salts Sodium Chlorate Zinc Chloride	
Iron and Steel		
	Cokemaking Sintering Ironmaking Steelmaking Vacuum Degassing Continuous Casting Hot Forming Salt Bath Descaling Acid Pickling Cold Forming Alkaline Cleaning Hot Coating	3312 3312 3312 3312 3312 3312 3312,3215,3317 3312,3315,3317 3312,3315,3317 3316 3312,3315,3316,3317 3312,3315,3317
Leather Tanning and Finishing		3111
	Hair Pulp, Chrome Tan, Retan-Wet Finish Hair Save, Chrome Tan, Retan-Wet Finish Hair Save or Pulp, Nonchrome Tan, Retan-Wet Finish Retan-Wet Finish Sides No Beamhouse Through the Blue	

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Leather Tanning and Finishing (Continued)		3111
	Shearling Pigskin Retan-Wet Finish-Splits	
Metal Finishing		
Metal Molding & Casting (Foundries)		3321,3322,3324,3325,,3363,3365,3369
	Aluminum Casting Copper Casting Ferrous Casting Zinc Casting	3363, 3365 3364, 3366 3321, 3322, 3324, 3325 3369
Nonferrous Metals Forming and Metal Powders		3356,3357,3463,3497
	Lead/Tin/Bismuth Forming Magnesium Forming Nickel/Cobalt Forming Precious Metals Forming Refractory Metals Forming Titanium forming Uranium Forming Zinc Forming Zirconium/Hafnium Forming Metal Powers	
Nonferrous Metals Manufacturing (Phase 1)		
	Primary Aluminum Smelting Secondary Aluminum Smelting Primary Copper Smelting Primary Electrolytic Copper Refining Secondary Copper Primary Lead Primary Zinc Metallurgical Acid Plants Primary Tungsten Primary Columbium-Tantalum Secondary Silver Secondary Lead	3334 3341 3331 3331 3341 3339 3339 3329, 3341 3339 3369 3341 3341
Nonferrous Metals Manufacturing (Phase 2)		
	Bauxite Refining Metallurgical Acid Plants Primary Antimony Primary Beryllium Primary and Secondary Germanium and Gallium Secondary Iridium Secondary Mercury Primary Molybdenum and Rhenium Secondary Molybdenum and Vanadium Primary Nickel and Cobalt Secondary Nickel Primary Precious Metals and Mercury	2819,3339 3339, 3341 3339 3339 3339, 3341 3341 3339 3341 3339 3341 3339

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Nonferrous Metals Manufacturing (Phase 2) (Continued)		
	Secondary Precious Metals	3341
	Primary Rare Earth Metals	3339
	Secondary Tantalum	3341
	Secondary Tin	3341
	Primary and Secondary Titanium	3339, 3341
	Secondary Tungsten and Cobalt	3339
	Secondary Uranium	3341
	Primary Zirconium and Hafnium	3339
Organic Chemicals, Plastic, & Synthetic Fibers		
	Rayon Fibers	2823
	Other Fibers	2823, 2824
	Thermoplastic Resins	2821
	Thermosetting Resins	2821
	Commodity Organic Chemicals	2861, 2865, 2869
	Bulk Organic Chemicals	2861, 2865, 2869
	Specialty Organic Chemicals	2861, 2865, 2869
	Direct Discharge Point Sources that use End-of-Pipe Biological Treatment	
	Direct Discharge Point Sources that do not use End-of-Pipe Biological Treatment	
Pesticide Chemicals		
	Organic Pesticide Chemicals Manufacturing	2869
	Metallo-Organic Pesticide Manufacturing	2869
	Pesticide Chemical Formulating & Packaging	2879
Petroleum Refining		
	Topping	2911
	Cracking	
	Petrochemical	
	Lube	
	Integrated Facilities	
Pharmaceuticals Manufacturing		
	Fermentation Products	2833, 2834, 2844, 2835, 2836
	Extraction Products	
	Chemical Synthesis Products	
	Mixing/Compounding and Formulation	2835, 2836
	Biological products	
	Medicinal chemicals and botanical products	2833
	Pharmaceutical products	2834
	All fermentation, biological, and natural extraction, chemical synthesis, and formulation products that are considered as pharmaceutically active ingredients by the FDA but are not classified under SIC 2831, 2833, 2834	
	Cosmetic preparations that function as a skin treatment	2844

