Storm Water Pollution Prevention Plan
(SWPPP)
for
construction activities
associated with

Stonebriar Legacy Medical Plaza

in
Frisco, Texas

prepared
November 2007

by
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***post the CSN at the front entrance of the site readily available for viewing**

I. Introduction

The purpose of this Storm Water Pollution Prevention Plan (SWPPP) is to provide guidelines for preventing soil and pollutants of concern including sediment or a parameter that addresses sediment (such as total suspended solids, turbidity, or siltation) and any other pollutant that has been identified as a cause of impairment of a receiving water body that originate on site from flowing into Waters of the United States and to municipal separate storm sewer systems (MS4s) operated by cities, counties, states, and the Federal Government. Waters of the United States include interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce. Tributaries of waters identified above and wetlands adjacent to waters above are also considered Waters of the U.S.

This SWPPP has been prepared in accordance with good engineering practices, and addresses all major activities known to disturb significant amounts of ground surface during construction.

New sources or new discharges of constituents of concern to impaired waters are not authorized by TXR150000 unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the EPA approved Clean Water Act Section 303(d) list.

Constituents of concern are those for which the water body is listed as impaired. Discharges of pollutants of concern to impaired water bodies for which there is an approved total maximum daily load (TMDL) are not eligible for coverage under TXR150000 unless they are consistent with the approved TMDL and the implementation plan. Permittees must incorporate the limitations, conditions, or requirements applicable to their discharges, including monitoring frequency and reporting required by TCEQ rules, into their storm water pollution prevention plan in order to be eligible for coverage under TXR150000.

This SWPPP is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by state or local officials and will be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or storm water management site plans or site permits approved by state or local officials for which HUFFMAN receives written notice.

Erosion control or soil stabilization is the best way to retain soil and potential pollutants. Preserve existing vegetation and limit disturbance when possible. Stabilize and/or revegetate disturbed areas as soon as possible after grading or construction.

The stormwater management controls included in this plan focus on providing adequate control of pollutant discharges with practical approaches that utilize readily available techniques, expertise, materials, and equipment.

II. Authorization to Discharge

Under the provisions of Section 402 of the Clean Water Act and Section 26.040 of the Texas Water Code, Construction sites located in the state of Texas may discharge to surface water in the state only according to effluent limitations, monitoring requirements, and other conditions set forth in the Texas Pollutant Discharge Elimination System (TPDES) General Permit NO. TXR150000, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ.

TXR150000 and the authorization to discharge storm water shall expire at midnight, March 05, 2008. If the TCEQ publishes a notice of its intent to renew or amend TXR15000 before the expiration date, the permit will remain in effect for the discharges associated with this SWPPP until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization. In the event that the general permit is not renewed, permittees must obtain either a TPDES individual permit or coverage under an alternative general permit

The TCEQ is the Permitting Authority for this discharge, as the site is not located on Indian Country lands, the construction activity does not include oil and gas exploration, drilling, operations, and pipelines, that include SIC codes 1311, 1381, 1382, 1389, and 5171 and discharges are not associated with agricultural production, services, and silviculture.

Individual operators at a site may develop separate SWPPPs that cover only their portion of the project provided reference is made to the other operators at the site. Where there is more than one SWPPP for a site, permittees must coordinate to ensure that Best Management Practices (BMPs) and controls are consistent, and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWPPP is developed, or separate SWPPPs are developed for each operator, it is the responsibility of each operator to ensure that compliance with the terms and conditions of TXR15000 is met in the areas of the construction site where that operator has operational control over construction plans and specifications or day-to-day operational control.

Discharges of storm water runoff from construction support activities, including concrete batch plants, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas are authorized under TXR15000 provided the activity is located within a 1-mile distance from the boundary of the permitted construction site and directly supports the construction activity; the storm water pollution prevention plan is developed according to the provisions of this general permit and includes appropriate controls and measures to reduce erosion and discharge of pollutants in storm water runoff from the supporting industrial activity site; and the industrial activity either does not operate beyond the completion date of the construction activity or obtains separate TPDES authorization for discharges.

HUFFMAN certifies that the proposed construction site or land disturbing activity is not located within any of the corridors of the Federal or State listed sensitive waters or watershed.

III. Site Description

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared for construction activities associated with Stonebriar Legacy Medical Plaza in Frisco, Texas. Construction is being managed by HUFFMAN.

Nature of the construction activity: Construction of commercial medical/office buildings including related site improvements is the nature of construction activity.

Potential pollutants: sediment, trash, paint, pesticides, herbicides, fertilizers, hydrocarbons, lime, gypsum, heavy metals, concrete, solvents, fuels, oils, grease, vehicle fluids, (misc. chemicals, curing compounds, adhesives) or other visible and non-visible pollutants are expected. **Sources** include construction and non-construction related personnel, soil, wash waters, storm water, construction equipment, misc. tools, vehicles, all compounds used by various subcontractors (paint, solvents, etc…).

Intended schedule or sequence of major activities that will disturb soil: The following is a sequence of major activities the will disturb soil: installation of erosion control, excavation, utility installation, and backfilling activities.

The **total number of acres** (to the nearest acre) **of the entire property (lot 2 only)** is 4 acres. The **total number of acres** (to the nearest acre) **where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas** is 4 acres.

Location and description of asphalt and concrete plants: There will be no dedicated asphalt or concrete plant.

The **receiving waters at or near the site** that will be disturbed or that will receive discharges from disturbed areas of the project is Stonebriar Creek.

This SWPPP will serve as the SWPPP for this project only.

There will be no offsite material storage areas, no overburden and stockpiles of dirt, no borrow areas. No post-construction storm water BMPs will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been complete.

IV. Controls

Appropriate control measures (i.e., BMPs) will be implemented as part of the construction activity to minimize pollution in runoff—and to prevent offsite sediment tracking.

Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall. Controls must also be designed and utilized to reduce the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications. If inspections or other information indicates a control has been used incorrectly, or that the control is performing inadequately, the operator must replace or modify the control as soon as practicable after discovery that the control has been used incorrectly, is performing inadequately, or is damaged.

Controls must be developed to limit, to the extent practicable, offsite transport of litter, construction debris, and construction materials.

Location and installation of controls should be determined by a common sense approach through a collective effort on the part of the following key personnel:

HUFFMAN,
City of Frisco,
SWPPP INSPECTIONS, INC.,
and all erosion control contractors—as well as adjacent property owners.

Safety of all surrounding businesses, homeowners, and all vehicular traffic should be top priority when considering proper control measures.

HUFFMAN is the permittee responsible for installation and maintenance of control measures for each major soil disturbing activity. Controls to prevent off-site sediment tracking is a necessity. Areas for entering and exiting the site will be determined by HUFFMAN prior to any grading activities. These areas will be continuously monitored and evaluated throughout construction to minimize off-site tracking. Legacy Dr. will be cleaned as needed.

Install silt fence as shown on the Site Map prior to grading. Install sandbags in curbline of Legacy Dr. prior to cutting the curbs. Install inlet protection at the inlets prior to the inlets becoming operational. Monitor daily to prevent ponding at inlets. See Site Map for the location of these controls.

Future monitoring and site inspections will determine the necessity of additional structural practices; additional measures will be added by HUFFMAN if necessary.

Controls will be maintained by HUFFMAN until permanent stabilization (sod) has been installed. Silt fence, sandbags, and inlet protection will be removed by HUFFMAN.

Stabilization Practices

Stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in (a) through (c) below, must be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a) Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

(b) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site.

(c) In arid areas (areas with an average rainfall of 0 to 10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

Final Stabilization means that either

1. All soil disturbing activities at the site have been completed and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

2. **For individual lots in residential construction by either:**

(a) The homebuilder completing final stabilization as specified above, or

(b) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.

Establishing final stabilization in areas that are unpaved and/or without concrete is primarily achieved by vegetation or permanent landscaping.

Sod: The type of sod to be installed should be determined and agreed on by all key personnel prior to installation. Sod typically is a more costly, but aesthetically pleasing means of soil stabilization.

Seeding: For this SWPPP, the term seeding means the establishment of perennial grass cover on disturbed areas by planting seed. The purpose is to protect the soil surface from erosion. Seed can be applied by broadcast, drilling, or hydromulching, according to site needs. The surface should be prepared and the seed applied according to seed supplier recommendations.

The grass mixture below for temporary erosion control is taken from the iSWM Design Manual for Construction.

SEASON	COMMON NAME	RATE (LBS/ACRE)
Aug 15 - Nov 30	Tall Fescue Western Wheat Grass Wheat (Red, Winter)	4.0 5.0 30.0
May 1 - Aug 31	Foxtail Millet	30.0
Feb 15 – May 31 Sep 1 – Dec 31	Annual Rye	20.0

The following is a list of **interim stabilization practices** and a **schedule for implementation:** first protection of existing vegetation where possible, then construction entrance, then geotextiles, then (if necessary) erosion blankets,

…then **permanent stabilization practices** and a **schedule for implementation:** first concrete placement for the firelane, turnlanes, parking, slab, and sidewalk, then establishment of permanent vegetation through seeding and/or sod stabilization.

The Site Map shows locations of interim and permanent stabilization practices.

The following records must be maintained and attached to the SWPPP: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated. A form to log this information is included in this SWPPP.

Structural Practices

The following is a description of structural control practices used to divert flow away from exposed soils, to limit the contact of runoff with disturbed areas, or to lessen the off-site transport of eroded soils.

1. inlet protection
2. silt fence
3. drainage swales
4. sandbags

See Site Map for locations of these structural practices.

Exact locations for the structural controls implemented in this SWPPP are to be determined prior to construction on a given section. Details of such structural practices should conform to NCTCOG standards; however, such practices may be modified as necessary when to do so produces more satisfactory erosion and sediment control results. Safety should be the primary concern when selecting and installing all structural controls.

Other Controls

No permanent storm water controls will be installed during the construction process.

Off-site vehicle tracking of sediments and the generation of dust shall be minimized.

This SWPPP is and should remain consistent with applicable State and/or local waste disposal, sanitary sewer or septic system regulations to the extent these are located within the permitted area.

Concrete Washout:

1. It should not be located near a creek, inlet, lake, or other water body.

2. If off-site tracking is a problem, a rock entrance that will eliminate tracking into streets during and after storm events should be utilized.

3. It should be a pit that will contain the washout on all four sides. The washout area should provide a minimum of 6 cubic feet of containment area volume for every 10 cubic yards of concrete poured. The pit will need to be pumped or the materials will need to be hauled off if the design capacity exceeds 50%.

Installing a concrete washout to meet these standards is required. The location can be determined in the field and will be reflected on the Site Map.

Material and Equipment Storage Areas:
Prior to construction, material and equipment storage areas should be designated and located in a flat area so as not to drain to a water body or street. The location can be determined in the field. Chemicals, paints, solvents, fertilizers, and other toxic substances shall be stored in waterproof containers. Except during application, the containers shall be kept on trucks or within storage facilities.

Equipment Maintenance:
Equipment maintenance and repair should be performed in a flat area so as not to drain to a water body or street. Equipment wash down (except for wheel washes) shall take place within an earth berm. Use of detergents is discouraged. If utilized they shall be readily biodegradable. The location can be determined in the field.

Waste Disposal:
All solid waste materials, including disposable materials incidental to the major construction activities, will be collected in containers. The containers will be emptied periodically by contract trash disposal service and trucked away from the site.

Sanitary Facilities:
Sanitary facilities shall be provided at various locations throughout the site, utilized by construction personnel, and serviced by a commercial operator.

Dust Control:
During construction, water trucks will be used to reduce dust as needed. After construction, the site will be stabilized in order to reduce dust.

Water Source:
Water used to establish and maintain grass, for dust control, and for other purposes during the construction phase must originate from a public water supply or private well approved by the Texas State Health Department.

Mortar Mix Management:
Runoff from mortar mixing must be contained on site. Implement proper containment practices to prevent runoff from leaving the mixing area.

V. Construction and Waste Materials

The following is a description of potential construction and waste materials expected to be stored on-site:

- silt fence (14g wire back , steel posts)
- pvc conduit
- pvc pipe, primer, & glue
- lime stabilization materials
- landscaping materials
- reinforcing steel & accessories
- wood concrete forms
- 10 mil polyethylene vapor barrier
- post-tension cables
- bond breaker
- curing compound
- 3000 psi & 4000 psi ready-mix concrete
- non-shrink grout mix
- patchcrete mix
- concrete hardener/sealer
- brick and stone
- cmu block
- mortar
- grease
- acetylene & oxygen bottles
- structural & misc. steel
- tarpaper
- framing lumber
- sheathing
- misc. wood blocking & dunnage
- .45 mil & .60 mil tpo roofing membrane
- roofing sealants
- roofing insulation
- sheet metal flashing
- silicone and urethane caulking sealants
- doors & frames
- windows
- sheetrock
- paint
- texture
- gasoline, diesel, hydraulic oil
- texture

This list should be updated by all subcontractors as appropriate.

