

Guidance Manual for the Control of Wastes Hauled to Publicly Owned Treatment Works



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Foreword

Hauled waste may cause adverse impacts to wastewater treatment plants because it is usually more concentrated than typical domestic wastewater and may not be equalized when discharged. Adverse impacts may include pass through, interference, sludge contamination, and hazards to POTW personnel. To help prevent hauled wastes from causing problems, POTWs need to adequately control the discharge of hauled waste to their treatment plants.

Many POTWs with pretreatment programs have already developed controls for hauled waste. The control of hauled waste at these POTWs can result in the disposal of hauled waste to POTWs without controls, usually smaller POTWs. This shift in disposal of hauled wastes to smaller POTWs can result in negative impacts at those plants.

This guidance is designed to provide information for smaller POTWs, generally those without pretreatment programs, on how to develop and implement hauled waste controls. The guidance discusses collection of information on waste haulers, characterization of hauled waste received, evaluation of potential impacts, and the development and implementation of controls. The guidance also includes case studies of successful waste hauler programs and example forms.

1. INTRODUCTION

1.1 Background

Publicly Owned Treatment Works (POTWs) receive wastewater from a variety of domestic (household) and non-domestic sources [commercial businesses (restaurants, laundries, dry cleaners, car washes, etc), and industries]. Smaller POTWs receive mostly domestic wastewater, while larger POTWs generally receive a more complex mixture of wastewater from a variety of sources. Most of these wastewater sources are connected to the sewer system and discharge to the treatment plant through a system of pipes and interceptors. However, wastes may also be transported by truck or rail to POTWs by waste haulers. Such hauled waste may include domestic septage, chemical toilet waste, grease and sand trap waste, non-hazardous commercial and industrial (categorical and non-categorical) waste, hazardous waste, groundwater remediation site waste, and landfill leachate.

Because pollutants are usually more concentrated in hauled waste than in typical domestic wastewater, and because hauled waste may not be equalized when discharged, hauled waste may cause adverse impacts at treatment plants. These adverse impacts may include pass through to the receiving water, interference with treatment plant processes and operations, sludge contamination, and hazards to POTW personnel. To help prevent hauled wastes from causing problems, POTWs need to adequately control the discharge of hauled waste.

Treatment Plant Damaged by Illegal Discharge

On March 23, 1995 a truckload of waste contaminated with solvent was discharged to the Wareham, MA POTW. The discharge resulted in the emission of toxic fumes to the treatment works in sufficient quantity to threaten worker health and safety. One plant employee suffered upper respiratory problems.

The solvent-laden discharge caused a major disruption at the treatment plant when it contaminated 90,000 gallons of sewage, killing half of the microorganisms used to treat the raw sewage.

The waste hauler was instructed by his supervisor to discharge the contents of the truck to the treatment works. When he arrived at the receiving station, he filled out a form on which he made false statements concerning the truck registration number and the waste source.

Source: Associated Press, February 1997

POTWs that meet the criteria outlined in 40 CFR 403.8(a)¹ are required to develop and implement an approved pretreatment program. Under 40 CFR 403.5(b)(8), the discharge of trucked or hauled pollutants is prohibited except at points designated by the POTW. In addition to designating a discharge point, many POTWs have implemented other controls on the discharge of hauled waste. These controls include applying limits to non-domestic hauled waste, issuing permits to waste haulers, implementing tracking systems, sampling loads, and in some cases, refusing all hauled waste. The control of waste haulers at POTWs with pretreatment programs can result in the disposal of hauled waste shifting to facilities without pretreatment programs (“non-pretreatment” POTWs) or to places that are not environmentally suitable. Due to their small capacities and treatment capabilities, these smaller POTWs are more easily disrupted by high strength loads. Thus, the result of the shift is an increase in negative impacts to the non-pretreatment POTWS and potentially to receiving water bodies.

Recent studies show an increase of uncontrolled discharges to POTWs without an efficient program to regulate hauled waste (Thompson and Denow, 1997). Although the vast majority of waste haulers are reputable business people who provide a valuable service, unscrupulous haulers may try to dump incompatible wastes on unsuspecting POTWs. Only through efficient controls can a POTW regulate the volume and makeup of the hauled waste it accepts and protect treatment plant processes and staff.

1.2 Purpose of Guidance Manual

This guidance manual has been prepared by the U.S. Environmental Protection Agency (EPA) Office of Wastewater Management to provide guidance on the control of waste hauled to POTWs. This guidance presents practical information to treatment plant operators and local and State officials on ways to control the discharge of hauled waste. It is not intended to provide detailed engineering design information. The specific elements of a waste hauler control program may vary for each POTW, depending on treatment plant capacity, flows and pollutant loadings, sensitivity of plant processes, type and amounts of hauled waste accepted, funding, and local

¹Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards.

issues and requirements. Information provided in this manual should be tailored as necessary for its applicability to an individual POTW.

1.3 Organization

This guidance manual is organized into chapters corresponding to four basic steps to control waste hauled to POTWs:

- 1) Collect information on waste haulers potentially discharging to the treatment plant
- 2) Characterize the hauled waste received in terms of pollutants and concentrations/loadings
- 3) Evaluate potential impacts to the treatment plant
- 4) Develop, implement, and review and update controls, as necessary.

Steps 1, 2, and 3 are described in Chapter 2 which discusses how to collect waste hauler information, how to characterize hauled waste, and how to evaluate the potential impact of hauled waste on the treatment plant. Step 4 is discussed in Chapter 3 which includes information on ensuring adequate legal authority to implement a control program, designating a discharge site, applying appropriate discharge standards and restrictions, issuing permits, conducting sampling and analysis, and implementing a tracking system. Chapter 4 provides case studies from actual POTW programs.

2. COLLECTING WASTE HAULER INFORMATION, CHARACTERIZING HAULED WASTE, AND EVALUATING POTENTIAL IMPACTS TO TREATMENT PLANTS

This section discusses Steps 1, 2, and 3 for controlling hauled wastes; i.e., how to collect waste hauler information, how to characterize hauled waste, and how to evaluate the potential impact of the hauled waste on the treatment plant.

2.1 Collect Waste Hauler Information

The first step in implementing a hauled waste control program is to identify waste haulers that may discharge to the POTW. This can be done by conducting a waste hauler survey. The information gathered will be the basis for characterizing hauled wastes, evaluating the potential impacts on treatment plant processes, and determining appropriate controls.

2.1.1 Identify Waste Haulers Potentially Discharging to the POTW

The National Pretreatment Regulations [40 CFR 403.5(b)(8)] state that the discharge of hauled waste is prohibited except at points designated by the POTW. POTW staff can provide information to and receive information from the majority of waste haulers at this designated discharge site. However, all haulers may not be aware of or comply with this discharge site requirement. Therefore, to help identify all potential waste haulers operating in the area (including those in neighboring jurisdictions) and to identify their mailing addresses, POTW staff should consult the following sources that might list waste hauler businesses:

- Business license records
- Chamber of Commerce rosters
- Local telephone directories
- Internet searches
- City and State industrial directories
- State/County Health Departments.

In addition, POTW staff can obtain the names and addresses of haulers from the following sources:

- Businesses identified as having grease traps, sand traps, etc.

- State lists of hazardous waste generators and treatment, storage, and disposal facilities (TSDFs).

2.1.2 Require Waste Haulers to Submit Information

An efficient method of gathering information is to require each owner/manager of a waste hauler business to complete a questionnaire or permit application form. (see Appendix D for an example application form). POTWs accepting hauled wastes may have obtained basic information (e.g., name of business, type of waste, and volume) from the truck drivers delivering the waste. However, the truck driver may not know all of the information requested on the questionnaire or application form and may not be the appropriate person to sign the form. An authorized representative of the company (e.g., decision-level manager or owner) who would know about or be able to refer you to customer records should complete and sign the questionnaire or application form.

A letter should accompany the questionnaire or application form stating the purpose of the form and the deadline for its completion. To boost the response rate, a self-addressed, stamped envelope can be included. Additional information on the waste hauler program and the names, addresses, and phone numbers of appropriate POTW staff could also be included with the questionnaire or application form.

Information Required From All Waste Haulers

Information that POTWs should have on record for all haulers prior to granting approval to discharge includes:

- Name of business
- Name of owner
- Address and phone number
- Type(s) of waste hauled
- Estimated number and volume of loads discharged per week for each waste type
- List of non-domestic customers
- Number and capacity of vehicles
- Hours of operation
- Names of other POTWs where hauled waste is discharged
- Where other wastes are disposed (other than those listed above).

Information Required for Each Generator of Non-Domestic Waste

If the hauler serves non-domestic customers (e.g., commercial businesses or industry), more detailed information should be requested. Information for each waste generator should generally include the following:

- Name, address, and phone number of the waste generator
- Name of business owner
- Any analytical/physical data collected by the generator or hauler
- Description of waste including waste type, the process generating the waste, frequency and volume of hauled waste shipments, indication of whether the waste is subject to federal categorical pretreatment standards, indication of whether the waste is hazardous as defined in 40 CFR Part 261, and the reason for the waste being hauled to the treatment plant.

Table 2.1 contains an example waste profile form to collect information from non-domestic waste generators.

2.1.3 Maintain Data and Information

POTWs should establish a system for maintaining waste hauler information including haulers and their wastes approved for discharge, receipts of hauled waste loads, sampling results of hauled waste loads, and other relevant information. Maintaining such information will allow the POTW to track the types and amounts of hauled waste received and may assist in identifying the source of a waste load that caused problems. Data and information can be maintained in hard-copy form, electronically, or both.

2.2 Characterize Hauled Waste

Before assessing the acceptability of hauled wastes, the treatment plant operator must have information on the waste characteristics; specifically the pollutant concentrations. Information on the source of the waste and the general type of waste can provide clues as to possible pollutants and potential problems. **Figure 2.1** provides an overview of the waste characterization process.

There are 3 questions that the operator should assess to properly characterize the hauled waste:

- What is the source?
- What is the general type of waste?
- What are the pollutant concentrations?

What is the source, (i.e., residential, commercial business, industry)? If industrial waste, what type of industry and what specific process created the wastes? If the information is available, Material Safety Data Sheets (MSD) for specific chemicals and results of any Toxicity Characteristics Leaching Procedures (TCLP) performed on sludges should be provided as attachments to the Waste Profile Form (**Figure 2.1**).

What is the general type of waste, [i.e., domestic waste or non-domestic (non-hazardous commercial or industrial waste, chemical toilet waste, groundwater remediation site waste, landfill leachate, or hazardous waste)]? General characteristics of these various types of wastes are discussed in the following sections.

What are the pollutant concentrations of Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), metals, toxic organics, flammable or explosive compounds? What are the percent solids and pH?

2.2.1 Domestic Waste

The majority of waste hauled to POTWs is domestic septage, defined as the liquid or solid material removed from a septic tank, cesspool, holding tank, or a similar system that receives only domestic waste (household, non-commercial, non-industrial sewage). Compared to sewage entering a POTW through a sewerage system, domestic septage is often partially digested and has higher concentrations of solids and heavy metals, as shown in **Table 2.2**. In fact, as can be seen in **Table 2.3**, domestic septage is more similar, in terms of pollutant concentrations, to sewage sludge than it is to domestic wastewater.

2.2.2 Non-Domestic Waste

Non-domestic waste may include portable chemical toilet waste, non-hazardous commercial or industrial waste, groundwater remediation site waste, landfill leachate, or hazardous waste. Each of these waste types is described below.

Table 2.1 Example Waste Profile Form

Generator Information		(Correspondence will be sent to "Billing Name" address)	
Generator Name: _____		Billing Name: _____	
Street: _____		Street: _____	
City: _____	State: _____	ZIP: _____	City: _____ State: _____ ZIP: _____
Phone: _____	Fax: _____	Phone: _____	Fax: _____
Waste Description			
Common Name of Waste: _____			
Process Generating Waste: _____			

Is the process by which this waste is generated subject to Federal Categorical Pretreatment Standards? <input type="checkbox"/> YES <input type="checkbox"/> NO			
If yes, identify process: _____			
Is the waste a characteristic or listed hazardous waste defined by 40 CFR Part 261? <input type="checkbox"/> YES <input type="checkbox"/> NO			
Frequency of shipment: _____			
Waste is:	<input type="checkbox"/> Industrial Process Waste	<input type="checkbox"/> Unused or Off-Spec Product	
	<input type="checkbox"/> Commercial Process Waste	<input type="checkbox"/> UST or Spill-Related Waste	
	<input type="checkbox"/> Food-Related Waste	<input type="checkbox"/> Other, please specify _____	
MSD ATTACHED? <input type="checkbox"/> YES <input type="checkbox"/> NO Comment: _____			
TCLP ATTACHED? <input type="checkbox"/> YES <input type="checkbox"/> NO Comment: _____			
GENERATOR PROCESS KNOWLEDGE CERTIFICATION ATTACHED? <input type="checkbox"/> YES <input type="checkbox"/> NO			
Physical Data (@70 F):			
1) Color: _____	6) Is Waste Pumpable ? <input type="checkbox"/> YES <input type="checkbox"/> NO		
2) Odor: _____	7) Flash Point <input type="checkbox"/> <100 F <input type="checkbox"/> 100–139 F <input type="checkbox"/> 140–200 F <input type="checkbox"/> >200 F		
3) Number of Layers: _____	8) pH <input type="checkbox"/> <2 <input type="checkbox"/> 1.2–7 <input type="checkbox"/> 7.1–12.4 <input type="checkbox"/> >12.4		
4) Total Solids by Volume: ____%	9) Specific Gravity: <input type="checkbox"/> <1 <input type="checkbox"/> 1–1.5 <input type="checkbox"/> >1.5		
5) Does waste contain free liquids? <input type="checkbox"/> YES <input type="checkbox"/> NO If yes ____%			
Waste Composition:			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	Total 100%
Sample Information			
Sample Provided? <input type="checkbox"/> YES <input type="checkbox"/> NO			
If yes, complete the following:			
Date Collected: _____	Time Collected: _____		
Sampled by: _____	Grab: _____		
Composite: _____	Sampling Location: _____		

Concentration in ppm

INORGANIC CHARACTERISTICS

D004	Arsenic	_____	D010	Selenium	_____
D005	Barium	_____	D011	Silver	_____
D006	Cadmium	_____		Copper	_____
D007	Chromium	_____		Zinc	_____
D008	Lead	_____		Nickel	_____
D009	Mercury	_____			

ORGANIC CHARACTERISTICS

D018	Benzene	_____	D032	Hexachlorobenzene	_____
D019	Carbon Tetrachloride	_____	D033	Hexachlorobutadiene	_____
D021	Chlorobenzene	_____	D034	Hexachloroethane	_____
D022	Chloroform	_____	D035	Methyl Ethyl Ketone	_____
D023	o-Cresol	_____	D036	Nitrobenzene	_____
D024	m-Cresol	_____	D037	Pentachlorophenol	_____
D025	p-Cresol	_____	D038	Pyridine	_____
D026	Cresol	_____	D039	Tetrachloroethylene	_____
D027	1,4-Dichlorobenzene	_____	D040	Trichloroethylene	_____
D028	1,2-Dichloroethane	_____	D041	2,4,5-Trichlorophenol	_____
D029	1,1-Dichloroethylene	_____	D042	2,4,6-Trichlorophenol	_____
D030	2,4-Dinitrotoluene	_____	D043	Vinyl Chloride	_____

PESTICIDE/HERBICIDE WARRANTY

I hereby certify the following: The waste identified in Section B of this waste profile form does not contain Endrin, Methoxychlor, 2,4-D Lindane, Toxaphene, 2,4,5-TP (Silvex), Chlordane, or Heptachlor (and its Epoxide). These constituents are not used at the location where this waste was generated, nor are they known to be present in the materials of which the above waste is comprised. Hence, there is no reason to suspect their presence in the waste. Generator's Initials: _____

POLYCHLORINATED BIPHENYL (PCB) WARRANTY

I hereby certify the following: The waste identified in Section B of this waste profile form does not contain PCBs at a concentration of 40 ppm when measured in each container or vessel; that the material is not contaminated with PCBs from a source containing 50 ppm or greater PCBs; and hereby agree to indemnify and hold harmless from any cost, damages, or liability resulting from the breach of this warranty. Generator's Initials: _____

HAZARDOUS WASTE WARRANTY

I hereby certify the following: The waste identified in Section B of this waste profile form does not contain any material at a concentration which would render it as hazardous as defined in 40 CFR 261.3 when measured in each contain or delivered to and hereby agree to indemnify and hold harmless from any cost, damages, or liability resulting from the breach of this warranty. Generator's Initials: _____

FEDERAL CATEGORICAL PRETREATMENT STANDARD WARRANTY

I hereby certify the following: (Please circle and initial) The waste identified in Section B of this waste profile form is/is not generated from a manufacturing process that is subject to Federal Categorical Pretreatment standards; and hereby agree to indemnify and hold harmless from any cost, damages, or liability resulting from the breach of this warranty.