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Pharmaceuticals Manufacturing (Continued)		2833,2834,2844, 2835, 2836
	Products with multiple end uses that are attributable to pharmaceutical manufacturing as a final pharmaceutical product, component of a pharmaceutical formulation, or pharmaceutical intermediate	
Porcelain Enameling		
	Steel Basis Material	3431,3469,3479,3631,3632, 3633,3639
	Cast Iron Basis Material	3431,3631
	Aluminum Basis Material	3469,3479,3631
	Copper Basis Material	3469,3479,3631
Pulp, Paper, and Paperboard		
	Unbleached Kraft	2611,2621,2631
	Semi-chemical	2611,2621,2631
	Reserved	
	Unbleached Kraft—Neutral Sulfite Semi-Chemical (Cross Recovery)	2611,2621,2631
	Paperboard from Wastepaper	2631
	Dissolving Kraft	2611, 2621, 2631
	Market Bleached Kraft	2611, 2621, 2631
	Board, Course and Tissue (BCT) Bleached Kraft	2611,2621,2631
	Fine Bleached Kraft	2611,2621, 2631
	Papergrade sulfite (Blow Pit Wash)	2611,2621
	Dissolving Sulfite Pulp	2611
	Groundwood-Chemi-mechanical	2611,2621
	Groundwood-Thermo-mechanical	2611,2621
	Groundwood-Course Molded, and News (CMN) Papers	2611,2621
	Groundwood-Fine Papers	2611,2621
	Soda	2611,2621
	Deink	2621, 2611
	Nonintegrated-Fine Papers	2621, 2671, 2672, 2674
	Nonintegrated-Tissue Papers	2621, 2676
	Tissue from Wastepaper	2621, 2676, 2679
	Papergrade Sulfite (Drum Wash)	2611,2621
	Unbleached Kraft and Semi-chemical	2611,2621,2631
	Wastepaper Molded Products	26XX
	Nonintegrated-Lightweight Papers	2621
	Nonintegrated-Filter and Non-woven Papers	2621
	Nonintegrated Paperboard	2631
	Builders' Paper and Roofing Felt	2493,2621
Steam Electric Power Generation		4911,4931, 4961

Table 3L-3 (Continued)
Industry Categories for Federal
Categorical Pretreatment Standards

Timber Products Processing	Barking	2421,2426,2432,2491,2499
	Veneer	2426, 2435, 2436
	Plywood	2435, 2426
	Hardboard-Dry Process	2499, 2493
	Hardboard-West Process	2499, 2493
	Wood Preserving-Water Borne or Nonpressure	2491
	Wood Preserving-Steam	2491
	Wood Preserving-Boultonizing	2491
	Wet Storage	2491,2421,2426,2429,2431,2499
	Log Washing	2491,2421,2426,2429,2431,2499
	Sawmills & Planning Mills	2421,2426,2429,2431
	Finishing	2421,2426,2429,2431,2499,2435,2436
	Particleboard Manufacturing	2493
	Insulation Board	2493
Wood Furniture and Fixture Production without Water Wash Spray Booths or Laundry Facilities	2511,2512,2519,2521,2531,2541,2599	
Wood Furniture and Fixture Production with Water Wash Spray Booths or Laundry Facilities	2511,2512,2519,2521,2531,2541,2599	