VI. Spills

The following controls should be utilized, along with manufacturer recommendations, by all vendors and contractors as a GUIDELINE for onsite and offsite material management: debris and trash management, chemical management, concrete waste management, concrete saw cutting waste management, sandblasting waste management, lime stabilization management, and sanitary facilities. Proper containment is a necessity, with special attention to onsite fuel, oil, and chemical storage.

Manufacturer requirements for storage, containment, clean-up, disposal, and recycling must be adhered to—WITHOUT EXCEPTION.

A Spill Prevention, Control, and Countermeasure (SPCC) Plan must be designed if the total combined temporary storage is greater than 1,320 gallons. (Include operating equipment fuel tanks over 55 gallons in the calculation.) See the EPA's Final Rule concerning Oil Pollution Prevention and Response [40 CFR Part 112]. (NOTE: A SPCC Plan is not anticipated at this site.)

Small Spills

The following steps should be followed to prevent storm water pollution and to protect our local waterways in the event of a spill on site:

What should you do if there is a small spill?

For cleanup of small scale spills, each subcontractor should consult the **Material Safety Data Sheets** (MSDS) (available from the manufacturer) for the chemicals involved in the spill. These data sheets provide relevant information for specific liquid types, and are available from chemical manufacturers and suppliers. The MSDS gives advice on handling, storage, and cleanup procedures for liquid chemicals.

The following general procedures are recommended in the event of small emergency spills:

1. Consult the Material Safety Data Sheets (MSDS).

2. Stop the spill: Stop the source of the spill immediately, if it is safe to do so, in a way that is appropriate to the chemicals involved. This will reduce the level of possible contamination to the environment.

3. Contain the spill: Control the flow of the spill and contain the spill appropriate to the type of liquid involved. (Refer to the MSDS). Prevent the spill from entering any stormwater drains, by isolating drain inlets.

4. Clean up the spill: Clean up the spill by referring to the MSDS for the type of chemical involved. Cleaning up a spill promptly will help to protect the local environment.

5. Dispose of the Spill*: Dispose of the spill by referring to the MSDS for the type of chemical involved. Disposing of a spill promptly will help to protect the local environment.

*The following is a company that specializes in providing clean-up, transportation, and disposal of hazardous, industrial, and waste materials.

TAS Environmental
www.taslp.com
888.654.0111

It is important to clean up all spills quickly—even small ones such as oil spills, as these can easily flow into storm drains or be washed there by rain.

Releases of Reportable Quantities

Due to the nature of construction activities, spills of hazardous materials or hydrocarbons are always a possibility. During a 24 hour period, when a release exceeds the Reportable Quantity (RQ) level as outlined in EPA regulations 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, HUFFMAN is required to due 2 things:

(1) The permitee shall call the
National Response Center at 800.424.8802 and the
TCEQ Release Hotline at 800.832.8224 to report the spill.

(2) Within 14 days of knowledge of the release, this SWPPP should be modified. The modification shall include a description of the release, the circumstances leading to the release, and the date of the release. This plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and this plan must be modified where appropriate.

A list of Reportable Quantities and a Release Detail Sheet is included in this SWPPP.

VII. Inspections and Maintenance

All erosion and sediment control measures and other protective measures identified in this SWPPP must be maintained in effective operating condition. If inspections determine that BMPs are not operating effectively, maintenance must be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable

Personnel provided by the permitee and familiar with the SWPPP must inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified in the SWPPP must be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized, where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches), inspections must be conducted at least once every month.

As an alternative to the above-described inspection schedule of once every fourteen (14) calendar days and within twenty four (24) hours of a storm event of 0.5 inches or greater, the SWPPP may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection.

The SWPPP must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWPPP and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

A report summarizing the scope of the inspection, names and qualifications of personnel making the inspection, the dates of the inspection, and major observations relating to the implementation of the SWPPP must be made and retained as part of the SWPPP. Major observations should include: the locations of discharges of sediment or other pollutants from the site; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Actions taken as a result of inspections must be described within, and retained as a part of, the SWPPP. Reports must identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report must contain a certification that the facility or site is in compliance with the SWPPP and this permit. The report must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

VIII. Records

HUFFMAN shall retain copies of the SWPPP and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Director at any time.

The SWPPP must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWPPP. The SWPPP must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site.

Operators must post a notice near the main entrance of the construction site. If the construction project is a linear construction project (e.g. pipeline, highway, etc.), the notice must be placed in a publicly accessible location near where construction is actively underway. Notice for these linear sites may be relocated, as necessary, along the length of the project. The notice must be readily available for viewing by the general public, local, state, and federal authorities. If the site is a large construction site, the notice must contain a copy of the NOI that was submitted to the TCEQ and the TPDES general permit number for the project (if a permit number has been assigned); the name and telephone number of a representative for the operator; a brief description of the project; and the location of the SWPPP. If the site is a small construction site, the notice must contain a signed copy of the Construction Site Notice (Attachment 2 of TXR150000).

HUFFMAN must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for revoking, suspending, or terminating authorization under TXR15000. Additionally, HUFFMAN must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of TXR150000.

HUFFMAN must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted. For activities that are not required to submit an NOT, records shall be retained for a minimum period of three (3) years from the date that either: final stabilization has been achieved on all portions of the site that is the responsibility of HUFFMAN; or another permitted operator has assumed control according to over all areas of the site that have not been finally stabilized. Records include a copy of the SWPPP plan and all reports and actions required by this permit, including a copy of the construction site notice all data used to complete the NOI, if an NOI is required.

IX. Procedural Requirements

HUFFMAN must comply with the following requirements of the General Permit TXR15000:

A. develop a SWPPP (this plan), according to the provisions of TXR15000, that covers either the entire site or all portions of the site for which HUFFMAN is the operator, and implement that plan prior to commencing construction activities

B. post a notice with the signed Construction Site Notice at the construction site in a location where it is readily available for viewing prior to commencing construction activities, and maintain the notice in that location until completion of the construction activity

C. provide a copy of the signed and certified Construction Site Notice to the operator of any municipal separate storm sewer system receiving the discharge, at least two (2) days prior to commencing construction activities; and

D. Construction Site Notices must be signed according to 30 TAC § 305.44 (relating to Application for Permit).

E. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

F. Discharge of a hazardous substance or oil into water is subject to reporting requirements.

G. The SWPPP must be updated as necessary to reflect changing conditions of new operators, new areas of responsibility, and changes in best management practices.

H. The erosion and sediment controls will be designed and inspected to retain sediment on site to the extent practicable. All control measures will be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices.

I. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, HUFFMAN must replace or modify the control for site situations.

J. If sediment escapes the construction site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain event.

K. Litter, construction debris, and construction chemicals exposed to storm water shall be prevented from becoming a pollutant source for storm water discharges (e.g., screening outfalls, picked up daily).

L. Inspections must be conducted to assure compliance with this SWPPP.

M. This SWPPP and inspection reports must be retained for at least three years from the date that this site achieves final stabilization.

N. Operator Form, Actions Taken Form, and Inspection Forms must be completed and maintained as part of the SWPPP.

X. Reference and Hotline

The following information was utilized in creating this SWPPP:

TPDES General Permit (NO. TXR150000)
Clean Water Act Section 303(d) list
BMPs from NCTCOG's iSWM Design Manual for Construction
Reportable Quantities from the EPA
location map taken from Mapsco

Questions regarding this SWPPP, the General Permit TXR150000, or any other storm water related concerns may be directed to:

Don Wims
President
SWPPP INSPECTIONS, INC.

SWPPP
www.swppp.com
OFFICE: 972.530.5307 FAX: 972.530.5309
PO BOX 496987 GARLAND, TX 75049

or contact the Texas Commission of Environmental Quality (TCEQ) at 512.239.1000.

TPDES General Permit
NO. TXR150000

This is a new general permit issued pursuant to Section 26.040 of the Texas Water Code and Section 402 of the Clean Water Act.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
Austin, TX 78711-3087

GENERAL PERMIT TO DISCHARGE WASTE
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Construction sites located in the state of Texas

may discharge to surface water in the state

only according to effluent limitations, monitoring requirements and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of storm water and certain non-storm water discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit and the authorization contained herein shall expire at midnight five years after the date of issuance.

ISSUED AND EFFECTIVE DATE: MAR 05 2003

For the Commission

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Part I. Definitions

Best Management Practices - (BMPs) Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction - The exposure of soils resulting from activities such as clearing, grading, and excavating.

Common Plan of Development - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities.

Facility or Activity - Any TPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the TPDES program.

Final Stabilization - A construction site status where either of the following conditions are met:

(a) All soil disturbing activities at the site have been completed and a uniform (e.g, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or goetextiles) have been employed.

(b) For individual lots in a residential construction site by either:

(1) the homebuilder completing final stabilization as specified in condition (a) above; or

(2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.

(c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

Large Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Municipal Separate Storm Sewer System (MS4) - A separate storm sewer system owned or operated by a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization.

Notice of Intent (NOI) - A written submission to the executive director from an applicant requesting coverage under a general permit.

Notice of Termination (NOT) - A written submission to the executive director from a permittee authorized under a general permit requesting termination of coverage.

Operator - The person or persons associated with a large or small construction activity that meets either of the following two criteria:

(a) the person or persons have operational control over construction plans and specifications to the extent necessary to meet the requirements and conditions of this general permit; or

(b) the person or persons have day-to-day operational control of those activities at a construction site which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the Storm Water Pollution Prevention Plan or comply with other permit conditions).

Permittee - An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge storm water runoff and certain non-storm water discharges.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - (from the Texas Water Code, Chapter 26) Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland.

Pollution - (from the Texas Water Code, Chapter 26) The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Runoff Coefficient - The fraction of total rainfall that will appear at the conveyance as runoff.

Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying storm water; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Small construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Storm Water - Storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm Water Associated with Construction Activity - Storm water runoff from a construction activity where soil disturbing activities (including clearing, grading, excavating) result in the disturbance of one (1) or more acres of total land area, or are part of a larger common plan of development or sale that will result in disturbance of one (1) or more acres of total land area.

Structural Control (or Practice) - A pollution prevention practice that requires the construction of a device, or the use of a device, to capture or prevent pollution in storm water runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits

of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization - A condition where exposed soils or disturbed areas are provided a protective cover, which may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place.

Waters of the United States - (from title 40, part122, section 2 of the Code of Federal Regulations) Waters of the United States or waters of the U.S. means:

(a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) all interstate waters, including interstate wetlands;

(c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

  (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;

  (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

  (3) which are used or could be used for industrial purposes by industries in interstate commerce;

(d) all impoundments of waters otherwise defined as waters of the United States under this definition;

(e) tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) the territorial sea; and

(g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Storm Water Associated with Construction Activity

   Discharges of storm water runoff from small and large construction activities may be authorized under this general permit.

2. Discharges of Storm Water Associated with Construction Support Activities

   Discharges of storm water runoff from construction support activities, including concrete batch plants, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas may be authorized under this general permit provided:

   (a) the activity is located within a 1-mile distance from the boundary of the permitted construction site and directly supports the construction activity;

   (b) the storm water pollution prevention plan is developed according to the provisions of this general permit and includes appropriate controls and measures to reduce erosion and discharge of pollutants in storm water runoff from the supporting industrial activity site; and

   (c) the industrial activity either does not operate beyond the completion date of the construction activity or obtains separate TPDES authorization for discharges.

3. Non-storm Water Discharges

   The following non-storm water discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

   (a) discharges from fire fighting activities;

(b) fire hydrant flushings;

(c) vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, an dust;

(d) water used to control dust;

(e) potable water sources including waterline flushings;

(f) air conditioning condensate;

(g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents.

4. Other Permitted Discharges

Any discharge authorized under a separate NPDES, TPDES, or TCEQ permit may be combined with discharges authorized by this permit.

Section B. Limitations on Permit Coverage

1. Post Construction Discharges.

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the notice of termination (NOT) for the construction activity.

2. Prohibition of Non-Storm Water Discharges

Except as provided in Part II. A.2., A3., and A4., all discharges authorized by this general permit must be composed entirely of storm water associated with construction activity.

3. Compliance With Water Quality Standards

Discharges to surface water in the state that would cause or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative

general permit (see Part II.G.3) to authorize discharges to surface water in the state from any activity that is determined to cause a violation of water quality standards or is found to cause, or contribute to, the loss of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II. G.2.

4. Discharges to Water Quality-Impaired Receiving Waters.

New sources or new discharges of the constituents of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the EPA approved Clean Water Act Section 303(d) list. Constituents of concern are those for which the water body is listed as impaired.

Discharges of the constituents of concern to impaired water bodies for which there is a total maximum daily load (TMDL) implementation plan are not eligible for this permit unless they are consistent with the approved TMDL and the implementation plan. Permittees must incorporate the limitations, conditions, and requirements applicable to their discharges, including monitoring frequency and reporting required by TCEQ rules, into their storm water pollution prevention plan in order to be eligible for coverage under this general permit.