Generator's Initials: _____

Name (Print) _____ Title _____

Signature _____ Date _____

Figure 2.1 Determining Hauled Waste Characteristics

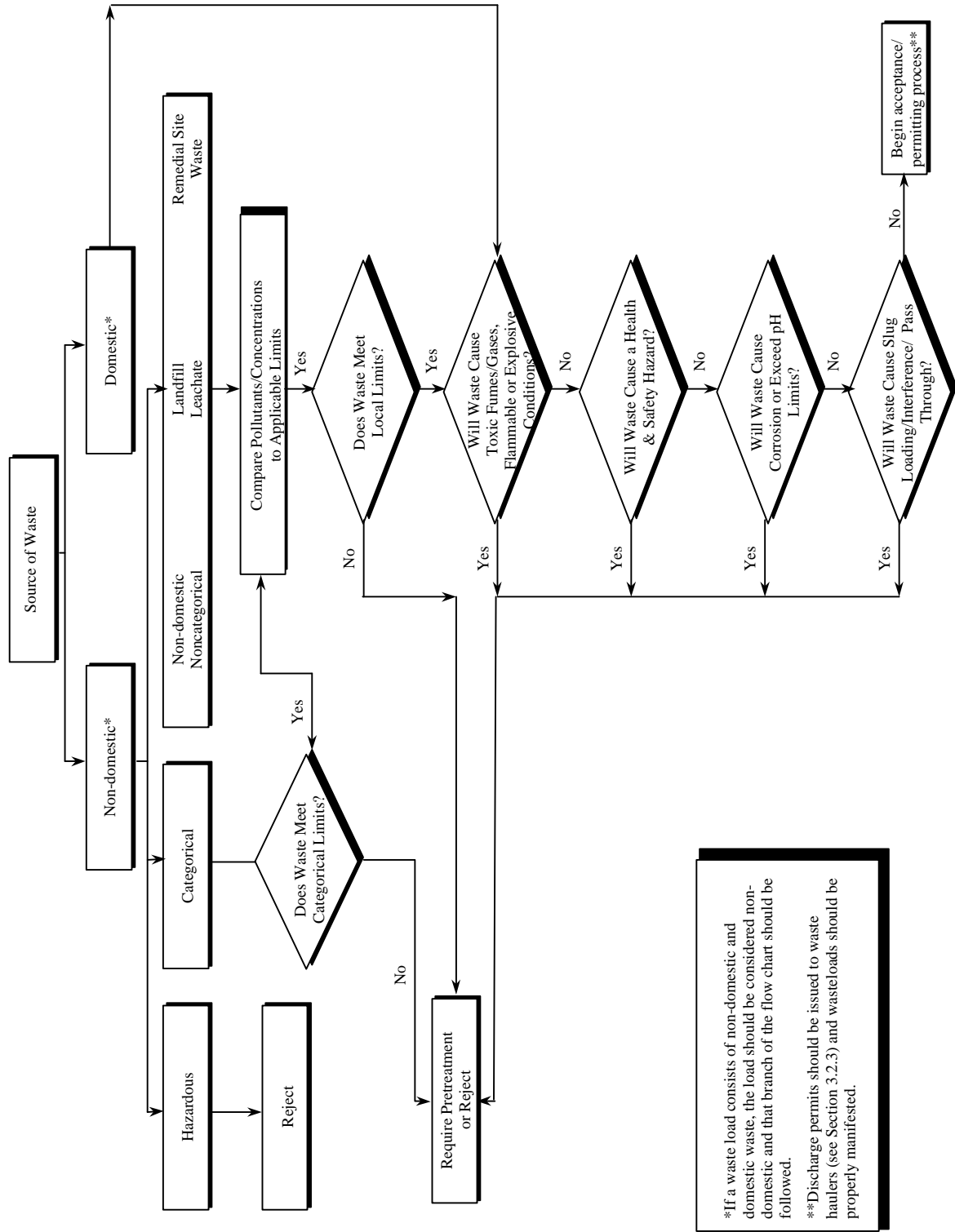


Table 2.2 Comparison of Selected Pollutant Concentrations in Domestic Septage and Domestic Wastewater

Pollutant	Domestic Wastewater (mg/l)		Domestic Septage(mg/l)	
	Range	Average	Range	Average
Iron	0.0002 – 3.4	0.989	0.2 – 2,740	39.28
Zinc	<0.01 – 1.28	0.212	<0.001 – 444	9.971
Manganese	0.04 – 0.16	0.087	0.55 – 17.05	6.088
Barium	0.04 – 0.216	0.115	0.002 – 202	5.758
Copper	<0.005 – 0.61	0.109	.01 – 260.9	4.835
Lead	<0.001 – 2.04	0.116	<0.025 – 118	1.21
Nickel	<0.001 – 1.6	0.047	0.01 – 37	0.526
Chromium (T)	<0.001 – 1.2	0.034	0.01 – 34	0.49
Cyanide	0.01 – 0.37	0.082	0.001 – 1.53	0.469
Arsenic	0.0004 – 0.088	0.007	0 – 3.45	0.141
Silver	0.0007 – 1.052	0.019	<0.003 – 5	0.099
Cadmium	0.00076 – 0.11	0.0008	0.005-- 8.1	0.097
Mercury	<0.0001 – 0.054	0.002	0.0001 – 0.742	0.005

Source: *Supplemental Manual on The Development and Implementation of Local Discharge Limitations Under the Pretreatment Program*, EPA 1991

Portable/Chemical Toilet Waste

Waste from portable toilets, type III marine sanitation devices, and chemical toilets may be hauled to the treatment plant for disposal. Hauled waste from chemical toilets may be incompatible with POTW operations due to antibacterial and disinfecting agents used in the chemical toilet. Therefore, the POTW should require the hauler to submit information on the volume and concentrations of bacterial growth inhibitors in the hauled waste and evaluate how much of this material can be safely handled by the POTW. For example, the Winnepesaukee River Basin treatment plant requires anyone proposing to discharge portable toilet waste that contains any chemical first receive approval from the POTW operator to discharge.

Non-Hazardous Commercial/Industrial Waste

Non-hazardous commercial/industrial waste is waste generated by non-domestic sources that is not regulated as hazardous waste under 40 CFR Part 264. These wastes may include process wastes, cooling water, boiler blow down, etc.

**Table 2.3 Comparison of Selected Pollutant Concentrations
in Domestic Septage and Sewage Sludge**

Parameter	Concentration	
	Domestic Septage (mg/kg)	Sewage Sludge (mg/kg)
Arsenic	4	10
Cadmium	3	7
Chromium	14	120
Copper	140	740
Lead	35	130
Mercury	0.15	5
Molybdenum	---	4
Nickel	15	43
Selenium	2	5
Zinc	290	1,200
Nitrogen as N	2%	2–7%
Phosphorus as P	<1%	1–3%
pH	6–7	5–8
Grease	6–12%	5–10%
BOD	6,480 mg/l	2,000 mg/l
Total Solids	3.4%	3–35%

Source: U.S. EPA Domestic Septage Regulatory Guidance, A Guide to the EPA 503 Rule. September 1993

The National Pretreatment program established categorical pretreatment standards to regulate the level of pollutants in wastes discharged to POTWs by specific industries. These standards appear in 40 CFR Chapter I, Subchapter N, Parts 405-471. A summary of industries regulated by categorical pretreatment standards and descriptions of the regulated processes are provided in Appendix E. Categorical standards place limitations on the discharge of pollutants from these industries including toxic pollutants and conventional and non-conventional pollutants. Further information on categorical standards and their applicability to hauled waste is contained in Section 3.2.2.2.

Industrial and commercial wastes which are not regulated by a categorical pretreatment standard may also be incompatible with treatment plant operations. These wastes can include wastes from the food processing industry, fats, oil and grease of animal or vegetable origin (e.g.,

from restaurants), petroleum-based oils (e.g., from auto repair shops, car washes), and a variety of metal and organic bearing wastes from a variety of industrial and commercial sources. Although not subject to categorical standards, these wastes may be subject to local limits. Section 3.2.2.1 contains more information on the development and application of local limits.

Groundwater Remediation Site Waste

Waste from groundwater remediation sites is frequently hauled to POTWs. Most of these remediation wastes have been treated and contain only trace amounts of toxics that can be accepted at a POTW without causing problems. However, some remediation wastes may be discharged at a rate or pollutant concentration that causes pass through or interference. For example, groundwater remediation waste associated with fuel contaminated groundwater may contain benzene, toluene, ethyl benzene, xylene, methyl tert-butyl ether, naphthalene, petroleum oils and grease, and lead. POTW operators should require remediation site operators to provide information on the volume, pollutants, and pollutant concentrations of the waste they propose to deliver to the POTW. Remediation wastes may also come from Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites - more commonly referred to as “superfund” sites. For CERCLA guidance, refer to *CERCLA Site Discharges to POTWs Guidance Manual*, EPA 1990 (EPA/542/6-90/005). POTWs are not required to accept wastes from these cleanup operations and may require the same controls (permitting, application of local limits, monitoring) on these discharges as would be required on any other wastewater discharge from another source.

Landfill Leachate

Landfill leachate is a liquid which passes through or emerges from solid waste. Pollutant concentrations in landfill leachate vary widely, as shown in Table 2.4. Factors which can affect leachate quality include (Henry and Prasad, 1991 and Lu et al, 1985):

- Type and composition of wastes
- Age of wastes
- Climate and moisture composition of wastes
- Waste processing and compaction and other landfill operational aspects
- Temperature, pH, and redox condition in landfill
- Presence of large quantities of municipal sewage sludge or industrial sludge or wastes

- Thickness of refuse layer
- Permeability, thickness, compaction, and slope of daily and final cover.

Table 2.4 Example Pollutant Concentrations in Landfill Leachate

Parameter	Range mg/l
BOD	2,000–30,000
COD	3,000–45,000
TSS	200–1,000
Ammonia Nitrogen	10–800
Chloride	100–3,000
Sulphate	100–1,500
Total Iron	50–600
Alkalinity (as CaCO ₃)	1,000–10,000
Total Phosphorus	1–70
pH	5.3–8.5 s.u.

Source: Solid Waste Association of North America. *Manager of Landfill Operations Training Course*. Course Manual. Publication MSW-D 2360 GMISC 0005. Silver Spring, MD. Revised June 1991.

On February 6, 1998, EPA proposed categorical pretreatment standards for landfills. However, these pretreatment standards are applicable only for new and existing hazardous waste landfills regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Pretreatment standards were not proposed for new or existing non-hazardous waste landfills.

Hazardous Waste

Wastes are regulated as hazardous if they are listed as such in 40 CFR 261.31-33 or if they exceed certain levels of ignitability, corrosivity, reactivity, or toxicity (as defined in 40 CFR 261.21-24). POTWs that accept hazardous wastes by truck, rail, or dedicated pipe within the property boundary of the plant are considered to be hazardous waste treatment, storage, and disposal facilities (TSDFs) and subject to RCRA regulations under 40 CFR Part 264. Refer to the *Guidance Manual for the Identification of Hazardous Wastes Delivered to Publicly Owned Treatment Works by Truck, Rail, or Dedicated Pipe*, EPA 1987 for more information.

2.3 Evaluate Potential Impacts to Treatment Plant

Even small volumes of toxic or hazardous waste have the potential to impact the treatment plant. POTW personnel are responsible for assessing the potential impact of hauled waste based on the waste's characteristics and the sensitivity of the treatment process. This section provides information on potential treatment plant impacts and discusses the various determinations needed to evaluate potential impacts from a specific waste load.

2.3.1 Potential Impacts to Treatment Plants

The discharge prohibitions in 40 CFR 403.5 apply to all discharges including domestic and non-domestic hauled waste. Hauled waste has the potential to create a number of impacts at a treatment plant including pass through² or interference³, sludge contamination, and worker hazards. Each of these impacts is discussed in greater detail below.

Pass Through and Interference

Hauled waste can cause slug loadings to POTWs. A slug loading can be attributed to many different pollutants including BOD, ammonia, phosphorus, metals, and organics. These loadings may cause interference (i.e., process upset) or pass through. The toxic effects of metals and toxic organics contained in non-domestic waste hauled to POTWs can interfere with secondary wastewater treatment processes and sludge treatment processes. In primary wastewater treatment, solids are removed by sedimentation. These solids are referred to as primary sludge. Primary sludge is often treated in digesters that utilize bacteria under anaerobic conditions to render the sludge acceptable for disposal. Toxic metal compounds, particularly those containing chromium, can destroy these bacteria or inhibit their reproduction, thereby disrupting the sludge treatment process and producing sludge that cannot be disposed without additional treatment.

²Pass through is defined as discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

³Interference is defined as a discharge which alone, or in conjunction with discharges from other sources both: 1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) therefore is a cause of a violation of any NPDES permit requirement (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with applicable statutes, regulations, or permits.

Bacteria also are used in secondary treatment of wastewater to remove non-toxic organic wastes. If toxic pollutants affect the bacteria at this stage, the secondary treatment system will not remove as much of the pathogenic organisms or organic material. Failure of the secondary treatment system can result in the discharge of incompletely treated wastewater into surface waters. POTWs are held accountable for National Pollutant Discharge Elimination System (NPDES) permit violations resulting from pass through and interference, even if the violation was caused by a waste hauler. If adequate legal authority is available, POTWs should establish regulations that allow them to enforce against waste haulers and the waste generators in cases where hauled waste discharges cause pass through or interference.

Fats, oil, and grease of animal or vegetable origin collected from grease traps and petroleum-based oils collected from commercial or industrial sources (e.g., from oil/water separators) are sometimes hauled to POTWs. Fats, oil, and grease of animal or vegetable origin can be solid or viscous at ambient temperatures and can cause blockages in pipes, clogging of pumps, and coating and clogging of monitoring probes. In addition, oil and grease from grease traps may have a pH less than 5. Unlike animal and vegetable oils that can, in a dispersed state, be treated in aerobic and anaerobic biological systems, petroleum-based oils are degraded slowly by microorganisms and can reduce treatment efficiency. Accumulation of oil and grease in anaerobic digesters can reduce the effective capacity of the digesters. If contents are not kept well mixed and heated, solid scum layers can form and cause blockage in pipes. Because of the potential problems caused by the discharge of grease trap waste, some POTWs prohibit or place restrictions on its discharge, both through the collection system and as hauled waste. Other POTWs have the ability to remove oil and grease (e.g., through discharge to sludge drying beds or sludge digestion processes) and therefore establish procedures for accepting grease trap waste. When determining whether to accept grease trap waste, POTWs should consider the potential for the waste to cause pass through and interference. At a minimum, POTWs must prohibit the discharge of oil and grease in amounts that would cause pass through or interference.