**Table 3L-4
Standard Industrial Codes for
Industries that May Need Assessment**

0211	Feedlots
0213	Feedlots
0214	Feedlots
1311	Crude Petroleum and Natural Gas
1321	Natural Gas Liquids
1381	Drilling Oil and Gas Wells
1382	Oil and Gas Field Exploration Services
1389	Oil and Gas Field Services
2011	Meat Packing Plants
2013	Sausages & Other Prepared Meat Products
2015	Poultry Slaughtering & Processing
2015	Poultry Dressing Plants
2015	Poultry and Egg Processing
2022	Natural, Processed and Imitation Cheese
2023	Dry, Condensed & Evaporated Dairy Products
2024	Ice Cream and Frozen Desserts
2026	Fluid Milk
2032	Canned Specialties
2033	Canned Fruits & Vegetables
2034	Dehydrated Fruits, Vegetables, Soups
2035	Pickles, Sauces, and Salad Dressings
2037	Frozen Fruits, Fruit Juices & Vegetables
2038	Frozen Specialties
2041	Flour and Other Grain Mill Products
2044	Rice Milling
2045	Prepared Flour Mixes & Dough
2047	Dog and Cat Food
2048	Feedlots
2051	Bread, Cake, and Related Products
2052	Cookies and Crackers
2062	Cane Sugar Refining
2064	Candy & Other Confectionary Products
2064	Confectionery Products
2066	Chocolate and Cocoa Products
2067	Chewing Gum
2068	Salted & Roasted Nuts & Seeds
2075	Soybean Oil Mills
2076	Vegetable Oil Mills
2079	Edible Fats and Oils
2082	Malt Beverages
2084	Wines, Brandy, and Brandy Spirits
2085	Distilled & Blended Liquors
2086	Bottled and Canned Soft Drinks
2087	Organic Chemicals, Plastic, & Synthetic Fibers
2087	Flavoring Extracts & Syrups
2091	Canned & Cured Fish & Seafood
2092	Prepared Fresh or Frozen Fish & Seafood
2095	Roasted Coffee
2096	Potato, Corn Chips & Similar Snacks
2097	Manufactured Ice

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

2098	Macaroni, Spaghetti, Vermicelli & Noodles
2099	Food Preparations
2211	Broadwoven Fabric Mills, Cotton
2221	Broadwoven Fabric Mills, Manmade
2231	Weaving and Finishing Mills, Wool
2231	Broadwoven Fabric Mills, Wool
2231	Textile Dyer
2241	Rubber Manufacturing
2251	Textile Dyer
2252	Textile Dyer
2253	Textile Dyer
2254	Textile Dyer
2257	Weft Knit Fabric Mills
2257	Textile Dyer
2258	Lace & Warp Knit Fabric Mills
2259	Textile Dyer
2261	Finishing Plants, Cotton
2261	Textile Dyer
2262	Finishing Plants, Manmade
2262	Textile Dyer
2269	Finishers of Textiles
2273	Textile Dyer
2282	Throwing and Winding Mills
2295	Coated Fabrics, Not Rubberized
2295	Adhesives and Sealants
2299	Processed Textile Waste
2299	Textile Goods
2311	Men's & Boys' Suits, Coats & Overcoats
2325	Men's & Boys' Trousers & Slacks
2396	Automotive Trimmings, Apparel Findings, and Related Products
2399	Fabricated Textile Products
2421	Timber Products Processing
2426	Timber Products Processing
2429	Timber Products Processing
2431	Timber Products Processing
2432	Timber Products Processing
2435	Timber Products Processing
2436	Timber Products Processing
2452	Prefabricated Wood Buildings
2491	Timber Products Processing
2493	Timber Products Processing
2499	Timber Products Processing
2511	Timber Products Processing
2512	Timber Products Processing
2514	Metal Household Furniture
2515	Mattresses and Bedsprings
2517	Wood TV and Radio Cabinets
2519	Timber Products Processing
2521	Timber Products Processing
2522	Office Furniture, Except Wood