5. Discharges to the Edwards Aquifer Recharge Zone

Discharges cannot be authorized by this general permit where prohibited by 30 Texas Administrative Code (TAC) Chapter 213 (relating to Edwards Aquifer).

(a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone, operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

(b) For existing discharges, the requirements of the agency-approved Water Pollution Abatement Plan under the Edwards Aquifer Rules are in addition to the requirements of this general permit. BMPs and maintenance schedules for structural storm water controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in storm water runoff are in addition to the requirements in this general permit for this pollutant. For discharges from large construction activities located on the Edwards Aquifer contributing zone, applicants must also submit a copy of the NOI to the appropriate TCEQ regional office."

Counties:	Contact:
Comal, Bexar, Medina, Uvalde, and Kinney	TCEQ Water Program Manager San Antonio Regional Office 14250 Judson Rd. San Antonio, Texas (210) 490-3096
Williamson, Travis, and Hays	TCEQ Water Program Manager Austin Regional Office 1921 Cedar Bend Dr., Ste. 150 Austin, Texas (512) 339-2929.

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities. For example, this permit does not limit the authority of a home-rule municipality provided by Section 401.002 of the Texas Local Government Code.

8. Indian Country Lands

Storm water runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of storm water require authorization under federal National Pollutant Discharge Elimination System (NPDES) regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Oil and Gas Production

Storm water runoff from construction activities associated with the exploration, development, or production of oil or gas or geothermal resources, including transportation of crude oil or natural gas by pipeline, are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges

of storm water require authorization under federal NPDES regulations, authority for these discharges must be obtained from the EPA.

10. Storm Water Discharges from Agricultural Activities

Storm water discharges from agricultural activities that are not point source discharges of storm water are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities.

Section C. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the issuance date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Operators of large construction activities continuing to operate after the issuance date of this permit, and authorized under NPDES general permit TXR100000 (issued July 6, 1998, FR 36490), must submit an NOI to obtain authorization under this general permit within 90 days of the issuance date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the federal NPDES permit. If the construction activity is completed prior to this 90-day deadline, and the site would otherwise qualify for termination of coverage under that federal NPDES permit, the operator must notify the executive director of the TCEQ in writing within 30 days of that condition.

2. Small Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the issuance date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Discharges from ongoing small construction activities that commenced prior to March 10, 2003, and that would not meet the conditions to qualify for termination of this permit as described in Part II.E. of this general permit, must be authorized, either under this general permit or a separate TPDES permit, prior to March 10, 2003.

Section D. Obtaining Authorization to Discharge

1. Small construction activities are determined to occur during periods of low potential for erosion, and operators of these sites may be automatically authorized under this general permit and not required to develop a storm water pollution prevention plan or submit a notice of intent (NOI), provided:

   (a) the construction activity occurs in a county listed in Appendix A;

   (b) the construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;

   (c) all temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, final stabilization activities have been initiated and a condition, of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site;

   (d) the permittee signs a completed construction site notice (Attachment 1 of this general permit), including the certification statement;

   (e) a signed copy of the construction site notice is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until completion of the construction activity;

   (f) a copy of the signed and certified construction site notice is provided to the operator of any municipal separate storm sewer system receiving the discharge at least two days prior to commencement of construction activities; and

   (g) any supporting concrete batch plant or asphalt batch plant is separately authorized for discharges of storm water runoff or other non-storm water discharges under an individual TPDES permit, another TPDES general permit or under an individual TCEQ permit where storm water and non-storm water is disposed of by evaporation or irrigation (discharges are adjacent to water in the state).

2. Operators of small construction activities not described in Part II.D.1. above may be automatically authorized under this general permit, and operators of these sites are not required to submit an NOI provided they:

   (a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant

is the operator, and implement that plan prior to commencing construction activities;

(b) sign a completed construction site notice (Attachment 2 of this general permit);

(c) post a signed copy of the construction site notice at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities, prior to commencing construction activities, and maintain the notice in that location until completion of the construction activity; and

(d) provide a copy of the signed and certified construction site notice to the operator of any municipal separate storm sewer system receiving the discharge at least two days prior to commencement of construction activities.

3. Operators of all other construction activities that qualify for coverage under this general permit must:

(a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) submit a Notice of Intent (NOI), using a form provided by the executive director, at least 2 days prior to commencing construction activities; or

(c) if the operator changes, or an additional operator is added after the initial NOI is submitted, the new operator must submit an NOI at least two (2) days before assuming operational control;

(d) post a copy of the NOI at the construction site in a location where it is readily available for viewing prior to commencing construction activities, and maintain the notice in that location until completion of the construction activity;

(e) provide a copy of the signed NOI to the operator of any municipal separate storm sewer system receiving the discharge, at least two (2) days prior to commencing construction activities; and

(f) implement the SWP3 prior to beginning construction activities.

4. Effective Date of Coverage

(a) Operators of construction activities described in either Part II. D.1. or D.2. are authorized immediately following compliance with the conditions of Part II. D.1. or D.2. that are applicable to the construction activity.

(b) Operators of all other construction activities eligible for coverage under this general permit, unless otherwise notified by the executive director, are provisionally authorized two (2) days from the date that a completed NOI is postmarked for delivery to the TCEQ. If electronic submission of the NOI is provided, and unless otherwise notified by the executive director, operators are provisionally authorized 24 hours following confirmation of receipt of the NOI by the TCEQ. Authorization is non-provisional when the executive director finds the NOI is administratively complete and an authorization number is issued for the activity.

(c) Operators are not prohibited from submitting late NOIs or posting late notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement actions for any unpermitted activities that may have occurred between the time construction commenced and authorization is obtained.

5. Notice of Change (NOC) Letter

If the operator becomes aware that it failed to submit any relevant facts, or submitted incorrect information in an NOI, the correct information must be provided to the executive director in a NOC letter within 14 days after discovery. If relevant information provided in the NOI changes, a NOC letter must be submitted within 14 days of the change. A copy of the NOC must be provided to the operator of any MS4 receiving the discharge.

6. Signatory Requirement for NOI Forms, Notice of Termination (NOT) Forms, NOC Letters, and Construction Site Notices

NOI forms, NOT forms, NOC letters, and Construction Site Notices must be signed according to 30 TAC § 305.44 (relating to Application for Permit).

7. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

(a) the name, address, and telephone number of the operator filing the NOI for permit coverage;

(b) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;

(c) number of acres that will be disturbed (estimated to the largest whole number);

(d) whether the project or site is located on Indian Country lands;

(e) confirmation that a SWP3 has been developed and that the SWP3 will be compliant with any applicable local sediment and erosion control plans; and

(f) name of the receiving water(s).

Section E. Application to Terminate Coverage

Each operator that has submitted an NOI for authorization under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit. Authorization must be terminated by submitting a Notice of Termination (NOT) on a form supplied by the executive director. Authorization to discharge under this permit terminates at midnight on the day the NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this permit terminates immediately following confirmation of receipt of the NOT by the TCEQ. Compliance with the conditions and requirements of this permit is required until an NOT is submitted.

1. Notice of Termination Required

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge, within thirty (30) days, after:

(a) final stabilization has been achieved on all portions of the site that is the responsibility of the permittee: or

(b) another permitted operator has assumed control over all areas of the site that have not been finally stabilized; and

(c) all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

(a) if authorization was granted following submission of a NOI, the permittees site-specific TPDES general permit number for the construction site;

(b) an indication of whether the construction activity is completed or if the permittee is simply no longer an operator at the site;

(c) the name, address and telephone number of the permittee submitting the NOT;

(d) the name (or other identifier), address, county, and latitude/longitude of the construction project or site; and

(e) a signed certification that either all storm water discharges requiring authorization under this general permit will no longer occur, or that the applicant to terminate coverage is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

Section F. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for storm water discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit where:

(a) the calculated rainfall erosivity R factor for the entire period of the construction project is less than five (5);

(b) the operator submits a signed waiver certification form, supplied by the executive director, certifying that the construction activity will commence and be completed within a period when the value of the calculated rainfall erosivity R factor is less than five (5); and

(c) the waiver certification form is submitted to the TCEQ at least two (2) days before construction activity begins.

2. Effective Date of Waiver

Operators of small construction activities are provisionally waived from the otherwise applicable requirements of this general permit two (2) days from the date that a completed waiver certification form is postmarked for delivery to TCEQ.

3. Activities Extending Beyond the Waiver Period

If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

(a) recalculate the rainfall erosivity factor R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new waiver certification form at least two (2) days before the end of the original waiver period; or

(b) obtain authorization under this general permit according to the requirements delineated in either Part II.D.2. or Part II.D.3. at least two (2) days before the end of the approved waiver period.

Section G. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC Chapter 305 (relating to Consolidated Permits). Applications for individual permit coverage should be submitted at least three hundred and thirty (330) days prior to commencement of construction activities to ensure timely issuance.

2. Individual Permit Required

The executive director may suspend an authorization or NOI in accordance with the procedures set forth in 30 TAC Chapter 205, including the requirement that the executive director provide written notice to the permittee. The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit because of:

(a) the conditions of an approved TMDL or TMDL implementation plan;

(b) the activity is determined to cause a violation of water quality standards or is found to cause, or contribute to, the loss of a designated use of surface water in the state: and

(c) any other considerations defined in 30 TAC Chapter 205 would include the provision at 30 TAC § 205.4(c)(3)(D), which allows TCEQ to deny authorization under the general permit and require an individual permit if a discharger "has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director."

3. Any discharge eligible for authorization under this general permit may alternatively be authorized under a separate, applicable general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

Section H. Permit Expiration

This general permit shall be issued for a term not to exceed five (5) years. Following public notice and comment, as provided by 30 TAC § 205.3 (relating to Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit. If the TCEQ publishes a notice of its intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized, discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.

In the event that the general permit is not renewed, discharges that are authorized under the general permit must obtain either a TPDES individual permit or coverage under an alternative general permit.

Part III. Storm Water Pollution Prevention Plans (SWP3)

Storm water pollution prevention plans must be prepared for storm water discharges that will reach Waters of the United States, including discharges to MS4 systems and privately owned separate storm sewer systems that drain to Waters of the United States, to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project. The SWP3 must describe and ensure the implementation of practices that will be used to reduce the pollutants in storm water discharges associated with construction activity at the construction site and assure compliance with the terms and conditions of this permit.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project provided reference is made to the other operators at the site. Where there is more than one SWP3 for a site, permittees must coordinate to ensure that BMPs and controls are consistent, and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed, or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure that compliance with the terms and conditions of this general permit is met in the areas of the construction site where that operator has operational control over construction plans and specifications or day-to-day operational control.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators must independently submit an NOI and obtain authorization, but may work together to prepare and implement a single comprehensive SWP3 for the entire construction site.

1. The SWP3 must clearly list the name and, for large construction activities, the general permit authorization numbers, for each operator that participates in the shared SWP3. Until the TCEQ responds to receipt of the NOI with a general permit authorization number, the SWP3 must specify the date that the NOI was submitted to TCEQ by each operator. Each participant in the shared plan must also sign the SWP3.

2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.

Section B. Responsibilities of Operators

1. Operators with Control Over Construction Plans and Specifications

   All operators with operational control over construction plans and specifications to the extent necessary to meet the requirements and conditions of this general permit must:

   (a) ensure the project specifications allow or provide that adequate BMPs may be developed to meet the requirements of Part III of this general permit;

   (b) ensure that the SWP3 indicates the areas of the project where they have operational control over project specifications (including the ability to make modifications in specifications);

   (c) ensure all other operators affected by modifications in project specifications are notified in a timely manner such that those operators may modify best management practices as are necessary to remain compliant with the conditions of this general permit; and

   (d) ensure that the SWP3 for portions of the project where they are operators indicates the name and TPDES permit numbers for permittees with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. In the case that responsible parties have not been identified, the permittee with operational control over project specifications must be considered to be the responsible party until such time as the authority is transferred to another party and the plan is updated.

2. Operators with Day-to-Day Operational Control

Operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWP3 and other permit conditions must:

(a) ensure that the SWP3 for portions of the project where they are operators meets the requirements of this general permit;

(b) ensure that the SWP3 identifies the parties responsible for implementation of best management practices described in the plan;

(c) ensure that the SWP3 indicates areas of the project where they have operational control over day-to-day activities;

(d) ensure that the SWP3 indicates, for areas where they have operational control over day-to-day activities, the name and TPDES permit number of the parties with operational control over project specifications (including the ability to make modifications in specifications).

Section C. Deadlines for SWP3 Preparation and Compliance

1. The SWP3 must be:

(a) completed prior to obtaining authorization under this general permit;

(b) implemented prior to commencing construction activities that result in soil disturbance;

(c) updated as necessary to reflect the changing conditions of new operators, new areas of responsibility, and changes in best management practices; and

(d) prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site.