Sludge Contamination

Domestic and non-domestic hauled waste can increase the sludge volume generated and impair sludge settling and dewatering processes. Additionally, toxic metals or organics contained

in non-domestic waste may settle out with the sludge. This contamination of sludge by toxic metals or organic compounds may preclude some sludge use or disposal methods (e.g., land application). If the sludge is disposed in a landfill, these pollutants may leach out and contaminate adjacent surface and groundwaters. When incineration is used, toxic pollutants may be released to the atmosphere.

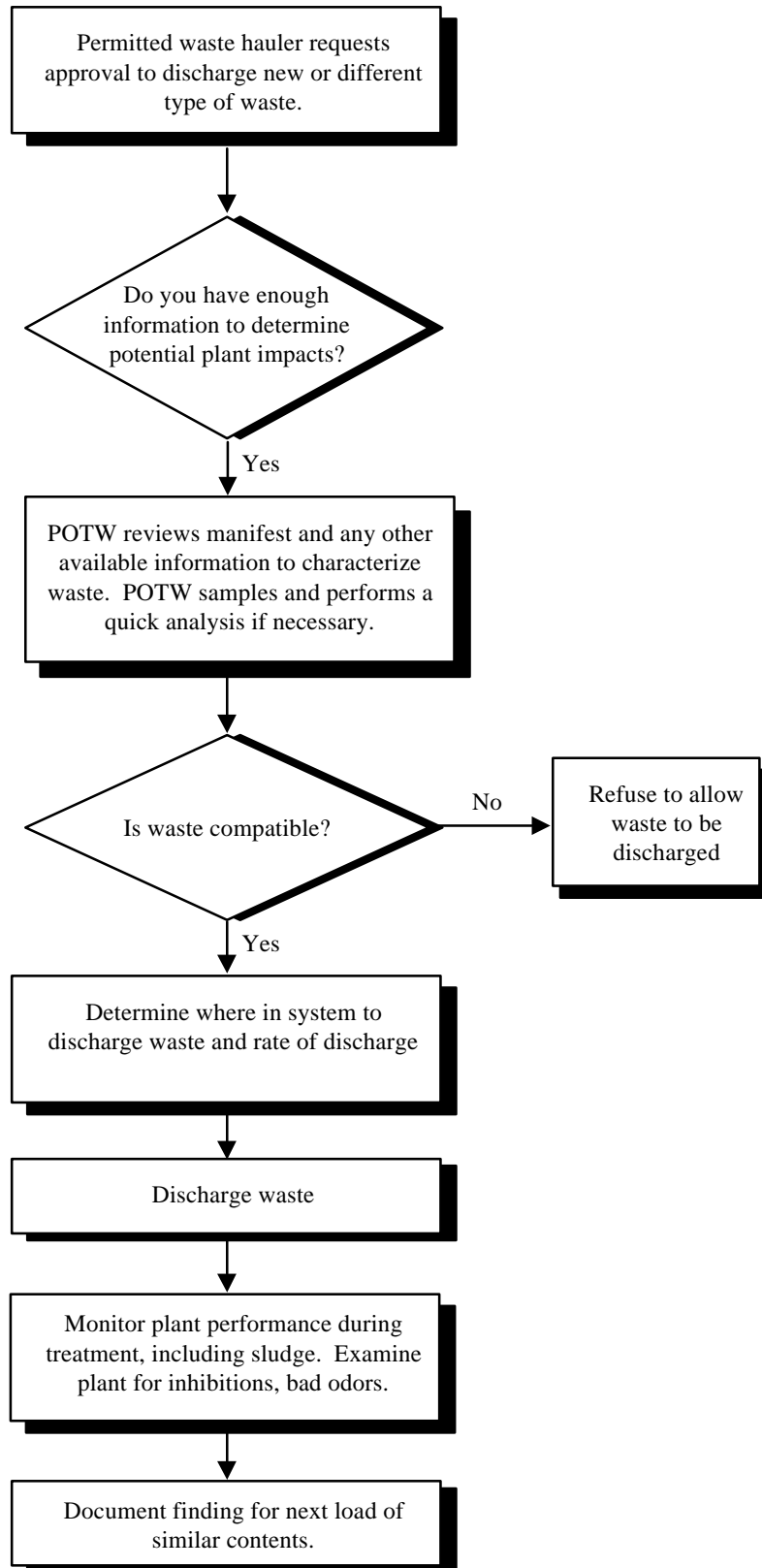
Worker Hazards

Exposure to toxic or hazardous substances in hauled waste can pose dangers to the safety and health of POTW employees that are in contact with the wastewater. Fires, explosions, asphyxiation, and poisoning are the lethal effects of certain substances such as solvents, fuels, strong acids, strong bases, heavy metal chloride and sulfate salts, sodium, calcium, and potassium salts of strong bases, oxidizing agents, and reducing agents. Other health effects may include: burns, nausea, vomiting, headaches, fatigue, dizziness, eye, throat, nose, lung, and skin irritations, respiratory distress including shortness of breath and difficulty breathing, sore throat, and coughing.

2.3.2 Determine Potential Impacts From Specific Waste Sources/Types

There are several factors to consider when determining whether a specific type of waste or waste from a particular source has the potential to cause treatment plant impacts. These determinations include whether the waste meets all applicable standards, whether the waste has the potential to cause pass through or interference, and whether the waste has other problem characteristics. Some wastes, such as domestic septage, exhibit relatively consistent properties and fairly quick determinations can be made as to the likelihood of disruption based on volume being received and potential concentration of pollutants. However, new or different waste loads (particularly from non-domestic sources) may also arrive at a facility, and the task of determining compatibility can be difficult. The flow chart provided in **Figure 2.2** provides a representation of the decision-making process involved in such a situation.

FIGURE 2.2 NEW/DIFFERENT LOAD DECISION FLOW CHART



2.3.2.1 Determine Whether Waste Meets All Applicable Standards

Does the waste meet applicable numerical standards?

If the waste is subject to categorical pretreatment standards, the waste must meet the standards prior to discharge to the POTW. Further information on the application of categorical standards to hauled waste is contained in Section 3.2.2.2.

If the POTW applies local limits to non-domestic hauled waste, then the waste must meet all applicable limits. If a non-domestic waste load exceeds local limits, it should be rejected. More information on the development and application of local limits is contained in Section 3.2.2.1.

Determine Whether Waste Meets All Applicable Standards

- ▶ Does the non-domestic waste meet applicable standards (local limits, categorical pretreatment standards)?
- ▶ Will the waste cause toxic fumes/gases, explosive condition, flammable condition, corrosive condition, other hazard to health and safety of POTW employees?

Non-domestic hauled waste may contain pollutants for which there are no numerical local limits developed. In such a situation, an evaluation of the potential to cause pass through or interference should be conducted. A discussion of this evaluation is provided below. Furthermore, hauled wastes can cause shocks to the treatment system, much like the effects of an accidental spill or a slug load from the non-domestic users connected to the collection system. Therefore, hauled wastes, particularly any new type of hauled waste, should undergo the evaluation of the potential to cause pass through or interference.

Does the waste meet narrative prohibitions against discharges that cause toxic fumes/gases, explosive condition, flammable condition, corrosive condition, other hazard to health and safety of POTW employees?

All non-domestic waste loads should be subject to a visual observation that evaluates the viscosity, odor, and color. Any unusual characteristics can be noted and further tests conducted if necessary. The decision for further tests, however, should not be based on the visual observation alone. The presence of some gases and volatile organics can be detected by smell, but others are odorless. Some quick and simple monitoring devices that can provide an indication of corrosivity

and explosivity are a pH meter and an explosivity meter. A pH test should be conducted on all waste loads from non-domestic sources. An explosivity meter can also be used routinely on all non-domestic loads, but should always be used on loads suspected of containing chemicals that can create explosive gases. Both pH and explosivity monitoring devices can be installed at waste load discharge locations. These devices as well as other field monitoring and laboratory instruments available are listed in **Table 2.5**.

Table 2.5 Field Monitoring and Laboratory Instruments

INSTRUMENT	MEASURES
WASTEWATER	
pH meter	Acidity/alkalinity
Oxidation-reduction (redox) meter	Oxidation-reduction potential (ORP), measured in millivolts, is the electrical potential required to transfer electrons from one compound or element to another. Negative values indicate a tendency to reduce compounds or elements and positive values indicate a tendency to oxidize compounds or elements.
Flashpoint (closed-cup) tester	Determines the minimum ambient temperature at which a substance gives off sufficient vapor to create an ignitable mixture
AIR	
Combustible Gas Detector and Oxygen meter (CGD/Oxygen explosimeter)	Percentage of oxygen present and the concentration of combustible gases/vapors present expressed as a percentage of the lower explosive limit (LEL)
Photoionization detector (PID)	Measures the concentration of a variety of organic and inorganic gases/vapors
Organic Vapor Analyzer (OVA)	Can monitor continuously for all detectable organic vapors or can determine the identity and concentration of specific organic vapors/gases
Colorimetric tubes	Measures concentration of specific gases

Source: *Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors*, EPA 812-B-92-001, June 1992.

The POTW should compile a list of flammable, explosive, corrosive, and toxic chemicals and compare the chemical analysis of non-domestic waste against the list. If any of the pollutants in the load are on the list, further tests/analyses could be conducted to determine if the pollutants are present in concentrations that would pose a threat to the treatment plant processes or workers. Various reference documents that can provide information on the flammability,

explosivity, and health hazards of chemicals can be found in Appendix F. The National Fire Protection Association, Inc. (NFPA) is a good source for the most current information on flammable and combustible substances. The American Conference of Governmental and Industrial Hygienists (ACGIH), the Occupational Health and Safety Administration (OSHA), and the National Institute for Occupational Safety and Health (NIOSH) all publish information on hazardous and toxic substances in the work environment. The ACGIH develops occupational guidelines used by OSHA and NIOSH; these guidelines establish air contaminant exposure limits known as Threshold Limit Values (TLVs) above which workers should not be exposed. Exposure limits have been developed for approximately 650 toxic substances.

2.3.2.2 Determine Whether Waste Has the Potential to Cause Pass Through or Interference

New sources of non-domestic hauled waste or non-domestic waste containing pollutants for which there are no local limits should not be accepted until the following have been determined:

Determine Whether Wastes Has Potential to Cause Interference/Pass-Through

- ▶ Will the waste cause a slug load or other interference?
- ▶ Will the waste cause the POTW to violate any NPDES requirements?

Will the waste cause a slug load or other interference?

Will the waste cause the POTW to violate any NPDES permit requirement (particularly NPDES effluent limits)?

Answers to these questions are often not easy to determine. Assessing a treatment plant's ability to treat a particular waste or determining the actual impacts on the plant is often impossible due to lack of readily available information. POTW personnel often adopt one of the following two approaches:

- *Refuse* – Refuse the waste if it contains pollutants not on an “accepted list” or wastes that are outside specified boundaries (e.g., pH, specific pollutant concentrations).
- *Accept and Watch* – Accept the waste and monitor and record any observable impacts. If there are no adverse impacts, the POTW continues to accept the wastes. If there

are any adverse impacts, the POTW rejects any further waste of that nature or determines what actions may reduce or eliminate the impacts.

Many POTWs believe that the “refuse” approach is the safest way to ensure proper operation of the treatment plant. If this approach is taken, the POTW should have some suggested alternatives for the hauler to encourage proper disposal. The “accept and watch” approach places the POTW in a vulnerable position should the waste cause interference or pass-through (resulting in NPDES permit violations, damage to the treatment plant or receiving water, or worker health and safety hazards). One way to minimize the risk in accepting non-domestic waste is to require industry, prior to allowing the discharge, to perform a treatability study.

POTWs accepting non-domestic hauled waste should conduct a technical feasibility analysis. This analysis is similar to and uses information from the local limits development process. This analysis should determine whether:

- ✓ The POTW has the hydraulic and organic capacity to handle the additional hauled waste. Determine the unused treatment plant capacity available to handle and treat hauled waste loadings [the difference between the design or actual capacity (organic and hydraulic) of the treatment plant and the current and projected sewer collection system loadings]. Conduct this analysis on each individual unit process (including the sludge handling and treatment unit processes). Determine the pollutant loading increases to the effluent, sludge, and air. Compare these increased loadings/ concentrations to any environmental standards (NPDES permit limits, water quality standards, sludge standards) to determine whether any standards will be exceeded. This process is normally performed as part of local limits development. POTWs that have not developed local limits should contact their Approval Authority (see Appendix C for a list of contacts).
- ✓ The unit operations are suitable for treatment of the pollutants in the hauled waste. Determine the pollutant concentrations and loadings that the unit operations can receive without exhibiting interference. For example, at what loading of TSS, BOD, or other pollutant does impairment of sludge settling or dewatering occur.
- ✓ The POTW has the ability to control feed rates of hauled waste to the treatment plant. Determine the sensitivity of treatment plant processes to daily fluctuations in hauled waste loadings. Systems acclimated to a specific type of waste (pollutants, concentrations, loadings) can be shocked if waste with different characteristics is introduced suddenly. Shocks can be prevented if the POTW has the ability to

gradually mix this waste with its other incoming wastewater to minimize or eliminate the fluctuations caused by this waste. The POTW needs to determine when and at what rate the hauled waste can be discharged to the treatment system. Some POTWs store the hauled waste and then discharge it during off peak loading times while other POTWs discharge hauled waste during times of high hydraulic but low organic loading.

2.3.2.3 Determine Whether Waste Has Other Problem Characteristics

Hauled waste may constitute a small percentage of the volume and pollutant loadings of a POTW and when the discharge feed rate is carefully controlled, interference and pass through may never occur. However, the hauled waste may create operation and maintenance problems that result in increased treatment costs and greater deterioration of equipment and

facilities. A POTW should determine whether it is providing an environmentally sound treatment service or whether it is acting as an agent that dilutes and transfers the pollutants to other media such as the receiving stream, air, or sludge.

Determine Whether Waste Has Other Problem Characteristics

- ▶ Will the waste cause other nuisances such as objectionable odors, pump or line clogging, or additional cleaning or maintenance?
- ▶ Does the waste contain bioaccumulative and persistent substances?

Will the waste cause other nuisances such as objectionable odors, pump or line cloggings, foaming aeration tank/aerated digester, or additional cleaning/maintenance requirements?

A variety of problems have been associated with domestic and non-domestic hauled wastes:

- Increased volume of grit, scum, and screenings
- Increased volume of primary and secondary sludge
- Increased phosphorus load
- Bulking of activated sludge
- Difficulty in sludge thickening and dewatering
- Excessive foaming.

Does the waste contain bioaccumulative and persistent substances that are not amenable to treatment?

If the waste contains bioaccumulative and persistent substances (e.g., mercury, PCBs), the POTW may want to handle these wastes in a fundamentally different manner because even very small amounts could cause a violation of a water quality standard, and these persistent substances could accumulate in downstream sediments, flora, and fauna that may require future remediation.