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

2531	Timber Products Processing
2531	Public Building and Related Furniture
2541	Timber Products Processing
2542	Partitions & Fixtures, Except Wood
2591	Drapery Hardware, Window Blinds & Shades
2599	Timber Products Processing
2611	Pulp, Paper and Paperboard
2621	Pulp, Paper and Paperboard
2621	Paving and Roofing Materials
2621	Paper Mills
2631	Pulp, Paper and Paperboard
2652	Setup Paperboard Boxes
2653	Corrugated and Solid Fiber Boxes
2655	Fiber Cans, Drums and Similar Products
2656	Sanitary Food Containers, Except Folding
2657	Folding Paperboard Boxes, Including Sanitary
2671	Packaging Paper & Plastics Film
2672	Paper Coating and Glazing
2673	Plastics, Foil & Coated Paper Bags, Except Textile Bags
2674	Uncoated Paper & Multiwall Bags
2675	Die-Cut Paper & Paperboard & Cardboard
2676	Pulp, Paper and Paperboard
2677	Envelopes
2678	Stationery, Tablets & Related Products
2679	Pulp, Paper and Paperboard
2732	Book Printing
2754	Commercial Printing, Gravure
2754	Photo Engraver
2759	Commercial Printing
2796	Electroplating
2812	Alkalies and Chlorine
2813	Industrial Gases
2816	Paint Formulating
2816	Carbon Black Manufacturing
2816	Inorganic Pigments
2819	Nonferrous Metals Manufacturing
2819	Industrial Inorganic Chemicals
2821	Organic Chemicals, Plastic, & Synthetic Fibers
2821	Plastics Materials and Resins
2821	Adhesives and Sealants
2822	Rubber Manufacturing
2822	Synthetic Rubber
2823	Organic Chemicals, Plastic, & Synthetic Fibers
2823	Cellulosic Manmade Fibers
2824	Organic Chemicals, Plastic, & Synthetic Fibers
2824	Manmade Organic Fibers, Except Cellulosic
2833	Pharmaceutical Manufacturing
2834	Pharmaceutical Manufacturing
2834	Pharmaceutical Preparations
2835	Pharmaceutical Manufacturing

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

2836	Pharmaceutical Manufacturing
2841	Soap and Other Detergents
2842	Paint Formulating
2842	Ink Formulating
2842	Polishes and Sanitation Goods
2843	Soap and Other Detergents
2843	Surface Active Agents
2844	Pharmaceutical Manufacturing
2844	Toilet Preparations
2851	Paving and Roofing Materials
2851	Paint Formulating
2851	Porcelain Enameling - Non Categorical
2861	Organic Chemicals, Plastic, & Synthetic Fibers
2865	Organic Chemicals, Plastic, & Synthetic Fibers
2865	Paint Formulating
2865	Cyclic Crudes and Intermediates
2869	Organic Chemicals, Plastic, & Synthetic Fibers
2869	Pesticide Chemicals
2869	Industrial Organic Chemicals
2873	Inorganic Chemicals Manufacturing
2873	Fertilizer Manufacturing
2874	Fertilizer Manufacturing
2875	Fertilizer Manufacturing
2879	Pesticide Chemicals
2891	Rubber Manufacturing
2891	Adhesives and Sealants
2893	Ink Formulating
2893	Printing Ink
2895	Carbon Black Manufacturing
2899	Rubber Manufacturing
2899	Ink Formulating
2899	Chemicals and Chemical Preparations
2911	Petroleum Refining
2911	Paving and Roofing Materials
2951	Paving and Roofing Materials
2952	Paving and Roofing Materials
2992	Lubricating Oils and Greases
3011	Rubber Manufacturing
3021	Rubber Manufacturing
3052	Rubber Manufacturing
3053	Rubber Manufacturing
3061	Rubber Manufacturing
3069	Rubber Manufacturing
3081	Unsupported Plastics Film and Sheet
3082	Unsupported Plastics Profile Shapes
3083	Plastic Plates, Sheet and Profile Shapes
3085	Plastic Bottles
3086	Plastic Foam Products
3087	Custom Compounding of Plastic Resins
3089	Plastics Products