2. Operators of a large construction activity obtaining authorization to discharge through submission of a NOI must post a notice near the main entrance of the

construction site. If the construction project is a linear construction project (e.g. pipeline, highway, etc.), the notice must be placed in a publicly accessible location near where construction is actively underway. Notice for these linear sites may be relocated, as necessary, along the length of the project. The notice must be readily available for viewing by the general public, local, state, and federal authorities, and contain the following information:

(a) the TPDES general permit number for the project (or a copy of the NOI that was submitted to the TCEQ if a permit number has not yet been assigned);

(b) the name and telephone number of a representative for the operator;

(c) a brief description of the project; and

(d) the location of the SWP3.

3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Keeping Plans Current

The permittee must revise or update the storm water pollution prevention plan whenever:

1. there is a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3; or

2. results of inspections or investigations by site operators, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must include, at a minimum, the information described in this section.

1. A site description, or project description must be developed to include:

(a) a description of the nature of the construction activity, potential pollutants and sources;

(b) a description of the intended schedule or sequence of major activities that will disturb soils for major portions of the site;

(c) the total number of acres of the entire property and the total number of acres where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas;

(d) data describing the soil or the quality of any discharge from the site;

(e) a map showing the general location of the site (e.g. a portion of a city or county map);

(f) a detailed site map (or maps) indicating the following:

(i) drainage patterns and approximate slopes anticipated after major grading activities;

(ii) areas where soil disturbance will occur;

(iii) locations of all major structural controls either planned or in place;

(iv) locations where stabilization practices are expected to be used;

(v) locations of off-site material, waste, borrow, fill, or equipment storage areas;

(vi) surface waters (including wetlands) either adjacent or in close proximity; and

(vii) locations where storm water discharges from the site directly to a surface water body.

(g) the location and description of asphalt plants and concrete plants providing support to the construction site and authorized under this general permit;

(h) the name of receiving waters at or near the site that will be disturbed or that will receive discharges from disturbed areas of the project; and

(i) a copy of this TPDES general permit.

2. The SWP3 must describe the best management practices that will be used to minimize pollution in runoff. The description must identify the general timing or sequence for implementation. At a minimum, the description must include the following components:

(a) Erosion and Sediment Controls

(i) Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local

topography, soil type, and rainfall. Controls must also be designed and utilized to reduce the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications. If periodic inspections or other information indicates a control has been used incorrectly, or that the control is performing inadequately, the operator must replace or modify the control as soon as practicable after discovery that the control has been used incorrectly, is performing inadequately, or is damaged.

(iii) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.

(iv) If sediment escapes the site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain event.

(v) Controls must be developed to limit, to the extent practicable, offsite transport of litter, construction debris, and construction materials.

(b) Stabilization Practices

The SWP3 must include a description of interim and permanent stabilization practices for the site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where it is possible.

(i) Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

(ii) The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties in Part III.D.1 of this general permit:

(a) the dates when major grading activities occur;

(b) the dates when construction activities temporarily or permanently cease on a portion of the site; and

(c) the dates when stabilization measures are initiated.

(iii) Stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in (a) through (c) below, must be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a) Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

(b) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site.

(c) In arid areas (areas with an average rainfall of 0 to 10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

3. Structural Control Practices

The SWP3 must include a description of any structural control practices used to divert flows away from exposed soils, to limit the contact of runoff with disturbed areas, or to lessen the off-site transport of eroded soils.

(a) Sediment basins are required, where feasible for common drainage locations that serve an area with ten (10) or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. Where rainfall data is not available or a calculation cannot be performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained is required where attainable until final stabilization of the site. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone final stabilization, if

these flows are diverted around both the disturbed areas of the site and the sediment basin. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area on site, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater and other similar considerations. Where sediment basins are not feasible, equivalent control measures , which may include a series of smaller sediment basins, must be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area.

(b) Sediment traps and sediment basins may also be used to control solids in storm water runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures, may be provided or where rainfall data is not available or a calculation cannot be performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained may be provided.

4. Permanent Storm Water Controls

A description of any measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site or prior to submission of an NOT.

5. Other Controls

(a) Off-site vehicle tracking of sediments and the generation of dust must be minimized.

(b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to reduce pollutants from these materials.

(c) The SWP3 must include a description of pollutant sources from areas other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(d) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

6. Approved State and Local Plans

(a) Permittees must ensure the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by federal, state, or local officials.

(b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or storm water management site plans or site permits approved by state or local official for which the permittee receives written notice.

7. Maintenance

All erosion and sediment control measures and other protective measures identified in the SWP3 must be maintained in effective operating condition. If through inspections the permittee determines that BMPs are not operating effectively, maintenance must be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

8. Inspections of Controls

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable

(a) Personnel provided by the permittee and familiar with the SWP3 must inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified in the SWP3 must be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized, where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches), inspections must be conducted at least once every month.

As an alternative to the above-described inspection schedule of once every fourteen (14) calendar days and within twenty four (24) hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection.

(b) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.8.(a) above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion. In these circumstances, controls must be inspected at least once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.8.(a) above. The conditions of the controls along each inspected 0.25 mile segment may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile segment to either the end of the next 0.25 mile inspected segment, or to the end of the project, whichever occurs first.

As an alternative to the above-described inspection schedule of once every fourteen (14) calendar days and within twenty four (24) hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection.

(c) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever

possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

(d) A report summarizing the scope of the inspection, names and qualifications of personnel making the inspection, the dates of the inspection, and major observations relating to the implementation of the SWP3 must be made and retained as part of the SWP3. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Actions taken as a result of inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports)

9. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-storm water components of the discharge.

Part IV. Numeric Effluent Limitations

Section A. Limitations

All discharges of storm water runoff from concrete batch plants that qualify for coverage, and that are authorized to discharge storm water under the provisions of this general permit must be monitored at the following monitoring frequency and comply with the following numeric effluent limitations:

	Limitations	Monitoring
Parameter	Daily Maximum	Frequency
Total Suspended Solids	65 mg/l	1/Year*
Oil and Grease	15 mg/l	1/Year*
pH	between 6 and 9 standard units	1/Year*

* If discharge occurs.

Section B. Reporting Requirements

Results of monitoring for determining compliance with numeric effluent limitations must be recorded on a discharge monitoring report (DMR). The DMR must either be an original EPA No. 3320-1 form (Attachment 3 of this general permit), a duplicate of the form, or as otherwise provided by the executive director. Monitoring must be conducted prior to December 31st for each annual

monitoring period. A copy of the DMR must either be retained at the facility or shall be made readily available for review by authorized TCEQ personnel upon request, by March 31st following the end of each annual monitoring period. If the results indicate the violation of one or more of these numeric limitations, the permittee must also submit the DMR to the TCEQ's Information Resources Center (MC 212) by March 31st of each annual monitoring period.

Part V. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required by Part II.D. For activities that are not required to submit an NOT, records shall be retained for a minimum period of three (3) years from the date that either: final stabilization has been achieved on all portions of the site that is the responsibility of the permittee; or another permitted operator has assumed control according to over all areas of the site that have not been finally stabilized. Records include:

1. A copy of the SWP3 plan.
2. All reports and actions required by this permit, including a copy of the construction site notice.
3. All data used to complete the NOI, if an NOI is required for coverage under this general permit.

Part VI. Standard Permit Conditions

1. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued, and is grounds for enforcement action, for terminating coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit.

2. Authorization under this general permit may be suspended or revoked for cause. Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for revoking, suspending, or terminating authorization under this permit. Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.

3. It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.

4. Inspection and entry shall be allowed under Texas Water Code Chapters 26-28, Health and Safety Code §§ 361.032-361.033 and 361.037, and 40 Code of Federal Regulations (CFR) §122.41(i). The statement in Texas Water Code § 26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the

facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.

5. The discharger is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§ 26.136, 26.212, and 26.213 for violations including but not limited to the following:

   a. negligently or knowingly violating CWA, §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA, § 402, or any requirement imposed in a pretreatment program approved under CWA, §§ 402(a)(3) or 402(b)(8);

   b. knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance.

6. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

7. Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.

Part VII. Fees

Section A. Application Fees

An application fee of $100 must be submitted with each NOI for coverage of a large construction activity. A fee is not required for submission of an NOT or NOC letter.

Section B. Water Quality Fees

Large construction activities authorized under this general permit must pay an annual Water Quality Fee of $100 under Texas Water Code 26.0291 and according to TAC Chapter 205 (relating to General Permits for Waste Discharges).

Appendix A.
Periods of Low Erosion Potential by County

Start Date - End Date
Dec. 15 - Feb. 14
Archer
Baylor
Brown
Callahan
Childress
Coke
Coleman
Concho
Cottle
Dimmit
Eastland
Edwards
Fisher
Foard
Hardeman
Haskell
Irion
Jones
Kerr
Kimble
King
Kinney
Knox
Mason
Maverick
McCulloch
Menard
Nolan
Real
Runnels
Schleicher
Shackelford
Stephens
Stonewall
Sutton
Taylor
Throckmorton
Tom Green
Uvalde
Wichita
Wilbarger
Young
Zavala

Start Date - End Date
Nov. 15 - Apr. 30
Andrews
Armstrong
Borden
Brewster
Briscoe
Carson
Castro
Crane
Crosby
Dawson
Deaf Smith
Ector
Floyd
Gaines
Garza
Glasscock
Hale
Hansford
Hartley
Howard
Hutchinson
Lubbock
Lynn
Martin
Midland
Mitchell
Moore
Oldham
Pecos
Potter
Randall
Reagan
Scurry
Sherman
Sterling
Swisher
Terrell
Terry
Upton

Start Date - End Date
Feb. 1 - Mar. 30
Hall

Start Date - End Date
Nov. 15 - Jan. 14 or **Feb. 1 - Mar. 30**
Crockett
Dickens
Kent
Motley
Val Verde

Start Date - End Date
Nov. 1 - Apr. 14 or **Nov. 15 - Apr. 30**
Dallam
Hockley
Lamb
Parmer
Ward

Start Date - End Date
Nov. 1 - Apr. 30 or **Nov. 15 - May. 14**
Bailey
Cochran
Jeff Davis
Loving
Presidio
Reeves
Winkler
Yoakum

Start Date - End Date
Nov. 1 - May. 14
Culberson
Hudspeth

Start Date - End Date
Jan. 1 - Jul. 14 or **May. 15 - Jul. 31** or
Jun. 1 - Aug. 14 or **Jun. 15 - Sept. 14** or
Jul. 1 - Oct. 14 or **Jul. 15 - Oct. 31** or
Aug. 1 - Apr. 30 or **Aug. 15 - May. 14** or
Sept. 1 - May. 30 or **Oct. 1 - Jun. 14** or
Nov. 1 - Jun. 30 or **Nov. 15 - Jul. 14**
El Paso

Start Date - End Date
Jan. 1 - Mar. 30 or **Dec. 1 - Feb. 28**
Collingsworth
Donley
Gray
Hemphill
Lipscomb
Ochiltree
Roberts
Wheeler

CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.1.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	

For Construction Sites Authorized Under Part II.D.1. the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization by waiver under Part II.D.1. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. Construction activities at this site shall occur within a time period listed in Appendix A of the TPDES general permit for this county, that period beginning on _____and ending on _____. I understand that if construction activities continue past this period, all storm water runoff must be authorized under a separate provision of this general permit. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature and Title Date

CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	
Project Description: ((Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	
Location of Storm Water Pollution Prevention Plan :	

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature and Title Date

CONCRETE BATCH FACILITIES

STW/ TXR15_____/ CO

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME

ADDRESS

FACILITY LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER

NOTE: Enter your permit number in the underlined space in the upper right hand corner of this page. Example: STW/TXR15 00123/ CO

Mail to: TCEQ (MC 212)
P.O. Box 13087
Austin, TX 78711-3087

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
	01	01		12	31
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

☐

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(46-53) MAXIMUM	(54-61) UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Total Suspended Solids	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******					
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	65 Daily Max	mg/l		1/Year	Grab
Oil & Grease	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******					
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	15 Daily Max	mg/l		1/Year	Grab
pH	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******					
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	6.0 - 9.0 Range	S.U.		1/Year	Grab
	SAMPLE MEASUREMENT										
	SAMPLE REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.						
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA Form 3320-1 (3-99) (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED) PAGE OF
Form Approved OMB No. 2040-004

CHAPTER 4

BEST MANAGEMENT PRACTICES

4.1 Overview

In order to address the requirements of pollution reduction at construction sites, a variety of techniques should be employed to reduce soil erosion, reduce site sediment loss, and manage construction-generated waste and construction related toxic materials. This section provides design criteria for a variety of techniques to address these issues. These Best Management Practices (BMPs) consist of both temporary and permanent methods to reduce pollution from a construction site.

The majority of BMPs address soil loss from the site. For construction sites, soil loss in the form of erosion and sediment due to storm events and wind constitute the majority of pollution generated from construction sites. BMPs that address erosion and sediment control are typically more site specific than waste and toxics management. Erosion and sediment control BMPs are dependent on site slopes, drainage patterns and drainage quantities along with other site-specific conditions. Materials and waste management consists primarily of "good housekeeping" practices which are dependent on the type of construction and the quantity and type of building materials.