3. DEVELOPING AND IMPLEMENTING CONTROLS

To avoid complications caused by discharges of waste hauled to a POTW, all POTWs that receive hauled wastes should implement a program to control hauled waste. Prior to implementing a control program, POTWs should first review and revise their legal authorities, as necessary, to ensure that adequate legal authority is available for all proposed controls. Legal authority is discussed in greater detail in Section 3.1. Waste hauler control programs could include active control mechanisms and communication. Active controls include designating disposal sites, conducting monitoring, applying appropriate discharge limits, issuing permits, implementing a tracking system, and identifying illegal discharges. Communication includes communicating with waste haulers and with other POTWs. Active controls and communication are discussed in more detail in Sections 3.2 and 3.3. Controls implemented by a POTW should be tailored for the treatment works' specific operating conditions and needs and should be reviewed and updated, as necessary.

3.1 Legal Authority

3.1.1 General Authority to Impose Controls

Legal authority needed to control the discharge of hauled waste includes the general authority to impose controls (i.e., state law and local ordinances) and specific ordinance provisions applicable to hauled waste.

The legal authority of a POTW or other local authority to administer controls on hauled waste or to implement a hauled waste permit program is derived from State law and local ordinances. If adequate legal authority to control hauled waste is not present, local ordinances should be modified. State law determines what authorities a POTW may possess; thus, the POTW must be aware of these laws when developing or seeking modifications to its local ordinance. The local ordinance must describe all of the controls in sufficient detail so that waste haulers and POTW personnel will understand the procedures, expectations, and liabilities associated with the program. The POTW should request its attorney to assist in reviewing the ordinance to ensure that it provides adequate authority and that the ordinance does not create any unnecessary procedural or institutional obstacles which might hinder the discharge control

programs. Depending on their legal authority, POTWs can regulate the waste generator, the waste hauler, or both. If a POTW accepts non-domestic hauled waste from outside its jurisdiction, it should ensure that it has the legal authority to regulate those waste generators located outside its jurisdiction.

3.1.2 Provisions Necessary for Controlling Waste Haulers

The legal authorities required for an effective waste hauler control program are similar to those for regulating sources connected to the POTW; however, there are certain additional provisions which should be included in the POTW's sewer use ordinance. In particular, the ordinance should contain the following provisions:

- Prohibition on the discharge of hauled waste, except at points designated by the POTW.
- The hauled waste must meet all applicable federal, State, and local pretreatment standards and requirements including categorical standards developed for the waste generator's industrial category. If the POTW's legal authority allows it to do so, the ordinance should also be expanded to allow the POTW to permit and regulate the generator of non-domestic hauled wastes.
- The POTW may require commercial, industrial, and/or residential waste haulers to obtain a permit.
- The POTW may collect samples of each hauled load to ensure compliance with applicable pretreatment standards.
- No load may be discharged without prior consent of the POTW.
- The POTW may require the hauler to provide a waste analysis of any load prior to discharge.
- Requirement that waste haulers must use a manifest system.
- Penalties for violating the ordinance or permit.

Table 3.1 provides an example table of contents for a waste hauler ordinance. Examples of waste hauler provisions are provided in Appendix G.

Table 3.1 Example Table of Contents for Waste Hauler Ordinance

SECTION 1 – GENERAL PROVISIONS

- 1.1 Purpose and Policy
- 1.2 Administration
- 1.3 Definitions

SECTION 2 – HAULED WASTE PERMIT APPLICATION

- 2.1 Application Required
- 2.2 Re-Application Required
- 2.3 Application Signatories and Certification

SECTION 3 – HAULED WASTE PERMITS

- 3.1 Permit Required
- 3.2 Permit Contents
- 3.3 Permit Decisions
- 3.4 Permit Transfer
- 3.5 Permit Modifications
- 3.6 Permit Revocation

SECTION 4 – GENERAL HAULED WASTE/TRANSPORTER REQUIREMENTS

- 4.1 Prohibited Discharge Standards
- 4.2 Limitations for Authorized Disposal of Specific Wastes
- 4.3 POTW Hours of Operation/Contact Information
- 4.4 Liquid Waste Vehicles Maintenance/Operations

SECTION 5 – REPORTING REQUIREMENTS

- 5.1 Manifests Required
- 5.2 Self-Monitoring Reports
- 5.3 Reports of Changed Conditions
- 5.4 Reports of Potential Problems
- 5.5 Notice of Violation/Repeat Sampling and Reporting
- 5.6 Analytical Requirements
- 5.7 Sample Collection
- 5.8 Timing
- 5.9 Record Keeping

SECTION 6 – COMPLIANCE MONITORING

- 6.1 Right of Entry: Inspection and Sampling
- 6.2 Search Warrants

SECTION 7 – CONFIDENTIAL INFORMATION

SECTION 8 – SUPPLEMENTAL REQUIREMENTS

- 8.1 Performance Bonds
- 8.2 Liability Insurance
- 8.3 Surety Bonds
- 8.4 Public Nuisances
- 8.5 Informant Rewards

SECTION 9 – MISCELLANEOUS PROVISIONS

- 9.1 Pretreatment Charges and Fees

SECTION 10 – EFFECTIVE DATE

3.2 Active Controls

Active controls for hauled waste programs include designating and controlling access to disposal site, applying limits and standards, issuing permits, monitoring, manifesting/tracking waste, and identifying illegal discharges. Each of these activities is discussed below.

3.2.1 Controlled Designated Disposal Site

Choosing a Site

Under Federal Regulations [40 CFR Part 403.5(b)(8)], POTWs must prohibit the discharge of any trucked or hauled pollutants except at discharge sites designated by the POTW. Therefore, POTWs accepting hauled waste must designate a specific discharge point. Some POTWs specify discharge sites that are located at the treatment plant while others allow hauled wastes to be discharged at remote sites within the collection system (e.g., manholes or pump stations). POTW operators may have to make a difficult decision concerning discharge site location. Factors to consider when designating the location of a discharge site include sensitivity of the treatment plant to pollutant loadings from hauled waste discharged directly to the headworks of the treatment plant, accessibility to the discharge site, and visibility of the site to POTW personnel (i.e., the ease of surveillance). Generally, the further “upstream” a discharge site is from the headworks of a facility, the longer the waste has to mix with other wastewater that may equalize and dilute it, creating less chance for plant disruption. However, some treatment plants have holding facilities that allow hauled waste to be collected and stored for discharge to the plant when influent plant loadings are lowest. Other treatment plants provide equalization basins that allow hauled waste to be mixed and equalized with influent wastewater, thus allowing the operator to better control flow and loadings to the headworks. In addition to equalization, remote sites may allow waste haulers easier access and may reduce the traffic flow within the treatment plant. However, control over a remote site is more difficult and possibly more costly if personnel need to be stationed at the site, or if the installation of gates or surveillance devices (such as cameras) becomes necessary.

If hauled waste is discharged at the treatment plant, discharge to the headworks is generally preferred. This allows for screening and grit and grease removal. Hauled waste

receiving stations located at the treatment plant may include an unloading area, a receiving/storage tank, and transfer pumps.

The following factors should be considered in designing the receiving station:

- ***Speed Limits on POTW Roads***—Speeds should be posted clearly to ensure the safety of the haulers and POTW personnel.
- ***Sight Lines***—Blind curves and corners should be avoided. Particularly dangerous areas should be clearly indicated with appropriate signs.
- ***Wear on Roads***—The constant wear from trucks may increase maintenance costs if access roads are not properly designed.
- ***Vehicle Access***—Adequate space should be allowed for vehicles to back-up if a pull-through station is not used. Providing access and explicit instructions for recreational vehicles should also be considered, if these types of vehicles are expected to use the station.
- ***Security and Visibility***—The receiving station should have limited access (e.g., have locked gates and access cards). The receiving station should also be clearly visible to POTW personnel or monitored through cameras to ensure that the POTW is aware when a truck is entering to dump.
- ***Surface and Slope of Discharge Area***—The discharge area should be constructed of a hard surface material and the discharge location should be graded so that it slopes toward the catchment. This will help empty the entire truck as well as keeping the site clean and dry, and will allow storm water coming into contact with the pavement around the discharge location to be directed towards the catchment.
- ***Receiving Tank***—The receiving tank should have a sloped bottom equipped with a drain sump to provide for complete draining and cleaning.
- ***Pumps***—The type of pump required may vary depending on the types of hauled waste accepted. In general, pumps used to handle hauled waste handling should be non-clogging and capable of passing 3-inch diameter solids.
- ***Number of Catchments***—Offering more than one catchment can help in reducing the number of trucks waiting to discharge.
- ***Odor***—Due to the odorous nature of many hauled wastes, the discharge location should be sited so as not to be problematic for plant personnel or nearby residents and businesses.

- **Clean-Up**—A water hose should be provided for clean-up of the unloading station, as well as to wash off the truck. Chlorinated treatment plant effluent may be considered for this use. Wash waters should be directed toward the catchment.

3.2.1.1 Access, Hours of Operation

Controlling access to a discharge site can greatly reduce the possibility of facility disruption by illegal or incompatible discharges. Manual locking gates can be installed at the site entrance. Several facilities are now equipped with an electronic card access system. Permitted haulers are given an electronic “credit” card which serves as a key to the facility, and which may also be used for waste hauler tracking and billing. One potential drawback to such a system is that cards may be “lent” to unpermitted haulers.

When determining hours of operation and discharge time limitations, POTWs should consider the times when POTW personnel are available and the times during the day that peak and low flows occur within the collection system and within the treatment plant. This is especially true for smaller POTWs where peak and low flows may be of particular concern. Twenty-four-hour access is an option which may be appropriate for some facilities (e.g., facilities that are staffed at all times). Twenty four hour access may increase the period of time between discharges and increase flexibility for septage haulers.

3.2.2 Application of Standards and Limits

As discussed in Section 2.3.2, non-domestic hauled waste may be subject to local limits and/or categorical pretreatment standards. The applicability of local limits and categorical pretreatment standards to non-domestic hauled waste is discussed below.

3.2.2.1 Local Limits

POTWs with approved pretreatment programs are required to develop and enforce local limits for pollutants of concern. Many non-pretreatment POTWs also developed local limits independently or may have been required to develop local limits if pass through or interference has occurred or is likely to occur. Local limits are intended to prevent interference, pass through, sludge contamination, and worker health and safety problems. The process of local limits development generally includes collecting monitoring data (e.g., influent, process effluent,

effluent, sludge, domestic, hauled waste, and industrial user) to characterize existing pollutant loadings, determining applicable environmental criteria, identifying pollutants of concern, and determining the Maximum Allowable Headworks Loading (MAHL) for each identified pollutant of concern. Maximum Allowable Industrial Loadings (MAILs) are then determined from the MAHLs by allowing for a safety factor and subtracting loadings from uncontrolled discharges (e.g., domestic and commercial loadings). Finally, the MAILs are allocated to industrial users as local limits.

Local limits do not apply to hauled domestic waste. However, pollutant loadings from hauled domestic waste should be accounted for in local limits development. Pollutant loadings from hauled waste should be determined and these loadings should be subtracted from the MAHL (along with domestic wastewater and other uncontrolled loadings) when determining MAILs. Alternatively, POTWs could allocate a portion of each MAIL to waste haulers and thus develop limits applicable to hauled waste.

For more information on the development of local limits, in general, refer to the *Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program, EPA 1987 (833-B-87-202-1)*. For specific policies and procedures on local limits development, POTWs should contact the Approval Authority in their State or EPA Region. A list of contacts is contained in Appendix C.

3.2.2.2 Categorical Standards

Categorical pretreatment standards are contained in 40 CFR Parts 405-471. Categorical Pretreatment Standards are standards published by the EPA for the different categories of industrial users. These standards are published in accordance with Section 307(b) and (c) of the Clean Water Act (CWA). EPA has issued categorical pretreatment standards that are: (1) concentration - based, (2) production-based, or (3) both. A summary of industries regulated by categorical pretreatment standards and descriptions of the processes performed by these industries are provided in Appendix E.

To determine if wastes collected by haulers are regulated by National categorical pretreatment standards, the POTW should obtain information from both the waste hauler and the waste generator. Questions that might be asked by the POTW to determine applicability of any National categorical pretreatment standard might include the following:

- Why does the generator want to haul the wastewater to the POTW (e.g., a generator located on a septic system)?
- Were the wastes generated from regulated processes subject to categorical pretreatment standards? If so, what are the volumes of each process wastestream making up the total hauled load? If a POTW is uncertain about the applicability of categorical standards, it should request a description of activities conducted and wastewater generated at the facility in question.
- What types of pollutants are known or suspected to be present in the hauled wastes? At what estimated or known levels?
- If the hauled waste is subject to categorical pretreatment standards, is it in compliance with the standards? Monitoring records should be obtained to verify compliance. If the waste is subject to production-based standards, production data should also be obtained.
- Did the waste hauler collect wastes from more than one location or source such that domestic and industrial or different types of industrial wastes have been mixed within the load? To allow the POTW to determine compliance with categorical pretreatment standards, hauled waste loads subject to categorical standards should not be mixed with other wastes prior to discharge.
- Is the waste hazardous under the RCRA? If so, is it a listed or a characteristic waste? More information on accepting hauled hazardous waste is provided in EPA's *Guidance Manual for the Identification of Hazardous Wastes Delivered to Publicly Owned Treatment Works by Truck, Rail, or Dedicated Pipe (June 1987)*.

Categorical pretreatment standards apply to waste generated by categorically regulated processes, whether the waste is discharged through the sewer system or hauled to the POTW. The generator of categorical waste is responsible for complying with all associated monitoring and reporting requirements. POTWs with approved pretreatment programs and adequate legal authority can act as the Control Authority and regulate the generators of categorical waste that is hauled to the POTW. These POTWs should ensure that adequate legal authority is available to regulate all categorical hauled waste generators discharging to the POTW, including those located

outside the POTW's jurisdiction. POTWs that do not have an approved pretreatment program or that do not have adequate legal authority to regulate hauled waste generators directly, should notify the generators that monitoring reports must be submitted to the Control Authority (the State or EPA in states without delegated pretreatment programs). In this case, the POTW should obtain copies of all reports submitted to the Control Authority.