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

3111	Leather Tanning and Finishing
3131	Boot and Shoe Cut Stock and Findings
3171	Women's Handbags and Purses
3211	Glass Manufacturing
3221	Glass Manufacturing
3229	Glass Manufacturing
3231	Glass Manufacturing
3231	Porcelain Enameling - Non Categorical
3253	Porcelain Enameling - Non Categorical
3291	Abrasive Products
3312	Iron and Steel Manufacturing
3312	Blast Furnaces and Steel Mills
3313	Electrometallurgical Products
3315	Iron and Steel Manufacturing
3317	Iron and Steel Manufacturing
3321	Metal Molding and Casting
3321	Gray and Ductile Iron Foundries
3322	Metal Molding and Casting
3324	Metal Molding and Casting
3324	Steel Investment Foundries
3325	Metal Molding and Casting
3331	Nonferrous Metals Manufacturing
3334	Nonferrous Metals Manufacturing
3339	Nonferrous Metals Manufacturing
3341	Nonferrous Metals Manufacturing
3351	Copper Forming
3353	Aluminum Forming
3354	Aluminum Forming
3355	Aluminum Forming
3356	Nonferrous Metals Forming and Metal Powders
3357	Nonferrous Metals Forming and Metal Powders
3363	Metal Molding and Casting
3363	Aluminum Die-Castings
3364	Metal Molding and Casting
3365	Metal Molding and Casting
3366	Metal Molding and Casting
3369	Nonferrous Metals Manufacturing
3369	Metal Molding and Casting
3369	Nonferrous Foundries
3398	Metal Heat Treating
3399	Primary Metal Products
3411	Coil Coating
3411	Metal Cans
3412	Metal Barrels, Drums, Kegs and Pails
3421	Cutlery
3423	Hand and Edge Tools
3425	Saw Blades and Handsaws
3429	Hardware
3431	Porcelain Enameling
3431	Enameled Iron and Metal Sanitary Ware

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

3432	Plumbing Fixture Fittings and Trim
3433	Heating Equipment, Except Electric
3441	Fabricated Structural Metal
3442	Metal Doors, Sash, Frames, Molding and Trim
3443	Fabricated Plate Work (Boiler Shops)
3444	Sheet Metal Work
3446	Architectural and Ornamental Metal Work
3448	Prefabricated Metal Buildings
3449	Miscellaneous Structural Metal Work
3451	Screw Machine Products
3452	Bolts, Nuts, Screws, Rivets and Washers
3462	Iron and Steel Forgings
3463	Nonferrous Metals Forming and Metal Powders
3465	Automotive Stampings
3466	Crowns and Closures
3469	Porcelain Enameling
3469	Metal Stampings
3471	Electroplating
3479	Electroplating
3479	Coil Coating
3479	Porcelain Enameling
3479	Coating, Engraving and Allied Services
3482	Small Arms Ammunition
3483	Ammunition, Except for Small Arms
3484	Small Arms
3489	Ordnance and Accessories
3491	Industrial Valves
3492	Fluid Power Valves and Hose Fittings
3493	Steel Springs, Except Wire
3494	Valves and Pipe Fittings
3495	Wire Springs
3496	Miscellaneous Fabricated Wire Products
3497	Coil Coating
3497	Nonferrous Metals Forming and Metal Powders
3498	Fabricated Pipe and Pipe Fittings
3499	Fabricated Metal Products
3511	Turbines and Turbine Generator Sets
3519	Internal Combustion Engines
3523	Farm Machinery and Equipment
3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment
3531	Construction Machinery and Equipment
3532	Mining Machinery and Equipment
3533	Oil and Gas Field Machinery and Equipment
3534	Elevators and Moving Stairways
3535	Conveyors and Conveying Equipment
3536	Hoists, Cranes, and Monorails
3537	Industrial Trucks and Tractors
3541	Machine Tools, Metal Cutting Types
3542	Machine Tools, Metal Forming Types
3543	Industrial Patterns