4.2 BMP Selection Guide

In preparing the SWPPP, the designer can first use the BMP selection guide on the following pages to determine BMPs applicable to the site. The fact sheets following the selection guide detail the design requirements, maintenance requirements, limitations, and purpose of each of the techniques. These provide the tools for the designer to select the appropriate BMPs and properly locate them on the site, effectively reducing erosion and sediment loss.

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed, installed, and maintained in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm. The ratings are useful in comparing the effectiveness of the BMPs. The Efficiency Rating is also used in calculating the Site Rating, which is used by some local governments to ensure adequate SWPPP Design. Appendix E has additional details concerning the BMP Efficiency Ratings and the methodology for calculating the Site Rating.

4.2.1 Erosion Prevention

These BMPs protect the soil to reduce erosion. They are primarily used in perimeter areas around construction sites to either limit flows across the site or limit the erosion in areas disturbed but not active.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
E-1	Interceptor Swale	Route flows around areas of disturbance	1.0
E-2	Diversion Dike	Route flows around areas of disturbance	1.0
E-3	Pipe Slope Drain	Route overland flow on a slope into a pipe to protect the slope	Varies
E-4	Vegetation	Provide natural soil protection through seeding, hydromulch or phasing	0.90
E-5	Mulching	Protect disturbed soil with a layer of hay, straw, or other material	0.90
E-6	Erosion Control Blankets	Protect disturbed soil or slopes with geotextile and biodegradable fabrics	0.90
E-7	Channel Protection	Protects the soil through the use of grass-lining, turf reinforcement mats, or riprap	Varies
E-8	Dust Control	Techniques to limit wind erosion and air-borne soil particles from leaving site	Varies

4.2.2 Sediment Loss Prevention

Construction activities normally result in disturbance on the site due to grading operations, clearing and other operations. Erosion will occur in these disturbed areas and BMPs must be used to contain the sediment from these disturbed areas. The following techniques reduce soil loss from the site by retaining the soil through sedimentation or filtration of the runoff.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
S-1	Silt Fence	Slow and filter runoff to retain sediment	0.75
S-2	Organic Filter Berm	Slow and filter runoff to retain sediment	0.75
S-3	Triangular Sediment Filter Dike	Similar to silt fence but more portable, reusable and sturdy with high flows	0.75
S-4	Inlet Protection	Intercept sediment at curb and field inlets. Should be used in conjunction with other onsite techniques	Varies
S-5	Stone Outlet Sediment Trap	Intercept and filter small concentrated flows such as small creeks and defined waterways	0.85

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed and installed in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
S-6	Sediment Basin	Large pond with controlled outflow which allows sediment to settle out of runoff	0.90
S-7	Check Dam	Provide minor detention and retention of sediment for small swales and concentrated flows	0.50
S-8	Temporary Sediment Tank	Provide sedimentation for sediment laden runoff from trenches and depressed areas	0.70
S-9	Stabilized Construction Entrance	Reduce offsite sediment tracking from trucks and construction equipment	N/A
S-10	Wheel Wash	Reduce offsite sediment tracking from trucks and construction equipment	N/A

4.2.3 Materials and Waste Management

These techniques will be applied on the majority of construction projects due to their general topic of reducing waste from construction activities. They form the basis of general housekeeping procedures that should be followed during construction.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
M-1	Debris and Trash Management	Techniques for management of paper, packaging, general building materials, etc.	Very Effective
M-2	Chemical Management	Techniques for management of paints, chemicals, fertilizer, oil and grease, etc.	Very Effective
M-3	Concrete Waste Management	Techniques for disposal of concrete washout, demolished concrete, etc.	Very Effective
M-4	Concrete Sawcutting Waste Management	Techniques for disposal of concrete cuttings from concrete sawing	Effective
M-5	Sandblasting Waste Management	Techniques for disposal of sandblasting waste and containment of wastes during operations	Effective
M-6	Lime Stabilization Management	Control lime runoff from areas being stabilized with hydrated or quicklime	Effective
M-7	Sanitary Facilities	Techniques for control of sanitary waste	Effective

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed and installed in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm.

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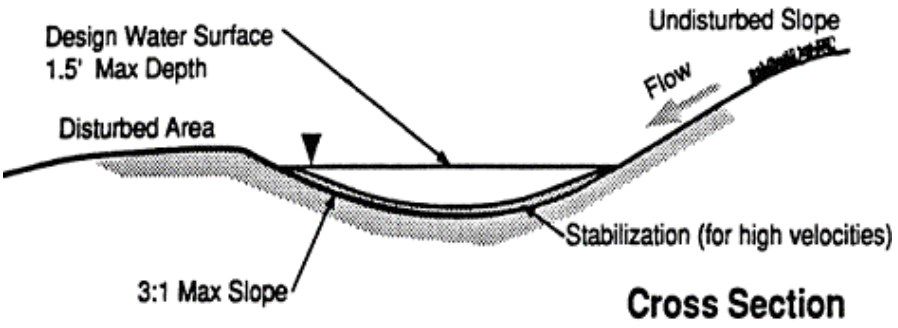
Interceptor Swale



DESCRIPTION
An interceptor swale is a small v-shaped, trapezoidal, or parabolic channel that collects runoff and directs it to a desired location. It can either have a natural grass lining or, depending on slope and design velocity, a protective lining of erosion control matting, crushed stone or concrete.

PRIMARY USE
The interceptor swale can either be used to direct sediment-laden flow from disturbed areas into a controlled outlet or to direct 'clean' runoff around disturbed areas. Since the swale is easy to install during early grading operations, it can serve as the first line of defense in reducing runoff across disturbed areas. As a method of reducing runoff across the disturbed construction area, it reduces the requirements of structural measures to capture sediment from runoff since the flow is reduced. By intercepting sediment laden flow downstream of the disturbed area, runoff can be directed into a sediment basin or other BMP for sedimentation as opposed to long runs of silt fence or other filtration method.

Base on site topography, swales can be effectively used in combination with diversion dikes.

APPLICATIONS
Common applications for interceptor swales include roadway projects, site development projects with substantial offsite flow impacting the site and sites with a large area(s) of disturbance. It can be used in conjunction with diversion dikes to intercept flows. Temporary swales can be used throughout the project to direct flows away from staging, storage and fueling areas along with specific areas of construction. Note that runoff which crosses disturbed areas or is directed into unstabilized swales must be routed into a treatment BMP such as a sediment basin.

Grass lined swales are an effective permanent stabilization technique. The grass effectively filters both sediment and other pollutants while reducing velocity.

DESIGN CRITERIA
- ❑ Maximum depth of flow in the swale shall be 1.5 feet based on a 2-year return period design storm peak flow. Positive overflow must be provided to accommodate larger storms.

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ◒ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=1.00

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Interceptor Swale

- The maximum contributing drainage area should be 5 acres or less depending on site conditions.
- Channels may be trapezoidal, parabolic, or v-shaped; however v-shaped channels may be difficult to stabilize, so they are generally used only where the volume and rate of flow is low.
- Side slopes of the swale shall be 3:1 or flatter.
- Minimum design channel freeboard shall be 6 inches.
- For grades less than 2 percent and velocities less than 6 feet per second, the minimum required channel stabilization shall be grass, erosion control mats or mulching. For grades in excess of 2 percent or velocities exceeding 6 feet per second, stabilization is required in the form of turf reinforcement mats (or a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions). Velocities greater than 8 feet per second will require approval by the local jurisdiction and is discouraged.
- Check dams can be used to reduce velocities in steep swales. See BMP S-7,Check Dam, for design criteria.
- Interceptor swales must be designed for flow capacity based on Manning's Equation to ensure a proper channel section. Alternate channel sections may be used when properly designed and accepted.
- Consideration must be given to the possible impact that any swale may have on upstream or downstream conditions.
- Swales must maintain a negative grade to a controlled outlet.
- Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment-trapping device.

LIMITATIONS

Interceptor swales must be stabilized quickly upon excavation so as not to contribute to the erosion problem they are addressing.

Swales may be unsuitable to the site conditions (too flat or steep).

For permanent swales, the 1.5 feet maximum depth can be increased as long as provisions for public safety are implemented.

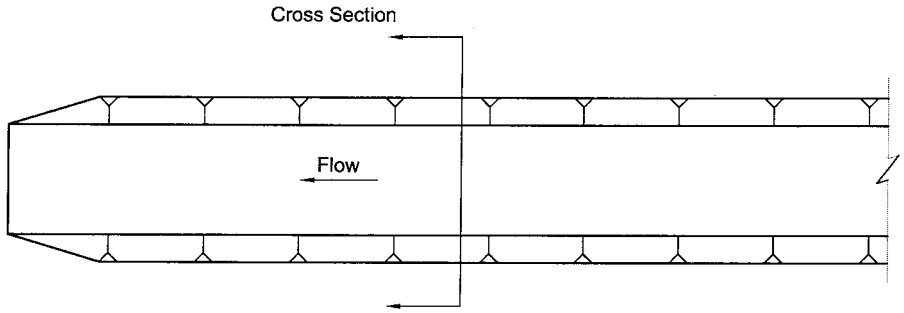
MAINTENANCE REQUIREMENTS

Swales should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to locate and repair any damage to the channel or to clear debris or other obstructions so as not to diminish flow capacity. Damage from storms or normal construction activities such as tire ruts or disturbance of swale stabilization shall be repaired as soon as practical.

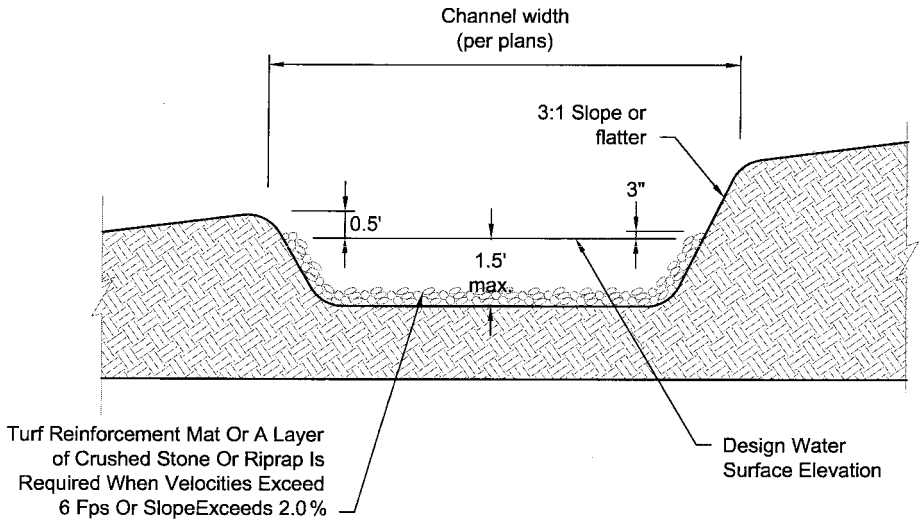
SPECIFICATIONS

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.6 Interceptor Swale.

Interceptor Swale



Plan View



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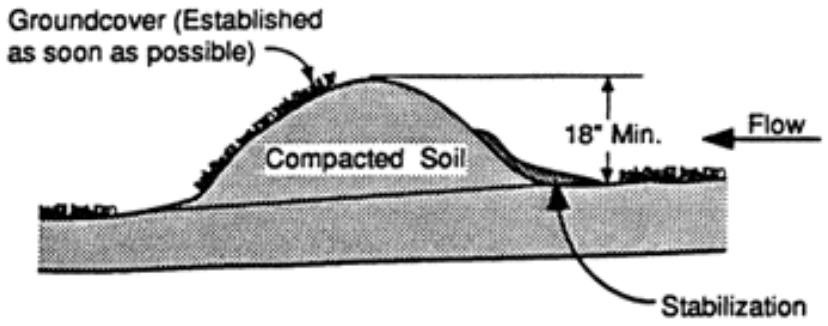
Diversion Dike



DESCRIPTION
A diversion dike is a compacted soil mound, which redirects runoff to a desired location. The dike is typically stabilized with natural grass for low velocities or with stone or erosion control mats for higher velocities.

PRIMARY USE
The diversion dike is normally used to intercept offsite flow upstream of the construction area and direct the flow around the disturbed soils. It can also be used downstream of the construction area to direct flow into a sediment reduction device such as a sediment basin or protected inlet. The diversion dike serves the same purpose as an interceptor swale and, based on the topography of the site, can be used in combination with an interceptor swale.

APPLICATIONS
By intercepting runoff before it has the chance to cause erosion, diversion dikes are very effective in reducing erosion at a reasonable cost. They are applicable to a large variety of projects including site developments and linear projects such as roadways and pipeline construction. Diversion dikes are normally used as perimeter controls for construction sites with large amounts of offsite flow from neighboring properties. Used in combination with swales, the diversion dike can be quickly installed with a minimum of equipment and cost, using the swale excavation material to construct the dike. No sediment removal technique is required if the dike is properly stabilized and the runoff is intercepted prior to crossing disturbed areas.