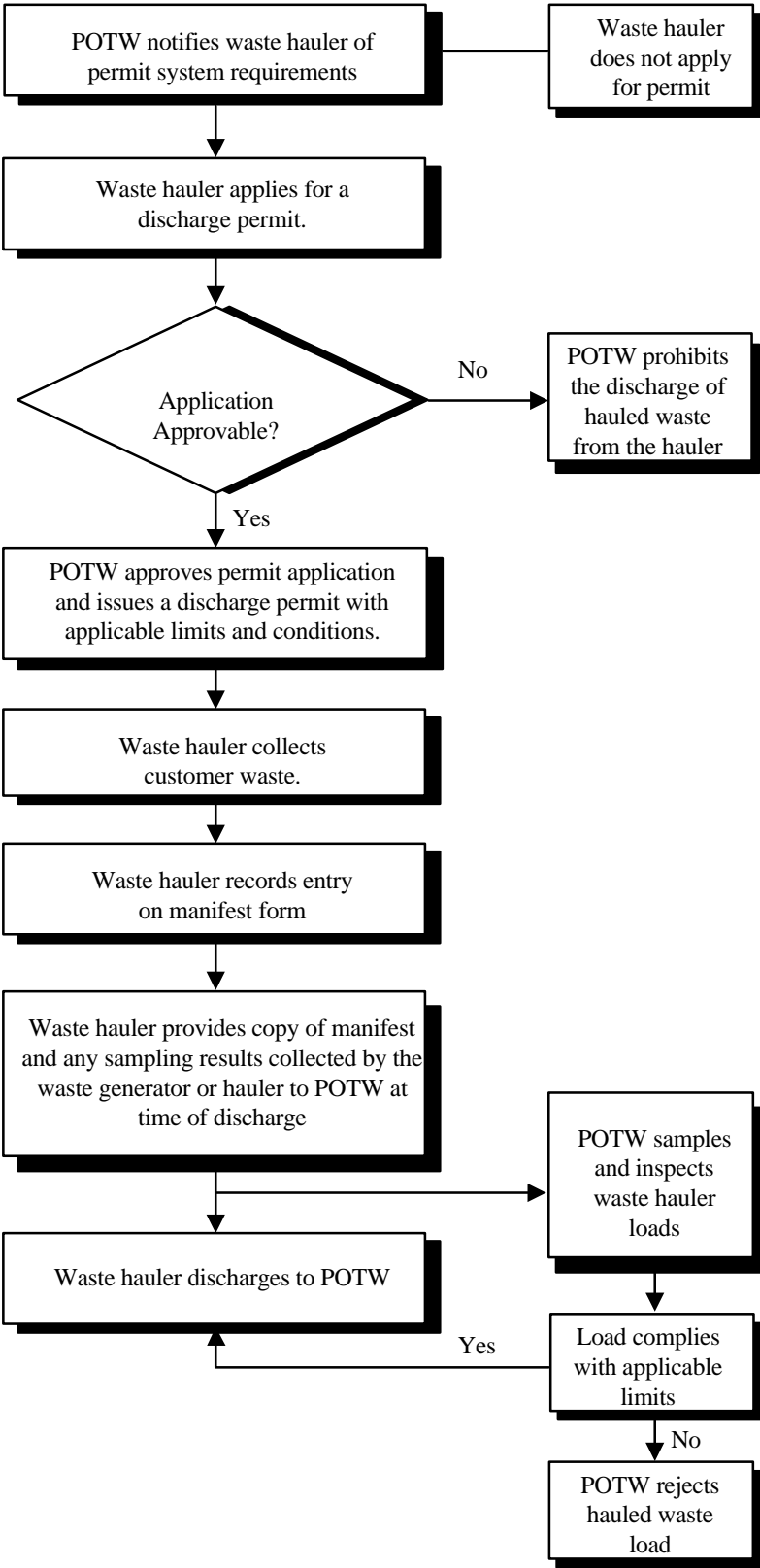
3.2.3 Permits

A permit system is the most direct and efficient method of regulating waste haulers that discharge to a POTW. Implementing a permit system provides the opportunity to monitor and regulate haulers based on the treatment works' operating conditions. **Figure 3.1** presents an overview of procedures involved in implementing a waste hauler permit system. If a POTW accepts hauled industrial waste (including wastes regulated by categorical pretreatment standards), it should also consider permitting the waste generator as well as the waste hauler.

All waste haulers within the immediate and surrounding service area should be considered potential dischargers to the POTW system and should be notified of the permit system requirements, including the prohibition against discharge of hauled waste except at designated areas. Notification could be provided individually to each waste hauler that potentially could discharge to the POTW, or notification could be accomplished through general procedures such as publishing notices in newspapers or trade papers. However, if a POTW's local sewer use ordinance prohibits the discharge of hauled waste without a permit, any hauler that discharges without a permit is in violation and subject to all liability whether or not they received notification of permit requirements.

As discussed in Section 2.1, each waste hauler should be required to complete a questionnaire or permit application. The permit application form should be designed to provide the POTW with all information necessary to identify, track, communicate with, and control waste haulers. A sample waste hauler's permit application is presented in Appendix D.

FIGURE 3.1 PROCEDURES OF A WASTE HAULER PERMIT PROGRAM



3.2.3.1 Permit Conditions

The following is a list of conditions that a POTW should consider including in discharge permits issued to waste haulers:

- ***Right of Refusal to Accept Waste***—The POTW should maintain the right to refuse any hauled waste load.
- ***Non-Domestic Loads***—The waste hauler should be limited to discharging only domestic waste if the POTW is not capable of treating hauled nondomestic wastes. However, if a POTW can treat nondomestic wastes in general, or only certain nondomestic wastes, then provisions for these discharges should be established. To account for the nondomestic wastes it receives from waste haulers, the POTW should require a list of customers from each hauler and the type(s) of waste(s) hauled from each customer.
- ***Prohibited Discharges***—Waste haulers must always be prohibited from discharging wastes which would violate any prohibited discharge standards of the General Pretreatment Regulations [40 CFR 403.5 (a) and (b)] or any local prohibited discharges. The POTW may wish to sample and analyze the hauled wastes or require that the hauler perform such sampling and analysis to verify that such standards would not be violated if the waste is discharged to the POTW. If the POTW does not have permit-by-rule status, or is not otherwise equipped to treat RCRA hazardous waste, the permit should prohibit the introduction of hazardous waste to the POTW.
- ***National Categorical Pretreatment Standards***—If waste haulers are allowed to discharge nondomestic wastes to the POTW, then it should be determined whether the sources of these waste are regulated by national categorical pretreatment standards. If a hauler discharges categorical process wastewater, the permit must require compliance with applicable categorical standards.
- ***Local Limits***—The permit should require compliance with any local limits established by the POTW, including any specific limits applicable to hauled non-domestic waste.
- ***Designated Disposal Site***—The permit should clearly designate the disposal site and state all facility rules for discharging such as clean-up requirements.
- ***Number of Loads***—If a POTW is susceptible to hydraulic or organic overloading, it may wish to consider placing a limit on the maximum number of loads that a waste hauler can discharge over a specified period of time.
- ***Time Limitations***—Specific days and/or hours that waste haulers are allowed to discharge should be stated in the permit conditions.

- **Waste Tracking/Manifest System**—The permit should contain a condition that requires the waste hauler to provide documentation on the nature, origin, and volume of the wastes being discharged. Refer to Section 3.2.5 for more information.
- **Notification of Waste Type**—The POTW may want to require that any waste be approved prior to being hauled. The permit should require the hauler to notify and receive approval from the POTW of new customers as well as changes in the nature of wastewater originating from existing customers. Under 40 CFR 403.12(j), industrial users are required to notify the POTW of any substantial changes in the volume or character of pollutants discharged. POTWs should require this same notification from waste haulers that discharge industrial wastewater.
- **Standard Conditions**—Many of the standard conditions placed in other industrial user permits should also be contained in waste hauler permits. A few of these are: modification of conditions, non-transferability, revocation of permit, and penalties/fines. The POTW could also consider requiring waste haulers to post a performance bond.
- **Significant Industrial User**—If a waste hauler meets the definition of significant industrial user [40 CFR 403.3(t)] and the POTW has an approved pretreatment program and adequate legal authority, the POTW should permit the waste hauler as a significant industrial user and the permit must include all conditions required under 40 CFR 403.8(f)(1)(iii)

For more information on permitting procedures, refer to the *Industrial User Permitting Guidance Manual*, EPA 1989.

3.2.4 Monitoring Program

Monitoring is necessary to gather information about the characteristics of hauled waste that is discharged to the treatment plant, and to determine if waste should be rejected because of potential negative impacts to the facility. Monitoring is also necessary to ensure that discharges conform to appropriate standards and regulations. A monitoring program can provide information on which load and what pollutants and concentrations caused problems in plant operations. A monitoring program demonstrates to the waste haulers that the POTW is serious about enforcing the standards and requirements of its hauled waste control program. For these reasons, POTWs should seriously consider including monitoring as part of their waste hauler control program, particularly if non-domestic wastes are accepted.

The POTW or the waste hauler could sample the non-domestic waste at the location where it is generated before it is pumped into the truck or rail car. A seal can be placed over the truck's discharge point which, upon arrival to the POTW, can be inspected to ensure that no other wastes had been introduced to the truck since sampling. Sampling may also be performed at the discharge site.

3.2.4.1 Sample Types

Decisions on whether to accept a load of non-domestic waste may be based on incorrect information if sampling is not performed properly. Proper techniques, as found in 40 CFR Part 136, must be used for sample collection, preservation, storage, and analysis if reliable results are expected to be obtained. The following conditions are important to consider for any sampling program.

There are two basic types of samples: grab samples and composite samples. For sampling hauled waste, both sample types are collected manually. Selection of sample type to collect depends on several key factors including:

- Composition of the waste that is being received
- Pollutants to be analyzed
- Physical setup of the receiving station
- Purpose of the sample
- How well mixed the load is

Grab Sampling

A grab sample is a single discreet sample collected over a short period of time without regard to the waste stream flow. Grab samples are useful in taking a "snapshot" of a discharge and can provide information on the extreme pollutant concentrations of a load, whereas composite sampling may mask the extreme pollutant levels. Grab samples may be used if both flow and pollutant concentrations or loadings are constant and should only be employed if the POTW operator has determined the waste contained in a hauler's truck is homogeneous. Grab sampling is used when collecting composite samples is not appropriate. For example, grab sampling is necessary for such parameters as pH, oil and grease, temperature, total phenol, cyanide, sulfides, and volatile organics.

Composite Sampling

Composite samples measure the average amount of pollutants discharged by a waste hauler during the entire discharge period. A composite sample is a mixed or combined sample that is formed by combining a series of individual and discrete grab samples collected over a period of time or representing more than one specific location or depth.

Composite sampling of hauled waste consists of collecting time-proportional samples at specified intervals during a discharge. For a non-homogeneous discharge, wastes are stratified in the hauler's tank and the effluent quality will vary over the discharge period. For this situation, the composite sample collected over the discharge period would be most appropriate. Grab samples should be taken at least three times during the discharge and then composited: once at the onset of the discharge, where a higher concentration of solids are likely to occur, once in the middle of the discharge, and once at the end of the discharge where light oils are most likely to appear.

3.2.4.2 Sampling Frequency

The POTW should consider a number of issues when establishing sampling frequency, including:

- Frequency necessary to obtain data representative of the nature and volume of the hauled waste
- Frequency necessary to deter unscrupulous haulers from delivering and discharging incompatible wastes
- Actual (or potential) impact of the hauled waste on the operation of the treatment plant, receiving water body, and sludge disposal practices
- The hauled waste source and the types and concentrations of pollutants contained in the waste
- Regulatory requirements of any permits, local ordinances, POTW policies, and federal regulations
- Seasonal variations in the volume and makeup of hauled waste
- Availability of POTW staff

- Trends in delivery times
- Compliance history of the waste hauler
- Expense of sampling and analysis imposed on both the waste hauler, the POTW, and the resources (labor and equipment) available.

The POTW should establish a base sampling frequency and increase or decrease the frequency on a case-by-case basis using the factors discussed above. A base sampling program for non-domestic waste should, at a minimum, include:

- Visual observation and recording of any unusual odors, color, or other characteristics
- Monitoring of pH
- Collection of a grab or composite sample of the hauled waste.

While an effective deterrent, sampling alone may not provide complete protection from incompatible loads, as it can provide information only if analyzed. Treatment plant operators may find the need to perform a quick analysis of a load before

Automatic pH Testing

A POTW in Fairfax County Virginia has recently installed a fully automatic pH screening discharge facility. Wastes are discharged to an underground temporary holding tank, and automatically tested for pH. If the load is acceptable, waste haulers record the reading from a meter into a daily log. If the pH is too high or too low, the waste is held and POTW personnel are notified by an alarm. The waste is tested once again, and if found to be incompatible, pumped back into the truck.

discharging to the headworks for any number of pre-determined or suspect parameters. Analyzing for pH is perhaps the most effective way to discover incompatible loads, and can be performed rapidly, without great cost to the POTW or the waste hauler.

Example sampling programs that have been developed by POTWs are described below:

- ***Comprehensive sampling and analysis of all non-domestic hauled waste and periodic sampling and analysis of domestic septage***—All hauled wastes of Non-domestic origin are sampled and analyzed and every tenth load of domestic septage received from each hauler is sampled and analyzed.
- ***Comprehensive sampling of all hauled wastes and periodic or random analysis of the collected samples***—A sample is collected from each hauled waste load. These samples are preserved and stored and a portion of the samples are analyzed. Each hauler knows that all of his loads will be sampled but does not know which of his loads will be analyzed. In addition, if a disruption in plant operations occurs, the stored samples can be used to determine the exact makeup of the load which caused (or is

suspected of causing) the disruption. If several loads were received, the stored samples of all these loads can be analyzed to assist in identifying the waste hauler and waste load that may have caused the disruption.

- ***Random sampling and analysis***—Sample collection and analysis are conducted on a random basis. For example, the POTW randomly selects a day to conduct sampling and all waste loads that are received that day are sampled and analyzed, or the POTW may collect and analyze samples every day but randomly selects the loads to be sampled and analyzed (i.e., every fifth truck or seven random samples per day).

3.2.4.3 Testing Parameters

Testing parameters should be determined in two phases. First, if not already completed, the POTW should characterize the wastes it commonly receives to obtain typical pollutant levels. This initial characterization may take place over a period of several months to more than a year. Secondly, pollutants of concern identified in the initial phase should be specified as the parameters for a routine monitoring program.

Existing septage hauler monitoring data may be useful to identify pollutants potentially discharged by waste haulers. **Table 3.2** summarizes septage hauler monitoring data provided by nine POTWs. Metals identified at highest average levels in septage haulers' loads included iron, zinc, copper, lead, chromium, and manganese. The most frequently identified metals were copper, nickel, chromium, and lead. Organics identified at highest average levels were acetone, isopropyl alcohol, methyl alcohol, and methyl ethyl ketone. Based on these data, POTWs should anticipate that hauled septage may contain relatively high levels of heavy metals and organic solvents. However, the type and level of pollutant present will vary depending on the type of hauled waste (e.g., domestic septage, landfill leachate, groundwater remediation site waste, industrial wastes). POTWs should periodically monitor septage haulers' loads to determine site specific pollutant concentrations and loadings for those metals listed above, as well as for common organic solvents (especially ketones and alcohols) and any other identified pollutant of concern. **Table 3.3** provides example monitoring parameters for initial characterization of these various types of hauled wastes.

Table 3.2 Septage Hauler Monitoring Data

Pollutant	Domestic Septage(mg/l)		
	Minimum	Maximum	Average
Iron	0.2	2,740	39.28
Zinc	<0.001	444	9.971
Manganese	0.55	17.05	6.088
Barium	0.002	202	5.758
Copper	.01	260.9	4.835
Lead	<0.025	118	1.21
Nickel	0.01	37	0.526
Chromium (T)	0.01	34	0.49
Cyanide	0.001	1.53	0.469
Arsenic	0	3.5	0.141
Silver	<0.003	5	0.099
Cadmium	0.005	8.1	0.097
Mercury	0.0001	0.742	0.005

Source: *Supplemental Manual on The Development and Implementation of Local Discharge Limitations Under the Pretreatment Program*, EPA 1991

Table 3.3 Example Monitoring Parameters for Initial Characterization

Type of Hauled Waste	Initial Characterization
Leachate from nonhazardous waste disposal sites	BOD, TSS, oil & grease, total Kjeldahl nitrogen (TKN), ammonia, iron, manganese, pH, phenols, phosphorous, chlorides, Total Dissolved Solids (TDS), all priority pollutants except 2,3,7,8 tetrachlorodibenzo-p-dioxin and asbestos.
Leachate from hazardous waste disposal sites	BOD, TSS, oil & grease, TKN, ammonia, iron, manganese, pH, phosphorous, chlorides, TDS, all compounds on the Superfund Target Compound List and any other known or suspected contaminants identified by an investigation of site or by gas chromatograph/mass spectrophotometer (GC/MS).
Fuel contaminated wastewater	Benzene, toluene, ethyl benzene, xylene, methyl tert-butyl ether, naphthalene, oil & grease, pH, and lead
Groundwater remediation site (not associated with fuel contamination)	Determine from the groundwater remediation investigation
Categorical industrial discharge	All categorically regulated pollutants
Septage	1 sample for BOD, TSS, pH, oil & grease, and metals and organics of concern

Source: *New York State Department of Environmental Control (NYSDEC) Technical Operational Guidance (TOGs) for Acceptance of New Discharges*, October 1994

3.2.5 Waste Tracking/Manifest System

A manifest system, similar to those used for hazardous waste, is an efficient means to record information on hauled waste. This type of control can be employed independently of a permit system. Examples are provided in Appendix H of this document. This type of system requires waste haulers to enter information on the waste manifest form for each load received. The manifest form should include information such as:

- Name, address and phone number of hauler and each waste generator
- Types of wastes collected from each generator
- Approximate volume(s) received by the hauler
- Known or suspected pollutants, identified by the generator
- Certification by the generator that the waste is not hazardous and whether it is generated from any process that is defined as a categorical process wastewater
- Results of any testing performed on the wastewater.