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

3544	Special Dies, Tools, Jigs and Fixtures
3545	Machine Tool Accessories
3546	Power-Driven Handtools
3547	Rolling Machinery and Equipment
3548	Welding Apparatus
3549	Metalworking Machinery
3552	Textile Machinery
3553	Woodworking Machinery
3554	Paper Industries Machinery
3555	Printing Trades Machinery and Equipment
3556	Food Products Machinery
3559	Special Industry Machinery
3561	Pumps and Pumping Equipment
3562	Ball and Roller Bearings
3563	Air and Gas Compressors
3564	Blowers and Fans
3565	Packaging Machinery
3566	Speed Changers, Drives and Gears
3567	Industrial Process Furnaces and Ovens
3568	Mechanical Power Transmission Equipment
3569	General Industrial Machinery
3571	Electronic Computers
3572	Computer Storage Devices
3575	Computer Terminals
3577	Computer Peripheral Equipment
3578	Calculating and Accounting Machines
3579	Office Machines
3581	Automatic Vending Machines
3582	Commercial Laundry Equipment
3585	Refrigeration and Heating Equipment
3586	Measuring and Dispensing Pumps
3589	Service Industry Machinery
3592	Carburetors, Pistons, Rings, Valves
3593	Fluid Power Cylinders and Actuators
3594	Fluid Power Pumps and Motors
3596	Scales and Balances, except Laboratory
3599	Industrial Machinery
3612	Transformers, except Electronic
3613	Switchgear and Switchboard Apparatus
3621	Motors and Generators
3621	Industrial Controls
3624	Carbon and Graphite Products
3625	Relays and Industrial Controls
3629	Welding Apparatus, Electric
3629	Electrical Industrial Apparatus
3631	Porcelain Enameling
3631	Household Cooking Equipment
3632	Porcelain Enameling
3632	Household Refrigerators and Freezers
3633	Porcelain Enameling

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

3634	Electric Housewares and Fans
3635	Household Vacuum Cleaners
3639	Porcelain Enameling
3639	Household Appliances
3641	Glass Manufacturing
3643	Current-Carrying Wiring Devices
3644	Noncurrent-Carrying Wiring Devices
3645	Residential Electric Lighting Fixtures
3646	Commercial Lighting Fixtures
3647	Vehicular Lighting Equipment
3648	Lighting Equipment
3651	Household Audio and Video Equipment
3652	Prerecorded Records and Tapes
3661	Telephone and Telegraph Apparatus
3663	Radio and TV Communications Equipment
3669	Communications Equipment
3671	Glass Manufacturing
3671	Electrical and Electronic Components
3672	Electroplating
3672	Electrical and Electronic Components
3674	Electrical and Electronic Components
3675	Electronic Capacitors
3676	Electronic Resistors
3677	Electronic Coils and Transformers
3678	Electronic Connectors
3679	Electronic Components
3691	Battery Manufacturing
3692	Battery Manufacturing
3694	Engine Electrical Equipment
3695	Magnetic and Optical Recording Media
3699	Electrical Equipment and Supplies
3711	Motor Vehicles and Car Bodies
3713	Truck and Bus Bodies
3714	Motor Vehicle Parts and Accessories
3715	Truck Trailers
3716	Motor Homes
3721	Aircraft
3724	Aircraft Engines and Engine Parts
3728	Aircraft Parts and Equipment
3731	Ship Building and Repairing
3732	Boat Building and Repairing
3743	Railroad Equipment
3751	Motorcycles, Bicycles, and Parts
3761	Guided Missiles and Space Vehicles
3764	Space Propulsion Units and Parts
3769	Guided Missiles and Space Vehicle Parts and Equipment
3792	Travel Trailers and Campers
3795	Tanks and Tank Components
3799	Transportation Equipment
3812	Search and Navigation Equipment