Significant savings in structural controls can be realized by using diversion dikes to direct sheet flow to a central area such as a sediment basin or other sediment reduction structure if the runoff crosses disturbed areas

DESIGN CRITERIA
- ❑ The maximum contributing drainage area should be 5 acres or less depending on site conditions.
- ❑ Maximum depth of flow at the dike shall be 1 foot based on a 2-year return period design storm peak flow.
- ❑ Side slopes of the diversion dike shall be 3:1 or flatter.
- ❑ Minimum width of the embankment at the top shall be 2 feet.
- ❑ Minimum embankment height shall be 18 inches as measured from the toe of slope on the upgrade side of the berm.

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ◒ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=1.00

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Diversion Dike

- For grades less than 2 percent and velocities less than 6 feet per second, the minimum required channel stabilization shall be grass, erosion control mats or mulching. For grades in excess of 2 percent or velocities exceeding 6 feet per second, stabilization is required in the form of turf reinforcement mats (or a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions). Velocities greater than 8 feet per second will require approval by the local jurisdiction and is discouraged.
- The dikes shall remain in place until all disturbed areas, which are protected by the dike are permanently stabilized unless other controls are put into place to protect the disturbed area.
- The flow line at the dike shall have a positive grade to drain to a controlled outlet.
- Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment-trapping device.
- Soil used in construction of the dike can be on-site material. It should be free of rocks larger than three inches in diameter and should be clay, silty clay or sandy clay with a plasticity index greater than 25. If only low PI material is available, it will be necessary to armor the slopes with stone or geotextile to prevent erosion of the dike.

LIMITATIONS

Compacted earth dikes require stabilization immediately upon placement so as not to contribute to the problem they are addressing.

The diversion dikes can be a hindrance to construction equipment moving on the site; therefore their locations must be carefully planned prior to installation.

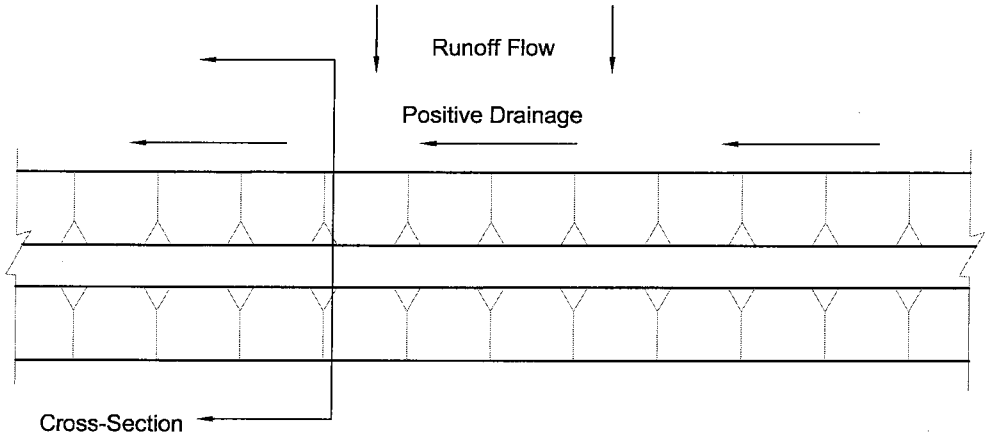
MAINTENANCE REQUIREMENTS

Dikes should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to determine if silt is building up behind the dike, or if erosion is occurring on the face of the dike. Silt shall be removed in a timely manner. If erosion is occurring on the face of the dike, the face of the slopes shall either be stabilized through mulch or seeding or the slopes shall be flattened.

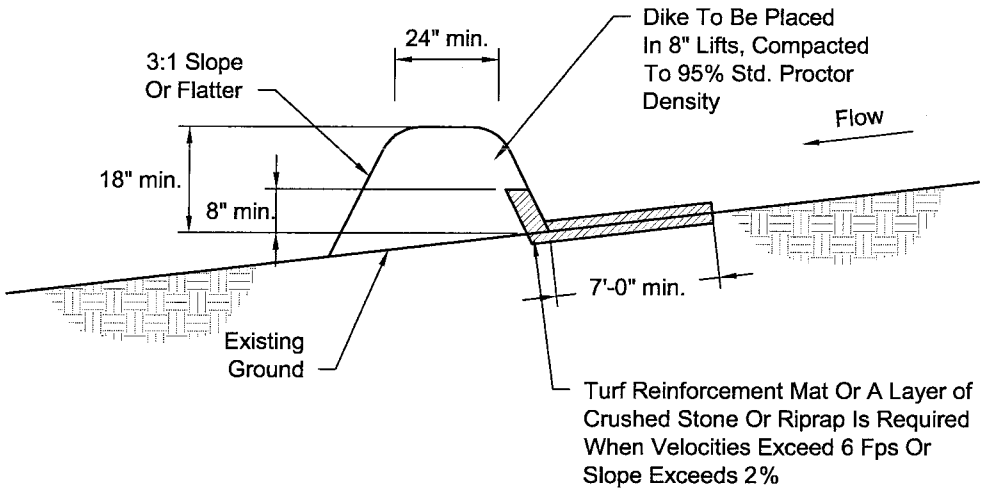
SPECIFICATIONS

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.7 Diversion Dike.

Diversion Dike



Plan View



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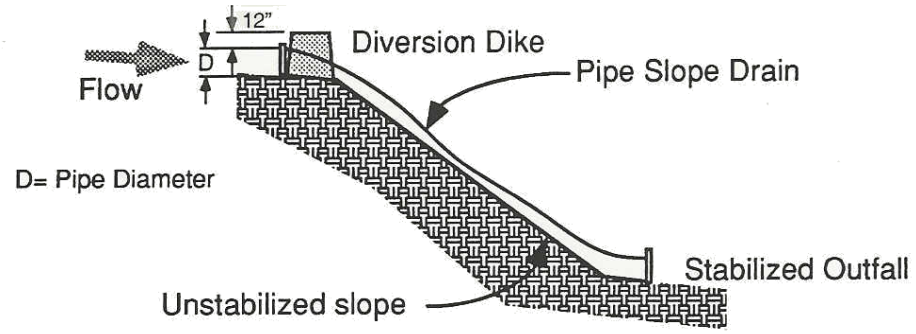
Pipe Slope Drain



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION
A pipe slope drain is a temporary (or permanent) pipeline typically utilizing flexible pipe that conveys runoff down unstabilized slopes. The drain is anchored on the upstream end with some form of headwall to limit erosion and secure the pipe.

PRIMARY USE
Pipe slope drains are used to protect preliminary and final graded slopes during establishment of temporary and permanent ground covers. They are used on sites with a long, unstabilized, steep slope area that is subject to erosion from overland flow. They are normally used in combination with interceptor swales or diversion dikes to direct the flow into the pipe area. The pipe slope drain can provide service for a relatively large area. It does not treat the runoff, therefore if the runoff contains sediment, treatment through a controlled outlet will be required before the flow is released offsite.

APPLICATIONS
Sites with large berms or grade changes such as roadway embankments are candidates for a pipe slope drain. Since provisions must be made to direct the flow into the pipe drain, some grading is normally required upstream of the pipe slope drain. Installed properly, slope erosion can be greatly reduced (but not entirely eliminated) through the use of the drain.

Pipe slope drains also require a stabilized outlet. This is critical since the velocities at the outfall are normally high. Velocity dissipators such as stone or concrete rip-rap are typically required to reduce the velocity and spread the flow, reducing erosion. Flow from a pipe slope drain should be routed to a sediment reduction practice (BMP with S prefix) through interceptor swales, diversion dikes or other suitable methods.

DESIGN CRITERIA
- ❑ The entrance to the pipe slope drain may be a standard corrugated metal pre-fabricated flared end section with an integral toe plate extending a minimum of 6 inches from the bottom of the end section.
- ❑ The grade of the entrance shall be 3 percent maximum.
- ❑ The berm at the entrance shall have a minimum height of the pipe diameter + 12" and a minimum width of 3 times the pipe diameter.
- ❑ All sections of the pipe slope drain shall be connected using watertight collars or gasketed watertight fittings.

Targeted Constituents
- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

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Pipe Slope Drain

- All sediment-laden runoff conveyed by the pipe slope drain shall be directed to a sediment trapping facility.
- The pipe shall be secured with hold down anchors spaced 10 feet on center.
- Temporary pipe slope drains are to be sized to accommodate runoff flows equivalent to a 10-year storm as calculated using the Rational Method and Manning's equation, but in no case shall pipes be sized smaller than shown on the following table:

Minimum Pipe Size	Maximum Contributing Drainage Area
12"	0.5 Acres
18"	1.5 Acres
21"	2.5 Acres
24"	3.5 Acres
30"	5.0 Acres

- Maximum drainage areas for individual pipe slope drains shall be 5 acres. For areas larger than 5 acres, additional drains shall be added.
- Both the entrance and outfall of the pipe slope drain should be properly stabilized. Grass can normally be used at the entrance, but armor type stabilization such as stone or concrete riprap is normally required to address the high velocities of the outfall.
- A riprap lined apron shall be excavated to accept the discharge from the pipe and dissipate the energy of the flow. The width of the bottom of the apron shall be 3 times the pipe diameter, and the length shall be a minimum of 6 times the pipe diameter of the drain pipe. The apron shall be a minimum of 12 inches in depth and shall be lined with riprap weighing between 50 and 150 pounds per stone at a thickness of 12 inches minimum. The apron shall be designed so that the released flow has a velocity less than 3 feet per second.

LIMITATIONS

- Drains must be located away from construction areas since the drain can easily be damaged by construction traffic.
- Grading is normally required upstream of the pipe slope drain in order to direct flow into the system. This can cause additional cost and maintenance. Securing the pipe to the slope can be difficult and require significant maintenance during the life of the system.
- In situations where pipe slope drains convey sediment-laden runoff, pipes can become clogged during large rain events causing water to overtop the diversion dike thereby creating a serious erosion condition.
- A pipe slope drain reduces erosion but does not prevent it or reduce the amount of sediment in runoff. Additional measures should be used in conjunction with the pipe slope drain to treat the flow.

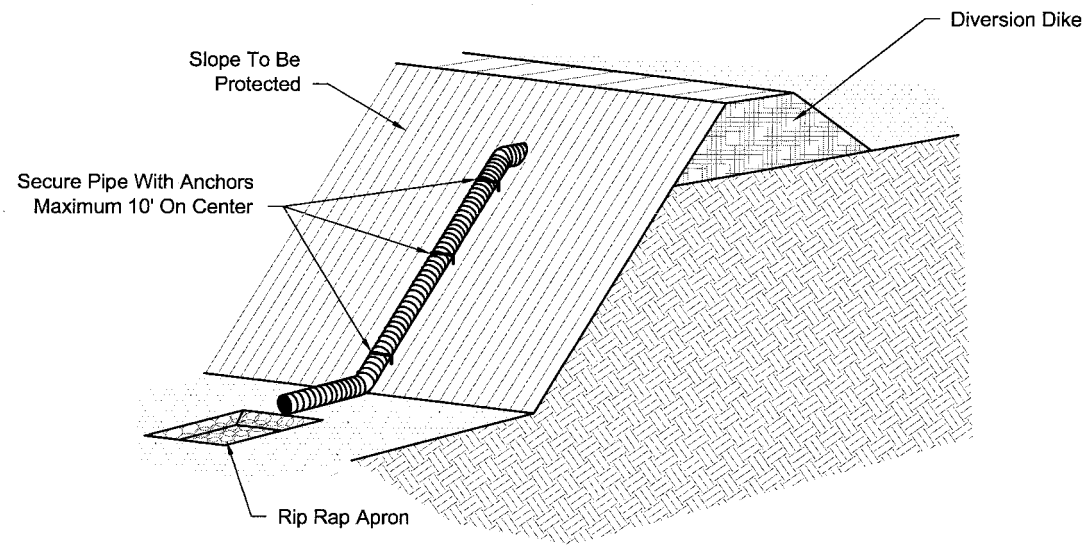
MAINTENANCE REQUIREMENTS

Pipe slope drains should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to locate and repair any damage to joints or clogging of the pipe. In cases where the diversion dike has deteriorated around the entrance of the pipe, it may be necessary to reinforce the dike with sandbags or to install a concrete collar to prevent failure. Signs of erosion around the pipe drain should be addressed in a timely manner by stabilizing the area with erosion control mats, crushed stone, concrete, or other acceptable methods.

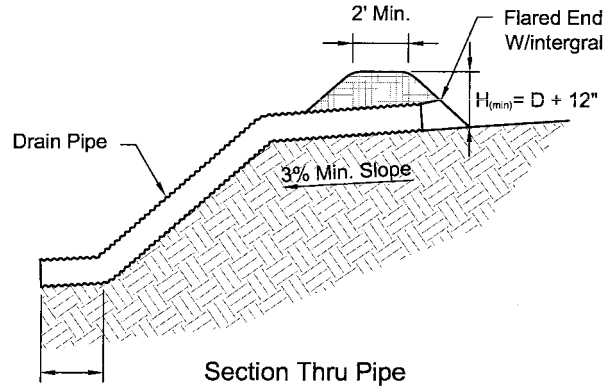
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.14 Pipe Slope Drain.