Prior to each discharge, the POTW should require a completed manifest form from the waste hauler. Each manifest sheet should be completed in triplicate: one copy for the waste hauler, one copy for the treatment plant operator, and one copy for the POTW's administrative/billing purposes. The POTW should supply blank manifest forms to each waste hauler. Treatment plant operators should periodically verify the information provided on the manifest form by contacting the sources provided on the manifest.

3.2.6 Identification of Illegal Dischargers

Identification of a waste hauler as the source of pass through or interference can be a difficult task. Hauled waste can be discharged to a manhole and the hauler gone before the waste reaches the treatment plant. There are several examples where hazardous waste haulers have paid industries for the seclusion their facility provides during such illegal discharge events.

Approaches to help alleviate the problem include:

- Periodic sampling of suspected sewer lines
- Surveillance of waste haulers and suspected discharge points
- Education of industries concerning the seriousness of these violations
- Increased public awareness of illegal dumping
- Increased enforcement.

Many states have enforcement programs to assist POTWs in detecting illegal dischargers. Federal [EPA's Criminal Investigation Division (CID) or the FBI] or local law enforcement officials can also be requested to assist in surveillance activities and enforcement. Video surveillance of suspected manholes or storm drains is also a possible option. Some POTWs use locking manholes to discourage illegal dumping at suspected sites.

Treatment Facilities Lose \$1.28 Million

In 1996, six former and present officials of one of the nation's largest waste hauling firms were indicted on Federal charges that they defrauded five publicly owned treatment works of nearly \$1.28 million by illegally dumping thousands of loads of waste.

The government charged that a large waste hauling firm illegally dumped some 4,591 loads of waste containing wastewater treatment sludge or grease on 1,577 different days. The company said it had immediately launched an investigation upon discovery of the illegal actions, fired the responsible employees, and made a \$1.6 million settlement to one of the cities.

Charges included Clean Water Act violations and mail fraud. The charges carry a maximum penalty of five years probation and a fine of \$50,000 per day for each day of violation. Had the firm correctly reported the illegal loads, they would have had to pay the numerous POTWs it discharged to approximately \$1.28 million.

The company claimed it had settled the case, agreeing to plead guilty to three charges involving mail fraud and conspiracy, and pay a \$3 million fine with an additional \$1.5 million toward environmental restoration projects.

Source: The Associated Press – Lubbock Avalanche Journal, November 22, 1996

3.3 Communication

3.3.1 Communication with Other POTWs

To effectively control hauled waste, all POTWs within a geographic region should readily share the information they receive on hauled waste with each other. When a POTW rejects a load, the operator should consider contacting nearby facilities where the waste may be delivered, and inform them why the load was rejected. If a waste load is rejected, the POTW could also

request the hauler to provide information on when and where the rejected load was discharged. POTWs should also communicate with one another to identify frequent violators. A list of haulers with frequent violations, including type of violation, can be distributed among regional POTWs.

3.3.2 Communication with Waste Haulers

POTW operators can establish a mailing list of all local waste haulers and provide them with periodic information on changes in plant policy, reminders of existing plant policies that are frequently abused, and changes in operating times and fees. POTWs are frequently the only source of regulatory information for waste haulers.

3.4 Review and Update Controls

After control measures are implemented, they should be periodically reviewed for their effectiveness and updated as necessary. Additionally, if the type or amount of hauled waste received changes, the controls should be reviewed to determine if additional controls are needed. For example, if a POTW has been receiving only domestic hauled waste and has implemented procedures to control the discharge of that waste, the introduction of hauled non-domestic waste may require the implementation of additional controls (e.g., increased monitoring).

4. CASE STUDIES

The following case studies present some active controls and communication methods used by larger POTWs with pretreatment programs. Smaller POTWs and non-pretreatment POTWs can choose controls based on factors such as treatment plant capacity, flows and pollutant loadings, sensitivity of plant processes, types and amounts of hauled waste accepted, funding, and local issues and requirements. A POTW should tailor its program to address these factors.

4.1 Littleton-Englewood Colorado Summary of Waste Hauler Program

The Littleton-Englewood wastewater treatment plant (L-E WWTP), situated south of Denver, Colorado, has a treatment capacity of approximately 26 MGD. As part of an expansion project for tertiary treatment, the facility upgraded its hauled waste program including structural and programmatic levels. The facility allows only domestic hauled waste to be discharged. Highlights of the POTW's upgraded hauled waste program are presented below.

L-E WWTP has a better understanding of the volume and content of the hauled waste it receives and has suffered no disruptions since the inception of its waste hauler program in November of 1996.

Littleton-Englewood WWTP Waste Hauler Control Program

- Informational mailing
- Electronic Cards
 - Restricted Hours
 - Sampling Program
 - Two Discharge Standpipes
 - Automatic Locking Gates
 - Informational Signs
 - Open Communication with Regional POTWs and Haulers

Changes were initiated with a large informational mailing to all area waste haulers. To help alleviate revenue collection problems, all haulers were required to furnish bonds. A minimum \$1,000 bond was set for small haulers. Bonds for haulers with tainted payment histories were set higher. Large hauling firms were required to furnish a bond equaling 2 month's business with the plant.

Bonding has been one of the most beneficial changes Littleton-Englewood has made. The plant has found that problems surrounding the collection of payments have been drastically reduced.

The POTW issues electronic cards to each hauler vehicle that has satisfied the POTW bond requirements. The cards streamline the billing process and track who was discharging at a particular time, reducing manpower needs at the discharge location. Each card provides information on the owner of the truck and the truck's capacity. Each truck is charged for its full capacity, regardless of the actual volume of waste in the truck. Therefore, Littleton-Englewood avoided purchasing an expensive scale, or allowing the volume of the delivered waste to be determined by the haulers. The card entry system also allows the facility to trace any loads which upset the facility to a particular hauler. Haulers are also required to submit a generator sheet at the time of discharge, indicating the source of the waste. The facility's hours for hauled waste discharge are 7:00 am to 7:00 pm weekdays, and 7:00 am to 3:00 pm on weekends.

This new hauled waste discharge program has resulted in the loss of some waste hauler customers. However, the POTW recovered the costs of accepting hauled wastes for the first time and has a better understanding of the content of the hauled waste it receives.

Littleton-Englewood also revised their sampling program. The POTW randomly chooses one day a month for sampling and samples every truck during that day. Of those samples, one is brought to the onsite lab for analysis of metals, oil and grease, and pH. If a truck refuses to allow a sample to be taken, its discharge privileges are revoked. The random sampling program has kept haulers alert, the plant has suffered no disruptions from hauled waste since the new program began in November of 1996.

Physical modifications to the facility included the installation of two discharge standpipes. Waste flows directly from the discharge points to the plant headworks. Some modifications were also made to allow gravity-feed trucks to discharge more easily. To capture polluted runoff, the parking stalls are sloped to a drain that empties into the plant headworks. Automatic locking gates were installed at the entrance and informational signs were placed in plain view of the haulers.

Littleton-Englewood stays in close contact with neighboring POTWs. The exchange of information discourages unscrupulous haulers from hauling waste that potentially causes problems

to other facilities. Littleton-Englewood also stays in touch with its waste haulers. Letters are often mailed and phone calls are made to haulers to explain changes in policy and operating hours, as well as to provide reminders of facility requirements.

For more information contact: Mary Gardner at (303) 762-2605 or mgardner@ci-englewood.co.us.

4.2 Metropolitan St. Louis Sewer District (MSD)

Summary of Waste Hauler Program

Background

Metropolitan St. Louis Sewer District (MSD), an independent public agency responsible for sewers, sewage treatment, and the drainage of rainwater from St. Louis City and St. Louis County, maintains a \$6.5 billion network of pipes, drainage canals, and 8 WWTPs. Only the largest of these plants, the Bissell Point plant (143 MGD), is designated to receive hauled waste. To control such discharges, MSD enforces the provisions of local Ordinance #10082 (see Appendix G).

All haulers seeking to haul and discharge waste to MSD's Bissell Point plant must first apply and obtain approval from MSD. In addition to providing basic information such as company name, address, name and title of Chief Executive Officer, business activities conducted, and a list of

MSD's Waste Hauler Control Program

- Permit Application
 - Transporter and Vehicle ID Number
 - Designated Discharge Point
 - Restricted Hours and Access
 - Manifest Forms
 - Sampling
 - Gate and Intercom System

transport vehicles (including make, model, tank volume, vehicle license information), the applicant must also detail the types and estimated volumes of waste to be transported and discharged, its operational service area(s), proof of insurance coverage including comprehensive general liability and auto liability which includes the POTW as an additional insured party, and certification and signature of a company official.

Upon approval of the application, MSD assigns a unique transporter identification number to the company and assigns permanent decals with unique vehicle identification numbers to each of the hauler vehicles. These identification numbers and all application information is entered into the pretreatment database system.

The Bissell Point waste receiving station consists of 4 “pull-through-bays” and 5 manholes for discharge. The receiving station can accommodate 4-8 trucks at one time, depending on truck size. Hours of operation are restricted to 7:00 AM and 5:30 PM, Monday thru Friday, excluding holidays, and 7:00 AM and 12:00 noon on Saturday. During operational hours, MSD personnel man the receiving station at all times.

Access to the receiving station varies based on the type of waste proposed to be discharged. Discharge of domestic waste⁴ merely requires the hauler accurately completing a carbon M-form. Discharge of waste from an industrial source requires completion of a double carbon S-form (the double carbon allows the source to retain a copy of the form prior to the hauler leaving the source's premises). S-form waste requires the source to complete an application for special discharge and obtain approval from MSD prior to discharge at the station. Where approval is denied, the applicant is required to inform MSD as to where the waste is finally disposed.

⁴ MSD defines domestic hauled waste as grease and other food preparation wastes from restaurants, institutional kitchens, employee cafeterias, and similar meal serving facilities, septage, sanitary wastewater from sewer line or lift station overflows, sludge from wastewater treatment plants receiving primarily domestic wastes, and wastes from car washes where only washing of the car body occurs.

Upon arrival at the station, the hauler provides the MSD attendant with the appropriate form based on the nature of the waste hauled. The attendant verifies that the proper form is completed and verifies that the vehicle identification information corresponds to the vehicle awaiting to discharge. Deficiencies may be easily resolved by the hauler providing any additional information needed. Discrepancies, however, may require the MSD attendant to contact waste sources indicated on the form. Where written pre-approval does not accompany the S-form, the attendant may access the pretreatment database system to obtain the approval status and to disallow a discharge where approval has not yet been authorized.

Every load intended for discharge, regardless of whether the load is accepted, is recorded by the attendant on a daily receipt log sheet. Information recorded includes date, time and receipt information. Entry lines of this log sheet are pre-numbered, prompting the attendant to record this unique number on the appropriate S- or M-form.

Upon satisfactory completion of the required paperwork, a hauler is directed into one of the discharge bays for sample collection for analyses such as pH, conductivity, appearance, and odor. The sample is collected with a tanker discharge hose, tank sample spigot, and/or by accessing the waste through the top hatch. When the attendant (and supervisor if consulted) believes the waste to be that described on the S- or M-form, the hauler may commence discharge; otherwise, the load is refused. When the attendant observes a discharge in progress that suddenly changes appearance, odor, etc., the attendant may halt the discharge and collect an additional sample(s) for screening, potentially forbidding any continuation of the discharge.

All samples are retained as “verification” samples. Of the verification samples collected daily, S-form waste and a percentage of M-form waste are selected for full verification analyses. This enables MSD to verify that industrial waste (S-form) was that approved for discharge, to maintain a database of domestic waste characteristics, and potentially to detect the illegal discharge of industrial waste in an M-form discharge. Verification samples not analyzed are retained for a period of time so samples can be analyzed in the event of plant upset or operational problems.

Receipt data are entered into the pretreatment database and are recorded manually on monthly summary log sheets. The entered database data is queried monthly to provide the MSD finance department with an electronic invoice of hauler data for billing purposes. Typically, a hauler can expect to receive an invoice detailing the date, time, vehicle ID number, vehicle volume, and amount due, within 10 days of the end of a month.

MSD intends to upgrade the receiving station to provide for additional security and data tracking measures. Installation of a gate and intercom system will enable MSD attendants to restrict vehicle entry until they have been able to verify that the vehicle is authorized to enter the facility, and then keying in the vehicle ID number to open the gate. The camera will operate each time the gate opens as an independent record of each vehicle entering the facility.

4.3 City of Fayetteville, North Carolina

Summary of Waste Hauler Program

The Public Works Commission (PWC), City of Fayetteville, North Carolina operates two WWTPs designed to treat a total of 36 MGD of wastewater. The Cross Creek Water Reclamation Facility (CCWRF), is designated to receive hauled domestic and industrial waste.

Haulers seeking to transport and discharge portable toilet waste and/or septic tank waste must obtain a permit from the health department and an approval letter from PWC. PWC issues an access card to each “approved” hauler vehicle. Such cards contain electronic data (i.e., company name, approval number, truck make and model, and truck tank capacity) allowing the hauler to gain access to CCWRF and allowing PWC to track haulers entering CCWRF.

The discharge location for the hauled waste depends on the nature of the waste and the size of the truck. Haulers of portable toilet waste are required to discharge at the headworks of the plant. Due to the high solids content of the waste hauled, transporters of septic tank waste are required to discharge at a different plant location that drains directly to CCWRF digesters. Weight restrictions on the paths/roads leading to these two discharge locations require heavier vehicles (e.g., those capable of transporting >5000 gallons) to discharge to yet a different location that drains to the headworks of the plant. The first two discharge locations are equipped with hoses for clean-up by the haulers upon completion of their discharge.

All haulers are required to self-sample the waste discharged. A container, provided by PWC, is used by the hauler to collect a grab sample from the actively flowing discharge. The

Excerpts from Approval Letter

- *John Hauler* is authorized to discharge only residential septage directly from the service trucks and without prior pretreatment. Grease trap wastes or commercial or industrial wastes will not be accepted without separate and prior authorization. The discharge of wastewater must be in compliance with Sections 31–44 and 31–46 of the City of Fayetteville Sewer Use Ordinance.
- It shall be necessary for the truck drivers to use the proper access card each time waste is discharged from the truck(s) at the septage receiving station. Each load will be sampled and each sample bottle will be properly labeled with the PWC supplied labels.
- High strength wastes and wastes requiring special handling may justify an additional fee for each truckload discharged to the CCWRF. Additional fees shall be levied at the prevailing rate.
- The area surrounding the point of discharge shall be kept clean at all times. Each driver shall be responsible for washing down the discharge area with water prior to departure from the POTW.
- Residential septage may be discharged at the POTW from dawn to dusk. Any other arrangement must receive prior authorization from PWC.
- A copy of this authorization letter must be maintained in the authorized vehicle discharging to the POTW. The PWC may require proof of authorization to discharge prior to any discharge by any vehicle.

sample is then provided to PWC for analysis prior to leaving the plant. It is at the discretion of PWC to conduct analyses on samples provided.