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

3821	Laboratory Apparatus and Furniture
3822	Environmental Controls
3823	Process Control Instruments
3824	Fluid Meters and Counting Devices
3825	Instruments to Measure Electricity
3826	Analytical Instruments
3827	Optical Instruments and Lenses
3829	Measuring and Controlling Devices
3841	Surgical and Medical Instruments
3842	Surgical Appliances and Supplies
3843	Dental Equipment and Supplies
3844	X-ray Apparatus and Tubes
3845	Electromedical Equipment
3851	Glass Manufacturing
3851	Ophthalmic Goods
3861	Photographic Equipment and Supplies
3873	Watches, Clocks, Watchcases and Parts
3911	Jewelry, Precious Metal
3914	Silverware and Plated Ware
3915	Jewelers' Materials and Lapidary Work
3931	Musical Instruments
3942	Dolls and Stuffed Toys
3944	Games, Toys, and Children's Vehicles
3949	Sporting and Athletic Goods
3951	Pens and Mechanical Pencils
3952	Paint Formulating
3952	Lead Pencils and Art Goods
3953	Marking Devices
3955	Carbon Paper and Inked Ribbons
3961	Costume Jewelry
3965	Fasteners, Buttons, Needles and Pins
3991	Brooms and Brushes
3993	Signs and Advertising Specialties
3995	Burial Caskets
3996	Paving and Roofing Materials
3996	Hard Surface Floor Coverings
3999	Manufacturing Industries
3999	Fur Dresser & Dyer
3999	Artificial Flowers
4491	Transportation Equipment Cleaning
4512	Air Transportation, Scheduled
4513	Air Courier Services
4741	Transportation Equipment Cleaning
4911	Steam Electric Power Generation
4931	Steam Electric Power Generation
4953	Waste Combustors
4961	Steam Electric Power Generation
5085	Industrial Supplies
5085	Steel Drum Reconditioner
5141	Groceries, General Line

Table 3L-4 (Continued)
Standard Industrial Codes for
Industries that May Need Assessment

5142	Packaged Frozen Foods
5144	Poultry and Poultry Products
5146	Fish and Seafood
5147	Meats and Meat Products
5148	Fresh Fruits and Vegetables
5149	Groceries and Related Products
5162	Adhesives and Sealants
5162	Plastic Materials and Basic Shapes
5169	Adhesives and Sealants
5169	Chemicals and Allied Products
5172	Petroleum and Petroleum Products Wholesalers
5198	Paints, Varnishes, and Supplies
5211	Lumber and Other Building Materials
5231	Paint, Glass and Wallpaper Stores
5461	Retail Bakeries
7211	Power Laundries, Family and Commercial
7213	Linen Supply
7218	Industrial Launderer
7219	Diaper Service
7372	Metal Finishing
7384	Photofinishing Laboratories
7539	Automotive Repair Shops
7699	Transportation Equipment Cleaning
7699	Copper Forming
7819	Metal Finishing
7819	Photofinishing Laboratories

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Table 3L-5
Categories of Industries that Require a DEC SPDES Permit
For Stormwater Discharges to Separate Sewers

1	Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category 11 below.
2	Facilities classified as Standard Industrial Classification 24 (except 2434), 26 (except 265 and 267), 28, (except 283), 29, 311, 32 (except 323), 33, 3441, 373.
3	Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(1)) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge stormwater contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator.
4	Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under subtitle C of RCRA.
5	Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described in this table) including those that are subject to regulation under Subtitle D of RCRA.
6	Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.
7	Steam electric power generating facilities, including coal handling sites.
8	Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-4225), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified in items 1-7 or 9-11.
9	Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR part 403. Not included are farms lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR part 503.
10	Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than 5 acres of total land area which are not part of a larger common plan of development or sale.
11	Facilities under Standard Industrial classification 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25 (and which are not otherwise included within categories 1-10).