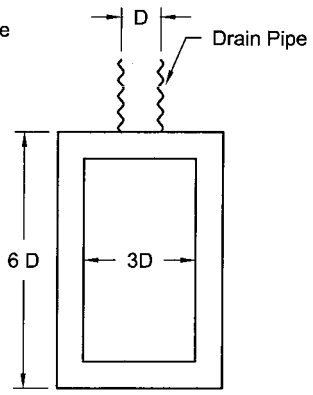
Pipe Slope Drain



Isometric Plan View



Section Thru Pipe



Riprap Apron Plan View

Riprap shall consist of 50 to 150 pound stones placed in a layer of not less than 12 inches. The depth of the apron shall equal the pipe diameter but in no case shall it be less than 12 inches.

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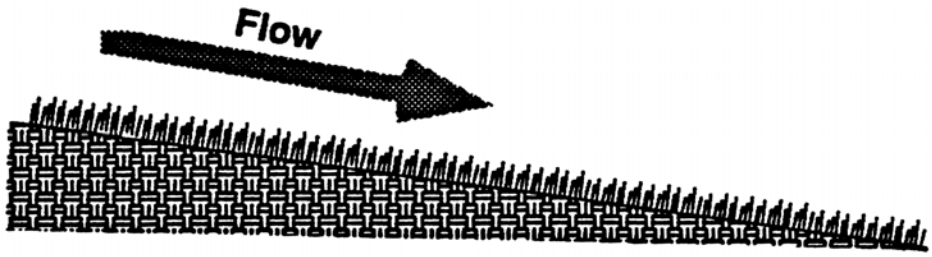
Vegetation



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION
Vegetation, as a Best Management Practice, is the sowing or sodding of annual grasses, small grains, or legumes to provide interim and permanent vegetative stabilization for disturbed areas.

PRIMARY USE
Vegetation is used as a temporary or permanent stabilization technique for areas disturbed by construction. As a temporary control, vegetation is used to stabilize stockpiles and barren areas that are inactive for long periods of time. As a permanent control, grasses and other vegetation provide good protection from erosion along with some filtering for overland runoff. Subjected to acceptable runoff velocities, vegetation can provide a positive method of permanent storm water management as well as a visual amenity to the site.

Other BMPs may be required to assist during the establishment of vegetation. These other techniques include erosion control matting, swales, and dikes to direct flow around newly seeded areas and proper grading to limit runoff velocities during construction.

APPLICATIONS
Vegetation effectively reduces erosion in swales, stockpiles, berms, mild to medium slopes, and along roadways. Vegetative strips can provide some protection when used as a perimeter control for utility and site development construction.

In many cases, the initial cost of temporary seeding may be high compared to tarps or covers for stockpiles or other barren areas subject to erosion. This initial cost should be weighed with the amount of time the area is to remain inactive, since maintenance cost for vegetated areas is much less than most structural controls.

DESIGN CRITERIA
Surface Preparation

- ❑ Interim or final grading must be completed prior to seeding or sodding.
- ❑ Install all necessary erosion structures such as dikes, swales, diversions, etc. prior to seeding or sodding.
- ❑ When establishing vegetation from seed, groove or furrow slopes steeper than 3:1 on the contour line before seeding.

Targeted Constituents

- ● Sediment
- ◒ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

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Vegetation

- ❑ Provide 4-6 inches of topsoil over rock, gravel or otherwise unsuitable soils. Poor quality topsoil should be amended with compost before applying seed or sod. Amendment should be three parts of topsoil to one part compost by volume thoroughly blended.
- ❑ Seed bed should be well pulverized, loose and uniform.

Plant Selection, Fertilization and Seeding

- ❑ Use only high quality, USDA certified seed.
- ❑ Use an appropriate species or species mixture adapted to local climate, soil conditions and season as shown below, or consult with the local office of the Natural Resource Conservation Service (NRCS) or Engineering Extension service as necessary for selection of proper species and application technique in this area.
- ❑ Seeding rate should be in accordance with the table below or as recommended by the NRCS or Engineering Extension service.
- ❑ Fertilizer shall be applied according to the manufacturer's recommendation with proper spreader equipment. Typical application rate for 10-10-10 grade fertilizer is 10 lbs. per 1,000 ft^2.
- ❑ If hydro-seeding is used, do not mix seed and fertilizer more than 30 minutes before application.
- ❑ Evenly apply seed using cyclone seeder, seed drill, cultipacker, terraseeding, or hydroseeder.
- ❑ Provide adequate water to aid in establishment of vegetation.
- ❑ Use appropriate mulching techniques where necessary, especially during cold periods of the year.

Sodding

- ❑ Sod shall be St. Augustine grass, common bermudagrass, buffalograss, an approved hybrid of common Bermudagrass or an approved zoysiagrass.
- ❑ The sod should be mowed prior to sod cutting so that the height of the grass shall not exceed 2-inches and should not be harvested or planted when its moisture condition is so excessively wet or dry that its survival shall be affected.
- ❑ Sod shall be planted within 3-days after it is excavated.
- ❑ In areas subject to direct sunlight, pre-moisten prepared sod bed by watering immediately prior to placing sod.
- ❑ Sodded areas shall be thoroughly watered immediately after they are planted.

ADDITIONAL GUIDANCE

- ❑ Establishing a good vegetative cover is dependent of the season of the year. Projects that commence in the fall of the year may not be candidates for vegetation used as a BMP.
- ❑ Where vegetation is used in swales and channels it may be necessary to use sod, rather than seeding, to establish an erosion resistant surface to accommodate rainfall runoff flows.
- ❑ Where vegetation is used for perimeter control, the use of sod is necessary for a fifteen-foot width.
- ❑ Mulch should be used to enhance vegetative growth, in that mulch protects seeds from heat, prevents soil moisture loss, and provides erosion protection until the vegetation is established.
- ❑ Fertilizers have both beneficial and adverse effects. Fertilizers provide nutrients to the vegetation, but also fertilizers are a source of nutrients to streams and lakes. In this latter regard they are a pollutant. The use of native vegetation rather than exotics reduces the need of fertilizer. Organic fertilizers are generally preferred over chemical fertilizers from the standpoint of environmental conditions.
- ❑ Steep slopes represent a problem for establishing vegetation. Bonded Fiber Matrix or Mechanically Bonded Fiber Matrix products applied with a tackifier are useful for establishing vegetation on slopes.

TEMPORARY VEGETATION

The table on the following page lists recommended plant species for the North Central Texas region depending on the season for planting.

Vegetation

RECOMMENDED GRASS MIXTURE FOR TEMPORARY EROSION CONTROL:

SEASON	COMMON NAME	RATE (LBS/ACRE)
Aug 15 - Nov 30	Tall Fescue Western Wheat Grass Wheat (Red, Winter)	4.0 5.0 30.0
May 1 - Aug 31	Foxtail Millet	30.0
Feb 15 – May 31 Sep 1 – Dec 31	Annual Rye	20.0

PERMANENT VEGETATION

Grass seed for permanent vegetation can be sown at the same time as seeding for temporary (annual) vegetation. Drought tolerant native vegetation is recommended rather than exotics as a long-term water conservation measure. Native grasses can be planted as seed or placed as sod. Buffaloe 609, for example, is a hybrid grass that is placed as sod. Fertilizers are not normally used to establish native grasses, but mulching is effective in retaining soil moisture for the native plants.

RECOMMENDED NATIVE GRASSES FOR PERMANENT EROSION CONTROL

GRASS		RATE
Buffaloe Grass	Full Turf Application	3-4 lbs/1000 sqft
Blue Grama	Full Turf Application	2 lbs/1000 sqft
Side Oats Grama	Applied with other native seed	¼ lb/1000 sqft

LIMITATIONS

Vegetation is not appropriate for areas subjected to heavy pedestrian or vehicular traffic. As a temporary technique, vegetation may be costly when compared to other techniques. Vegetation may require a period of days to weeks before becoming established. Lack of water and lack of or improper use of soil amendments (compost, fertilizer, etc.) will usually result in poor turf establishment. Alternate erosion control (e.g. mulching, sodding vegetative strips, etc) should be used until vegetation can be established.

Vegetation is not appropriate for rock, gravel or coarse-grained soils unless 4 to 6 inches of topsoil is applied.

MAINTENANCE REQUIREMENTS

Protect newly seeded areas from excessive runoff and traffic until vegetation is established. A watering and fertilizing schedule will be required as part of the SWPPP to assist in the establishment of the vegetation. Vegetation should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to ensure that the plant material is established properly and remains healthy. Bare spots shall be reseeded and/or protected from erosion by mulch or other BMP. Accumulated sediment deposited by runoff should be removed to prevent smothering of the vegetation. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

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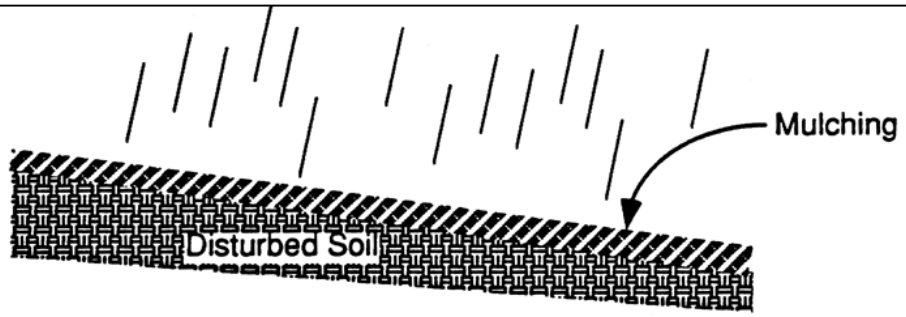
Mulching



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION

Mulching is the application of a layer of chopped straw, hay, chipped site vegetation, or other material, which is spread uniformly over barren areas to reduce the effects of erosion from rainfall. Types of mulch include organic materials (e.g. compost mixtures), straw, wood chips, bark, or other fibers. Another form of mulch, which has been commercialized, uses straw or other material with organic and inorganic binding systems which are typically sprayed over the control area. Some of these products may be very effective on steeper slopes where there is no vehicular or foot traffic to disrupt the application until vegetation is established. Mulch should not contain chipped manufactured boards or chemically treated wood such as particleboard, railroad ties or similar treated wood. Hay should not be used as a replacement for straw unless it can be determined that it is weed and seed free.

PRIMARY USE

Mulch is used to temporarily and/or permanently stabilize bare or freshly seeded areas. It protects the soil from erosion and moisture loss by lessening the effects of wind, water, and sunlight. It also decreases the velocity of sheet flow, thereby reducing the volume of sediment-laden water flow leaving the mulched area.

APPLICATIONS

Mulch may be used on most construction-related disturbed area for surface protection including:

- ❑ Freshly seeded or planted areas,
- ❑ Areas at risk due to the time period being unsuitable for growing vegetation,
- ❑ Areas that are not conducive to seeding or planting.
- ❑ Steep slopes (e.g. >3H:1V), provided the mulch is anchored to the soil by use of a combination of tackifiers and netting, or crimping.

DESIGN CRITERIA

Mulch may be used by itself or in combination with netting or other anchors to promote soil stabilization.

- ❑ Choice of mulch depends largely on slope, climate, and soil type in addition to availability of materials.
- ❑ Mulch should be applied in an even and uniform manner where concentrated water flow is negligible.
- ❑ The application of straw mulch should be approximately 2 tons dry straw per acre spread uniformly across the area. Other forms of mulch, such as wood chips or chopped site vegetation, should be placed in thicknesses of two-inches or greater over the area.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

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North Central Texas Council of Governments

Mulching

- Straw mulch should be anchored by application of a fiber mulch binder, by the application of a synthetic liquid mulch binder, by using a tractor-drawn crimper to punch into the soil, or by placing a netting above the mulch stapled to the ground, as required.
- Mulch hydraulically applied with tackifiers and binding agents is commercially available as a bonded fiber matrix (BFM) which may be particularly effective on slopes steeper than 2.5:1.
- Wood chips are suitable for areas that will not require mowing frequently and are heavy enough that they do not require anchoring. They do, however, deplete nitrogen from the soil, which is a necessary nutrient for all plants. To alleviate this condition, wood chips must be treated with 12 pounds of ammonium nitrate per ton of mulch used.
- Bark chips are popular for ornamental applications, as they do not require anchoring, do not decompose very rapidly, and serve as an excellent insulation material. When using bark chips, it is not necessary to treat for nitrogen deficiency or to fertilize.
- Compost and wood mulch mixtures should be a blend of 50% untreated wood mulch with 50% compost measured by volume. Wood mulch should be less than or equal to 5 in. in length with 95% passing a 2-in. screen and less than 30% passing a 1-in. screen. The compost shall meet the Physical Requirements specified in Table 1 of TxDOT Special Specification 1058, Compost, which can be found in Appendix F.
- Prior to the placement of any mulch, the area to be protected must be graded in accordance with plans.
- Fertilization and soil treatment should then be done prior to placement of mulch with the exceptions of when seed is to be applied by means of hydro-seed or when seed is distributed following straw mulch spreading during winter months.
- Organic mulches may be distributed by hand or my mechanical means, but to be effective a complete covering is required.
- Refer to the table on the following page for additional guidance.