Haulers seeking to transport and discharge industrial waste must obtain a permit from PWC prior to any discharge. While considered non-SIU permits, these documents contain requirements and conditions similar to those imposed on PWC SIUs. Since hauled industrial waste is general transported in large tanker trucks, hauled industrial waste is discharged at the location that drains to the headworks of the plant. Wastes containing primarily oils and grease may be accepted at the septic tank discharge location, provided the oil/grease waste is mixed with septic tank waste prior to discharge to avoid fouling CCWRF equipment and plumbing.

For more information contact: Monica Hayes at (910) 223-4699 or
MWHayesPWC@aol.com.

APPENDIX A

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Approval Authority: The Director in an NPDES State with an approved State pretreatment program and the appropriate EPA Regional Administrator in a non-NPDES State or NPDES State without an approved State pretreatment program. [40 CFR 403.3(c)]

Approved POTW Pretreatment Program: A program administered by a POTW that meets the criteria established in 40 CFR 403.8 and 403.9 and which has been approved by a Regional Administrator or State Director in accordance with 40 CFR 403.11. [40 CFR 403.3(d)]

Catchment: A structure, such as a basin, for collecting or draining water.

Categorical Pretreatment Standards: Limitations on pollutant discharges to POTWs promulgated by EPA in accordance with Section 307 of the Clean Water Act, that apply to specific process wastewater discharges of particular industrial categories [40 CFR § 403.6 and 40 CFR Parts 405-471].

Clean Water Act (CWA): An act passed by the U.S. Congress to control water pollution. It was formerly referred to as the Federal Water Pollution Control Act of 1972 or Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et. Seq., as amended by : Public Law 96-483; Public Law 97-117; Public Laws 95-217, 97-117, 97-440 and 100-04.

Composite Sample: Sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): This act was passed in 1980 and is commonly known as “Superfund”. CERCLA gives the Federal government the power to respond to releases, or threatened releases, of any hazardous substance into the environment as well as to a release of a pollutant or contaminant that may present an imminent and substantial danger to public health or welfare.

Control Authority: A POTW with an approved pretreatment program or the approval authority (State or EPA Region) in the absence of a POTW pretreatment program [40 CFR § 403.12(a)].

Domestic Septage: The liquid or solid material removed from a septic tank, cesspool, holding tank, or similar system that receives only domestic waste (household, non-commercial, non-industrial sewage).

Facility Operator: Person or persons possessing day-to-day control over the operations at a Publicly Owned Treatment Works.

Grab Sample: A sample which is taken from a wastestream without regard to the flow in the wastestream and over a period of time not to exceed fifteen (15) minutes.

Hauled Wastes: Any wastes delivered by truck or rail car.

Hazardous Waste: As defined in RCRA: a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may -

- a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

As defined in the regulations, a solid waste is hazardous if it meets one of four conditions:

- 1) Exhibits a characteristic of a hazardous waste (40 CFR Sections 261.20 through 262.24)
- 2) Has been listed as hazardous (40 CFR Sections 261.31 through 261.33)
- 3) Is a mixture containing a listed hazardous waste and a nonhazardous solid waste (unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste)
- 4) Is not excluded from regulation as a hazardous waste.

Homogeneous: Uniform in structure or composition throughout.

Indirect Discharge: The introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c), or (d) of the Act. [40 CFR 403.3(g)]

Industrial User: A source of indirect discharge. [40 CFR 403.3(h)]

Interference: A discharge, which alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the POTW, its treatment processes or operations or its sludge processes, use or disposal; and therefore, is a cause of a violation of the POTW's NPDES permit or of the prevention of sewage sludge use or disposal in compliance with any of the following statutory/regulatory provisions or permits issued thereunder, or any more stringent State or local regulations: Section 405 of the CWA; the Solid Waste Disposal Act, including Title II commonly referred to as the Resource Conservation and Recovery Act (RCRA); any State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the Solid Waste Disposal Act; the Clean Air Act; the Toxics Substances Control Act; and the Marine Protection, Research, and Sanctuaries Act. [40 CFR 403.3(I)]

Local Limits: Discharge limits imposed by municipalities upon industrial or commercial users that discharge to the municipal sewage treatment system.

National Pretreatment Standard or Pretreatment Standard: Any regulation containing pollutant discharge limits promulgated by EPA in accordance with Section 307(b) and (c) of the Clean Water Act, that apply to industrial users. This term also includes the prohibited discharge standards under 40 CFR § 403.5. [40 CFR 403.3(j)]

Non-pretreatment POTWs: POTWs not subject to the National Pretreatment Program or POTWs without approved pretreatment programs.

Pass Through: A discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation. [40 CFR 403.3(n)]

Pathogen: a microorganism, such as a bacterium or fungus, that causes disease.

pH - A measure of the acidity or alkalinity of a solution, expressed in standard units

Pretreatment: the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants to a POTW. [40 CFR 403.3(q)].

Prohibited Discharge Standards: Prohibitions on the discharge of certain substances, as defined in 40 CFR 403.5.

Publicly Owned Treatment Works (POTW): Any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This includes sewers, pipes or other conveyances only if they convey wastewater to a POTW providing treatment.

Sludge (Biosolids): The solid, semi-solid, or liquid residue generated during the treatment of wastewater.

Slug load: Any discharge of a non-routine, episodic nature, including but not limited to, an accidental spill or a noncustomary batch discharge. [40 CFR 403.8(f)(2)(v)]

Time Proportional Sample: A sample consisting of a series of aliquots collected from a representative point in the discharge stream at equal times intervals over the entire discharge period on the sampling day.

Toxic Pollutant: Any pollutant listed as toxic under section 307(a)(1) of the CWA, or in the case of sludge use or disposal practices, any pollutant identified in regulations implementing section 405(d) of the CWA.

Wastewater: The used water and water-carried solids from a community (including domestic, commercial, and industrial sources) that flow to a treatment plant. Storm water, surface water, and groundwater infiltration also may be included in the wastewater that enters a wastewater treatment plant.

APPENDIX B

BIBLIOGRAPHY

BIBLIOGRAPHY

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APPENDIX D

**WASTE TRANSPORTER AUTHORIZATION APPLICATION
EXAMPLE**

**Metropolitan St. Louis Sewer District
Waste Transporter Authorization Application**

(Please see instructions on the reverse side of this form)

Section A - Company Information

MSD Assigned Transporter ID:

1. Company Name: _____

2. Mailing Address: _____ ZIP Code: _____

3. Name of Contact Person: _____ Telephone: () _____

4. Name and Title of Chief Executive: _____

5. Premise Address: _____ ZIP Code: _____

6. Activities at this premise: _____

7. Dispatcher Name: _____ Dispatcher Telephone: () _____

Section B - Waste Transport Vehicles

Vehicle	Make	Model	Tank Volume (gallons)	Vehicle License Information			St. Louis County HPN	MSD Assigned Vehicle ID Number
				License No.	State	Expiration Date		
1								
2								
3								
4								

Section C - Waste Information

<p>1. Types and estimated annual volumes of wastes to be transported and discharged to MSD:</p> <p>Industrial Waste _____</p> <p>Landfill Leachate _____</p> <p>Sludge _____</p> <p>Septic Tanks _____</p> <p>Portable Toilets _____</p> <p>Grease Traps _____</p> <p>Other _____</p>	<p>2. Areas in which your company will operate:</p> <p>St. Louis City _____</p> <p>St. Louis County, MO _____</p> <p>Jefferson County, MO _____</p> <p>St. Charles County, MO _____</p> <p>Illinois _____</p> <p>Other _____</p>
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Section D - Insurance Attach a certificate documenting that your company has adequate comprehensive general liability and auto liability insurance which includes the District as an additional insured and includes provisions for informing the District 10 days prior to the time of policy cancellations or renewals.

I have personally examined and am familiar with the information submitted in this document and attachments and certify the information to be true, accurate, and complete. I further agree to operate under provisions of all pertinent District Ordinances and realize failure to do so may result in my discharge privileges being revoked and enforcement action being taken against me.

Name and Title of signing official: _____
Signature: _____ Date: _____

APPENDIX E

**SUMMARY OF INDUSTRIES REGULATED BY CATEGORICAL STANDARDS
AND PROCESS DESCRIPTIONS**

Summary of Categorical Pretreatment Standards

Category	40 CFR Part	Subparts	Type of Standard	Overview of Pretreatment Standards
Aluminum Forming	467	A-F	PSES PSNS	Limits are production-based, daily maximums and monthly averages. Subpart C prohibits discharges from certain operations.
Battery Manufacturing	461	A-G	PSES PSNS	Limits are production-based, daily maximums and monthly averages. No discharge is allowed from any process not specifically identified in the regulations.
Builders' Paper and Board Mills	431	A	PSES PSNS	Limits are production-based daily maximums. These facilities may certify they do not use certain compounds in lieu of performing monitoring to demonstrate compliance.
Carbon Black Manufacturing	458	A-D	PSNS	Limits are for Oil & Grease only (no limit duration specified).
Coil Coating	465	A-D	PSES PSNS	Limits are production-based, daily maximums and monthly averages.
Copper Forming	468	A	PSES PSNS	Limits are production-based, daily maximums and monthly averages.
Electrical and Electronic Components	469	A-D	PSES PSNS	Limits are concentration-based, daily maximums and 30 day averages or monthly averages (varies per subpart and pollutant parameter). Certification is allowed in lieu of monitoring for certain pollutants when a management plan is approved and implemented.
Electroplating	413	A-B, D-H	PSES	Limits are concentration-based (or alternative mass-based equivalents), daily maximums and four consecutive monitoring days averages. Two sets of limits exist, depending on if facility discharges more or less than 10,000 gallons per day of process wastewater. Certification is allowed in lieu of monitoring for certain pollutants when a management plan is approved and implemented.
Feedlots	412	B	PSNS	Discharge of process wastewater is prohibited, except when there is an overflow resulting from a chronic or catastrophic rainfall event.
Fertilizer Manufacturing	418	A-G	PSNS	Limits may specify zero discharge of wastewater pollutants (Subpart A), production-based daily maximums and 30-day averages (Subparts B-E) or concentration-based (Subparts F-G) with no limit duration specified.
Glass Manufacturing	426	H, K-M	PSNS	Limits are either concentration- or production-based, daily maximums and monthly averages.
Grain Mills	406	A	PSNS	Discharge of process wastewater is prohibited at a flow rate or mass loading rate which is excessive over any time period during the peak load at a POTW.
Ink Formulating	447	A	PSNS	Regulations specify no discharge of process wastewater pollutants to the POTW.
Inorganic Chemicals Manufacturing	415	A-BO	PSES PSNS	Limits vary for each subpart with a majority of the limits concentration-based, daily maximums and 30-day averages, or may specify no discharge of wastewater pollutants. Numerous subparts have no pretreatment standards.
Iron and Steel Manufacturing	420	A-F, H-J, L	PSES PSNS	Limits are production-based, daily maximums and 30 day averages.
Leather Tanning and Finishing	425	A-I	PSES PSNS	Limits are concentration-based, daily maximums and monthly averages. In certain instances, production volume dictates applicable pretreatment standards.
Metal Finishing	433	A	PSES PSNS	Limits are concentration-based, daily maximums and monthly averages. Certification is allowed for certain pollutants where a management plan is approved and implemented.
Metal Molding and Casting	464	A-D	PSES PSNS	Limits are primarily production-based, daily maximums and monthly averages. Discharges from certain processes are prohibited (Subparts A-C).

Category	40 CFR Part	Subparts	Type of Standard	Overview of Pretreatment Standards
Nonferrous Metals Forming and Metal Powders	471	A-J	PSES PSNS	Limits are production-based, daily maximums and monthly averages. In some instances, the regulations prohibit the discharge of wastewater pollutants.
Nonferrous Metals Manufacturing	421	B-AE	PSES PSNS	Limits are production-based, daily maximums and monthly averages. The majority of the Subparts have both existing and new source limits, with others having solely new source requirements.
Organic Chemicals, Plastics, and Synthetic Fibers	414	B-H, K	PSES PSNS	Limits are mass-based (concentration-based standards multiplied by process flow), daily maximums and monthly averages. Standards for metals and cyanide apply only to metal- or cyanide-bearing wastestreams.
Paint Formulating	446	A	PSNS	Regulations specify no discharge of process wastewater pollutants to the POTW.
Paving and Roofing Materials (Tars and Asphalt)	443	A-D	PSNS	Limits are for Oil & Grease only (no limit duration specified).
Pesticide Chemicals	455	A, C, E	PSES PSNS	Limits are mass-based (concentration-based standards multiplied by process flow), daily maximums and monthly averages. Subpart C specifies no discharge of process wastewater pollutants but provides for pollution prevention alternatives. Subpart E specifies no discharge of process wastewater pollutants.
Petroleum Refining	419	A-E	PSES PSNS	Limits are concentration-based (or mass based equivalent), daily maximums.
Pharmaceutical Manufacturing	439	A-D	PSES PSNS	Limits are concentration-based, daily maximums and monthly averages. These facilities may certify they do not use or generate cyanide in lieu of performing monitoring to demonstrate compliance.
Porcelain Enameling	466	A-D	PSES PSNS	Limits are concentration-based (or alternative production-based), daily maximums and monthly averages. Subpart B prohibits discharges certain operations.
Pulp, Paper, and Paperboard	430	A-G, I-L	PSES PSNS	Limits are production-based daily maximums and monthly averages. These facilities may certify they do not use certain compounds in lieu of performing monitoring to demonstrate compliance. Facilities subject to Subparts B and E must also implement Best Management Practices as identified.
Rubber Manufacturing	428	E-K	PSNS	Limits are concentration- or production-based, daily maximums and monthly averages.
Soap and Detergent Manufacturing	417	O-R	PSNS	Regulations specify no discharge of process wastewater pollutants to the POTW.
Steam Electric Power Generating	423	N/A	PSES PSNS	Limits are either concentration-based, daily maximums, or "maximums for any time", or compliance can be demonstrated through engineering calculations.
Timber Products Processing	429	F-H	PSES PSNS	All PSNS (and PSES for Subpart F) prohibit the discharge of wastewater pollutants. PSES for Subparts G and H are concentration-based, daily maximums (with production-based alternatives).

CATEGORICAL INDUSTRY DESCRIPTION

The following list provides a description of industrial categories that are regulated by National pretreatment standards and the General Pretreatment Regulations. Numerical discharge standards have been developed for each of the categories listed.

ALUMINUM FORMING (AF)

Aluminum Forming is a physical process by which aluminum or aluminum alloys are changed from their original size and shape to a desired size and shape. The processes by which such reformation is accomplished are described as rolling, extrusion, forging, and drawing. An example of aluminum forming is the manufacture of aluminum wire by extrusion. The aluminum or an aluminum alloy is heated and forced through a small hole (extrusion) changing its form from bulk to long, thin strands.

BATTERY MANUFACTURING (BP)

The Battery Manufacturing category encompasses the process by which a wide variety of consumer and industrial batteries are produced. This category does not include stores that sell batteries, only facilities that manufacture them.

COIL COATING (CC)

The raw material of the coil coating process is long, thin strips of metal, known as coils. The Coil Coating category consists of processes that clean, surface, and apply an organic (paint) coating to the coil. An example of a coil coating operation is the manufacture of soft drink cans with names and logos painted on coils which are then sealed to form cans.

COPPER FORMING (CF)

Copper Forming is the physical reforming of copper by processes similar to those described above under Aluminum Forming.

ELECTRICAL AND ELECTRONIC PRODUCTS (EE)

The Electrical and Electronic Products category encompasses the manufacture of a broad array of electrical and electronic products. Major regulated products include the manufacture of semiconductors (transistors) and cathode ray tubes, such as television picture tubes.

ELECTROPLATING AND METAL FINISHING (EM)

Electroplating is a process by which metals in a solution are deposited on an object immersed in the solution by the use of electricity. The immersed object is known as the basis. An example of electroplating is gold plating. Instead of making an object entirely out of gold, it is made of another material and only coated with gold. This is done by immersing the object in a solution of gold. When electricity is passed through the solution and object, the gold is deposited in a thin layer on the object.

In addition to the electroplating process, the Federal regulations also apply to five other related operations: electroless plating, anodizing, coating, chemical etching and milling, and printed circuit board manufacturing. A facility should be considered regulated by the Electroplating and Metal Finishing category if it does electroplating or any of the five operations listed above. Additionally, if a facility performs a metal finishing operation (i.e., painting, polishing, decreasing, welding, etc.) in addition to one of the six operations described above, these metal finishing operations would also be subject to Federal regulation and National pretreatment standards.

INORGANIC CHEMICALS MANUFACTURING (IC)

Inorganic Chemicals Manufacturing encompasses the manufacture of all chemical compounds not containing any carbon. The number of such chemicals manufactured is vast, however, Federal regulations of inorganic chemicals manufacture has focused on 66 subcategories of chemicals. Known or suspected manufacturers of any inorganic compounds such as hydrochloric acid, sulfuric acid, chrome pigments, or iodine should be identified by this category until additional information can be collected to determine the applicability of the regulation.

IRON AND STEEL (IS)

The Iron and Steel category includes all processes used in the manufacture of iron and those additional processes used to manufacture steel, including forming and casting processes used to create a finished product.

LEATHER TANNING AND FINISHING (LT)

The Leather Tanning and Finishing category includes facilities that convert animal hides and skins into leather. Facilities that purchase leather for the manufacture of leather products are not to be included in this category.

METAL MOLDING AND CASTING (MM)

The raw materials in this category are aluminum, copper, iron, lead, magnesium, or zinc. These metals are melted and poured or forced into a mold which, when cooled, produces a cast intermediate or final product. Foundries are an example of the type of industry that would be grouped in this category.

NONFERROUS METAL FORMING (NF)

The Nonferrous Metals Forming category includes two major groups: forming and production. The category includes forming of all metals and alloys that do not contain iron as the primary metal and that are not covered by a specific regulation (i.e., aluminum forming and copper forming). The forming processes used in this category are similar to those described under Aluminum Forming. The category also includes the production of metal powders through mechanical means such as milling.

NONFERROUS METAL MANUFACTURING (NM)

This category is made up of facilities that produce metals from ore concentrates or that recover metals from recycled metallic wastes, such as aluminum cans or lead batteries.

ORGANIC CHEMICALS, PLASTICS AND SYNTHETIC FIBERS (OC)

This category covers the manufacture of an exceptionally broad range of industrial organic chemicals (chemicals containing at least one carbon molecule), plastics, and synthetic fibers. Generally, the manufacture of organic chemicals, plastics, and synthetic fibers can be assumed to be covered by this category when the manufacturing facility is identified by SIC codes 2865, 2869, 2821, 2823, and 2824.

PESTICIDE CHEMICALS (PC)

The Pesticide Chemicals category includes the manufacture, formulation, and packaging of chemicals whose primary purpose is to control or destroy undesirable plants and animals. The pesticide chemicals category is broader than most categories in that it includes formulation and packaging of pesticides and is not limited to manufacture.

PETROLEUM REFINING (PR)

The Petroleum Refining category includes facilities that produce petroleum products such as gasoline, heating oil, diesel fuel, and asphalt from crude oil by physical separation and/or chemical reaction processes.

PHARMACEUTICAL MANUFACTURING (PM)

The Pharmaceutical Manufacturing category includes the manufacture of all chemicals of feed or medicinal grade that have a therapeutic value. The manufacture of such chemicals is included within the category regardless of whether it was produced by chemical synthesis, fermentation, extraction from natural sources, or other processes.

PORCELAIN ENAMELING (PE)

Porcelain enameling is the process by which a ceramic or fused silicate finish is applied to a basis metal product. The Porcelain Enameling category regulates processes including the operations by which the metal basis is prepared for enameling and the operations by which the ceramic or fused silicate is applied to the basis. Examples of basis materials include bathtubs, sinks, and other bathroom items.

PULP, PAPER AND PAPERBOARD AND BUILDERS' PAPER AND BOARD MILLS (PP)

These categories are defined as including industries identified by one of the following four SIC classifications: 2611 facilities engaged in making pulp (a mixture of wood or other fibers with water which is used as a raw material for most paper manufacture); 2621 paper mills (facilities that produce paper) that do not primarily manufacture building paper; 2631 mills manufacturing paperboard (e.g., cardboard, chipboard, and pressboard); and 2661 building paper and board mills including production of paper and paperboard used in building.

STEAM ELECTRIC (SE)

The Steam Electric Power Generating category includes facilities engaged in the production of steam to generate electricity for distribution and sale. This category does not pertain to facilities that generate electricity for onsite use.

TIMBER PRODUCTS PROCESSING (TP)

The Timber Products Processing category includes a broad range of facilities which produce lumber, wood, and basic board materials. It includes saw mills, millwork and finishing plants, veneer and plywood plants, and wood processing plants (plants at which creosote or other materials are saturated into the wood as a preservative). The category also includes facilities that manufacture particleboard, hardwood, and insulation board.

APPENDIX F

REFERENCE DOCUMENTS FOR FLAMMABILITY, EXPLOSIVITY, AND HEALTH HAZARDS OF CHEMICALS

REFERENCES

1990–1991 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental and Industrial Hygienists (ACGIH), 1990.

Recommended Exposure Limits, National Institute for Occupational Safety and Health (NIOSH)

Permissible Exposure Limits, Occupational Health and Safety Administration (OSHA), 29 CFR 1910.1000–1910.1101

Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors, EPA 812-B-92-001, June 1992

Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program, EPA, December 1987

Flammable, Combustible Liquids and Gases in Manholes, Sewers, and Similar Underground Structures, 1982 by NFPA

NFPA 49 – Hazardous Chemicals Data, National Fire Protection Agency

Pocket Guide to Chemical Hazards (NIOSH 90-117), National Institute for Occupational Safety and Health (NIOSH)

Safety and Health in Wastewater Systems, Manual of Practice 1, Water Pollution Control Federation (now Water Environment Federation), 1983

APPENDIX G

**HAULED WASTE ORDINANCE LANGUAGE
EXAMPLE**

**St. Louis MSD Ordinance
ORDINANCE NO. 10082**

AN ORDINANCE, repealing Ordinance No. 8102, as adopted June 15, 1990, and adopting a new ordinance in lieu thereof regulating the discharge to the facilities of The Metropolitan St. Louis Sewer District of water or liquid waste which has been removed and transported from any pit, sump, holding tank, septic tank, wastewater treatment facility or industrial facility.

Section One – Ordinance No. 8102, as adopted June 15, 1990, is hereby repealed.

Section Two – Discharge of Hauled Waste

- A. No person shall discharge or cause to be discharged to any public sewer or to any public sewer facility or to any private sewer tributary to any public sewer any water and/or waste which has been removed and transported from any pit, sump, holding tank, septic tank, wastewater treatment facility or industrial facility except as authorized by this ordinance. Such water and/or waste is hereinafter referred to in this ordinance as hauled waste.
- B. Under no circumstance may hauled waste which is hazardous waste, as defined in 40 CFR 261 or 10 CSR 25-4.261, be discharged to District facilities.
- C. Hauled waste of commercial or industrial origin or hauled waste of unusually high strength may be discharged only if the original source of the waste has received written approval from the District. The original source of such waste shall submit, to the District's Department of Environmental Compliance, an application for Special Discharge, on a form provided by the District, along with such supplementary information as the District may require. The District will review the application and will determine acceptability for discharge of the waste based on the Application and Acceptance Criteria for Special Discharges developed by the District.

Section Three – Waste Transporter Authorization

Only District authorized waste transporters may discharge hauled waste at District facilities.

- A. Any person wishing to obtain authorization to discharge hauled waste at District facilities shall submit a Waste Transporter Identification application on a form provided by the District complete with all supplementary information as specified on the application form and in this section. If approved, the applicant will be assigned a Waste Transporter Identification Number. The following supplementary information shall be included with the application:
 - (1) Proof of comprehensive general liability and auto liability insurance which includes the District as an additional insured and includes provisions for informing the District ten days prior to the time of policy cancellations or renewals. Applicants shall maintain general liability insurance and automobile liability insurance in such amounts as the District may, from time to time, deem appropriate.
 - (2) A list of the vehicles applicant has in service for transportation of liquid waste. The list shall include the make and model, the state of registration, the state vehicle license number and the tank volume, in gallons, for each vehicle operated.
 - (3) Proof that waste transporter vehicles which are to discharge at District facilities are in compliance with all applicable State of Missouri, City of St. Louis and/or St. Louis County laws and regulations applicable to waste transporters within the jurisdictions within which applicant

operates. Waste transporters operating within St. Louis County shall provide a St. Louis County Department of Health Permit Number for each vehicle to be operated within St. Louis County.

- (4) Volumes and types of waste transported each year for the last three years. A new business shall submit an estimate of volumes for the first year.
- B. Any person who has been granted authorization to discharge hauled waste at District facilities shall annually provide proof to the Director of continued liability insurance and proof of continued compliance with applicable State of Missouri, City of St. Louis and/or St. Louis County laws and regulations.
- C. The District may rescind a transporter's authorization to discharge hauled waste if the transporter is found to be in violation of the provisions of this ordinance or other District ordinances.

Section Four – Waste Discharge Location

- A. Any hauled waste which is acceptable to the District may be discharged only at the District's Hauled Waste Receiving Station located at:

Bissell Point Wastewater Treatment Plant
10 East Grand Avenue
St. Louis, MO 63147

Hauled waste may be discharged at this location only between the hours of 7:00 AM and 5:30 PM, Monday through Friday, excluding holidays, and between the hours of 7:00 AM and 12:00 noon on Saturday.

- B. Under emergency conditions, as determined by the Director, hauled waste may be discharged at such alternate locations and under such conditions as the Director determines are appropriate.

Section Five – Hauled Waste Receipts and Samples

- A. No person shall discharge or cause to be discharged hauled waste without presenting a completed Hauled Waste Receipt form to the receiving station attendant at the time of discharge. The Hauled Waste Receipt shall be on a form provided by the District and shall fully identify, to the satisfaction of the attendant, the source and nature of the waste.
- B. Hauled waste subject to the prior approval provisions of Section Two of this ordinance may be discharged only upon verification by the attendant that such prior approval has been granted.
- C. A sample of each load of hauled waste to be discharged shall be collected by the receiving station attendant and appropriate screening analyses performed prior to discharge being allowed. The sample will be retained and submitted to the District's Department of Environmental Compliance laboratory for such further analyses as deemed necessary to determine its compliance with the requirements of the District's sewer use ordinance and applicable local, state and federal regulations. In the event this hauled waste is found to be in violation of said ordinance or regulations, approval to discharge this water or waste to District facilities may be revoked and any damages incurred by the District will be charged to the person discharging said water or waste.

Section Six – Conditions of Discharge

Any person granted authorization under Section Three to discharge hauled waste at the point designated herein and in possession of proper Hauled Waste Receipts assents to the conditions hereinafter stated and agrees to be bound by his conditional obligations and duties, to wit:

- (1) The transporter will comply with all District regulations and follow the directions of District employees while on District premises.
- (2) The transporter agrees to indemnify and to save the District harmless from any and all damage and expenses which may be suffered by it by reason of any or all of his acts done on its premises, including but not as a limitation, the discharge of the aforesaid hauled waste which violates any standard or standards of the District's sewer use ordinance.
- (3) The transporter will, in the event of spills or leakage of hauled waste on the District's premises, as a result of his acts or faulty equipment, appropriately clean, to the satisfaction of the attendant on duty, the area involved.

Section Seven – District Refusal of Waste

The District has the right to refuse to accept the discharge of any hauled waste brought to the Hauled Waste Receiving Station if, in the opinion of the attendant on duty, based on a review of the Hauled Waste Receipt form, District records and the screening analyses:

- (1) The waste does not meet the conditions under which a prior approval was granted, or
- (2) The waste could cause operational and maintenance problems, be detrimental to the health of District employees or cause violations of the District's NPDES Permit or any other City, State or Federal environmental laws and regulations.

Section Eight – Discharge at Other Locations Unlawful

The discharge of hauled waste into any District facility, manhole or other location not approved for such discharge shall be considered unlawful and the person responsible for such discharge shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not more than One Thousand Dollars (\$1,000.00) or imprisoned in the County Jail or County Workhouse, as the case may be, for not more than one (1) year, or by both such fine and imprisonment for each such violation.

Section Nine – Fees for Discharge of Hauled Waste

- A. Waste Transporters shall pay a fee for hauled waste discharged pursuant to this ordinance based upon the non-residential wastewater user charges in effect at the time of the discharge. The fee for each discharge will be calculated based upon the full volume of the transport vehicle. Waste transporters will be billed by the District monthly.
- B. The original source of a hauled waste of unusually high strength, subject to the prior approval provisions of Section Two of this ordinance, shall pay an additional fee, as agreed upon, between the original source of the waste and the District. This additional fee shall be billed by the District to the original source following receipt of the waste.

Section Ten – Charge for Late Payment

If any charges billed are not paid by the due date indicated on any bill rendered, then an additional late payment charge, based on the percentage established by ordinance for late payments of wastewater user charges, is hereby imposed for each month or portion thereof the bill remains unpaid beyond the due date.

Section Eleven – Termination of Service for Nonpayment

- A. When any waste transporter monthly charge has not been paid and has been delinquent for more than fifteen days after the due date, then the District may refuse to accept any further waste discharges from that transporter.

- B. When any bill rendered to a source of hauled waste subject to the high strength waste charges in Section Nine of this ordinance has not been paid and has been delinquent for more than fifteen days after the due date, then the District may refuse to accept any further waste discharges from that source.

Section Twelve – Severability

The invalidity of any section, clause, sentence or provision of this Ordinance shall not affect the validity of any other part of this Ordinance which can be given effect without such invalid part or parts.

Section Thirteen – Effective Date

This ordinance shall become effective on June 1, 1997.
The foregoing Ordinance was adopted May 8, 1997.

APPENDIX H

**HAULED WASTE MANIFEST FORM
EXAMPLE**

NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS WASTE MANIFEST				
1. Generator's US EPA ID Number				
2. Generator's Name and Mailing				
3. Generator's Phone		()		
4. Transporter Company Name		5. US EPA ID Number	6. Transporter's Phone	
7. Designated Facility Name and Site Address		8. US EPA ID Number	9. Facility's Phone	
10. Waste Shipping Name and Description		11. Containers	12. Total	13. Unit
		No.	Quantity	Wt./Vol.
14. Additional Descriptions for Materials Listed Above		15. Handling Codes for Wastes Listed Above		
16. Special Handling Instructions and Additional Information				
17. Printed/Typed Name of Generator		Signature	Month	Day
				Year
18. Transporter Acknowledgment of Receipt of Materials				
Printed/Typed Name		Signature	Month	Day
				Year
19. Discrepancy Indication Space				
20. Facility Owner or Operator : Certification of receipt of waste materials covered by this manifest except as noted in Item 19.				
Printed/Typed Name			Month	Day
				Year