LIMITATIONS

Mulches are subject to removal by wind or water under severe climatic conditions.

Mulches lower the soil temperature, which may result in longer seed germination periods.

Mulch should not be applied within the ordinary high-water mark of surface waters, as it can be a potential floatation material.

MAINTENANCE REQUIREMENTS

Mulched areas should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for thin or bare spots caused by natural decomposition or weather related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection. Excess mulch should be brought to the site and stockpiled for use during the maintenance period to dress problem spots.

SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.17 Mulching.

Mulching

Mulch Standards and Guidelines			
Mulch Material	**Quality Standards**	**Application Rates**	**Remarks**
Straw	Air-dried, free from undesirable seed and from coarse material.	2"-3" thick, Approx 2 tons per acre.	Cost-effective when applied with adequate thickness. Hay can be used if weed and seed free. In windy areas and on steep slopes, straw must be held in place by crimping, using a tackifier, or covering with netting.
Chipped Site Vegetation	Should include gradation from fine to coarse to promote interlocking properties. Maximum size 6 inches in length.	2" minimum thickness over area; approx. 10 tons per acre.	Cost-effective manner of disposing of vegetative debris from site. Do not place in areas subject to flooding. Decomposition of chipped vegetation competes with nutrients important to subsequent grass establishment. Mulch must be free of waste materials such as plastic bag, metal debris, etc.
Wood Mulch and Compost Mixture	Compost shall meet the Physical Requirements (Table 1) of Appendix F.	2" minimum thickness over area; approx. 10 tons per acre.	Special caution is advised regarding the source and composition of wood mulches. Determine whether the preparation include weed seed control. Wood mulches are an excellent soil amendment, ultimately improving the organic content of the soil.
Hydromulch	No growth inhibiting factors.	Approx 25-30 lbs per 1000 sf or 1500-2000 lbs per acre.	Apply with a hydromulcher. Fibers should be kept to less than ¾ inch to prevent clogging equipment. Best used in conjunction with seed at time of application.
Bonded Fiber Matrix	Hydraulically applied mulch with tackifiers and binding agents.	Follow the manufacturer's recommendations. (typically 3000 lbs per acre or greater).	Bonded fiber matrix may be particularly effective on slopes steeper than 2.5:1.

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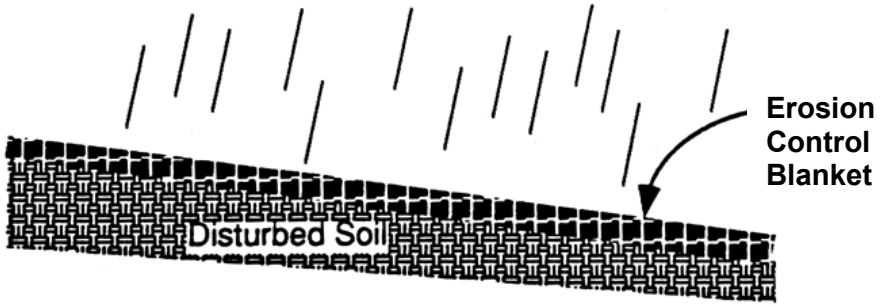
Erosion Control Blankets



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION

An erosion control blanket (ECB) is a temporary degradable erosion prevention product placed over disturbed areas to limit the effects of erosion due to rainfall impact and runoff across barren soil. Erosion control blankets are manufactured by a wide variety of vendors addressing a wide variety of conditions such as slope and functional longevity. Blankets are typically constructed of natural materials such as coir (coconut husk) fibers, excelsior (wood) or straw covered on both sides by degradable synthetic netting.

PRIMARY USE

Erosion control blankets are designed to hold seed and soil in place until vegetation is established on disturbed areas. They can be used on any disturbed areas, but are particularly effective for slopes and embankments. When used in combination with sediment trapping BMPs such as silt fence or wattles, blankets may be used as a perimeter control with or without vegetation.

DESIGN CRITERIA

- ❑ The type and class of erosion control mat must be specified as appropriate for the slope of the area to be protected and the anticipated length of service.
- ❑ ECBs should meet the applicable "Minimum Performance Standards for TxDOT" as published by TxDOT in its "Erosion Control Report" and/or be listed on the most current annual "Approved Products List for TxDOT" applicable to TxDOT Item 169 Soil Retention Blanket and its Special Provisions.
- ❑ Prior to the installation of any erosion control matting, all rocks, dirt clods, stumps, roots, trash and any other obstructions that would prevent the mat from lying in direct contact with the soil shall be removed. Anchor trenching shall be located along the entire perimeter of the installation area, except for small areas with less than 2% slope.
- ❑ Installation and anchoring shall conform to the recommendations shown within the manufacturer's published literature for the approved erosion control blanket. Particular attention must be paid to joints and overlapping material.
- ❑ After appropriate installation, the blankets should be checked for uniform contact with the soil; security of the lap joints, and flushness of the staples with the ground.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ◒ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

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North Central Texas Council of Governments

Erosion Control Blankets

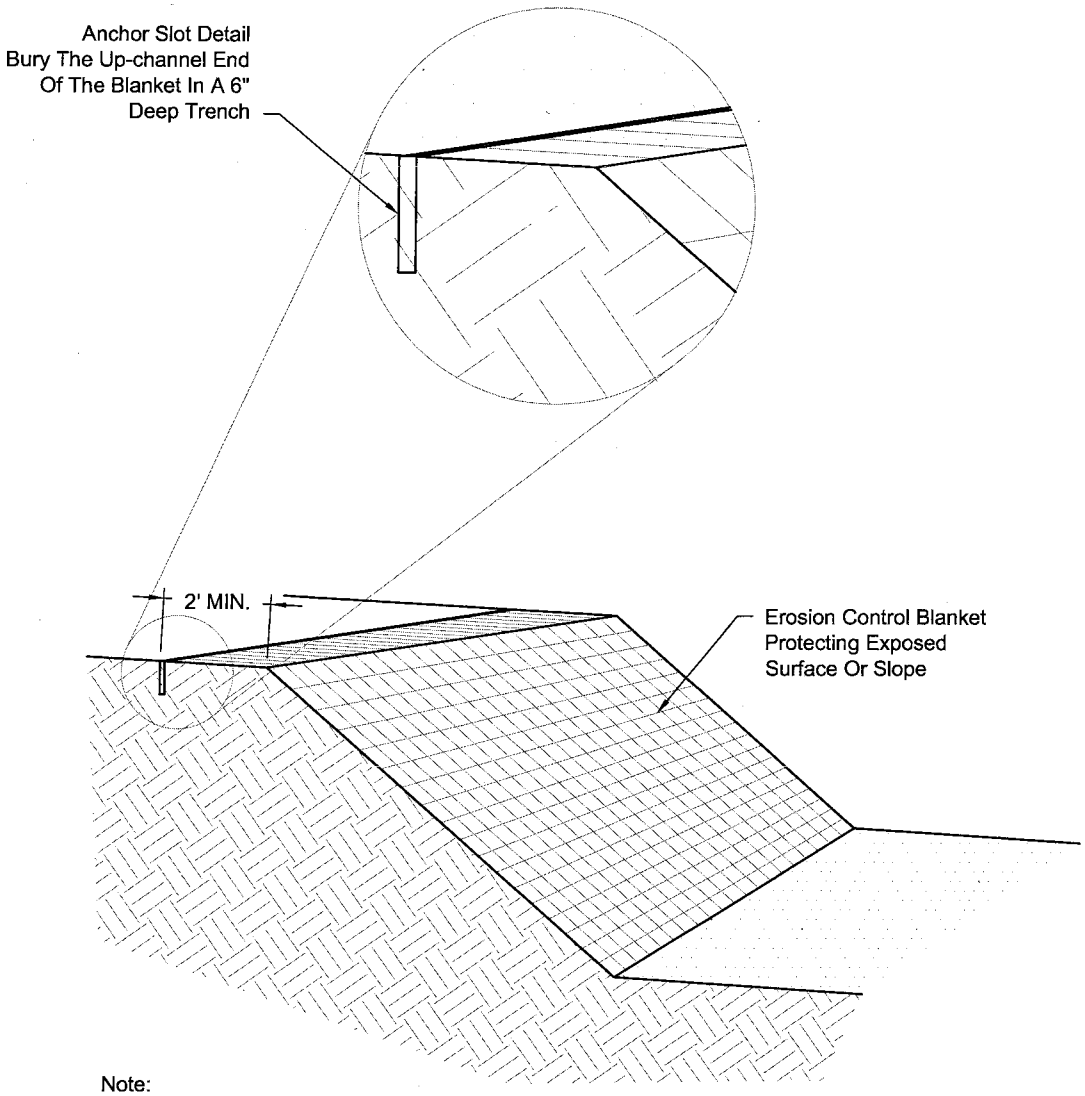
LIMITATIONS
Care must be exercised in specifying the proper Erosion Control Blanket product for the intended application.

For application requiring a permanent erosion control product, or for stabilizing slopes greater than 2H:1V or lining open conveyance channels, Turf Reinforcement Mats should be utilized.

MAINTENANCE REQUIREMENTS
Erosion Control Blankets should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for bare spots caused by weather related events. Missing or loosened blankets must be replaced or re-anchored. Also check for excess sediment deposited from runoff. Remove sediment and/or replace blanket as necessary. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

SPECIFICATIONS
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.16 Erosion Control Blankets.

Erosion Control Blankets



Note:
Anchoring of the Erosion Control Blankets Shall Be
Done In Accordance With the Manufacturer's Recommendations.

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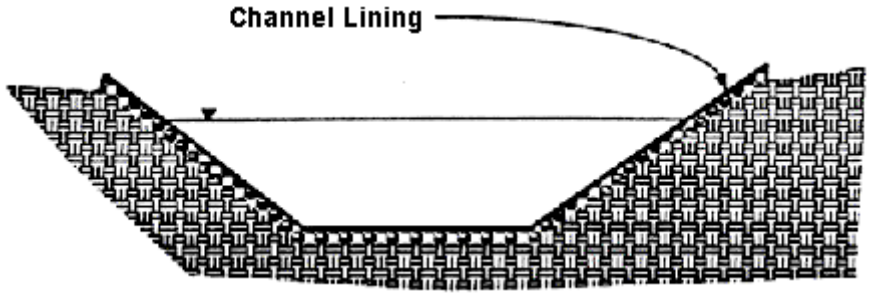
Channel Protection



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

Channel protection includes a variety of erosion prevention techniques including vegetation, turf reinforcement mats, and riprap. Channel protection is required to protect the sides and bottom of open channels from erosion caused by storm water flows.

PRIMARY USE

The information presented in this Fact Sheet primarily addresses protection of temporary channels constructed to convey storm water runoff on a property under development. Grass-lining should be adequate for most temporary channels, although some situations may require additional protection provided by turf reinforcement mats or riprap.

There are separate requirements for design of permanent open channels in the iSWM Design Manual for Development/Redevelopment and/or local drainage manual; however, permanent channels must also be protected from erosion during the construction phase.

APPLICATIONS

Channel protection for constructed open channels conveying concentrated storm water runoff. Examples include:

- ❑ discharge from diversion dikes or interceptor swales;
- ❑ flows to and discharges from sediment traps or basins;
- ❑ roadside drainage channels;
- ❑ conveyances in low areas.

This Fact Sheet does not apply to alterations of natural channels. Contact the local jurisdiction and/or the Corps of Engineers, Fort Worth District Office for information on regulatory requirements.

DESIGN CRITERIA

Temporary Channel Design

- ❑ All temporary channels shall be designed to carry the peak runoff for the 10-year design storm without eroding. Permanent channels must be designed in accordance with the iSWM Design Manual for Development/Redevelopment (and/or local requirements).
- ❑ Channels may be trapezoidal, parabolic, or v-shaped; however v-shaped channels may be difficult to stabilize, so they are generally used only where the volume and rate of flow is low.
- ❑ Side slopes shall be 3:1 or flatter to aid in the establishment of vegetation and/or for maintenance.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

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North Central Texas Council of Governments

Channel Protection

Grass-Lining

- Grass-lining is appropriate for grades less than 2 percent and velocities less than 6 feet per second.
- If the design velocity of a channel to be vegetated by seeding exceeds 2 feet per second, Erosion Control Blankets (Fact Sheet E-6) must be used to provide protection and assist in establishing the vegetation.
- Refer to the Fact Sheet E-4, Vegetation, for appropriate vegetation types and information on establishment of vegetation. In addition, consult manufacturer's literature where erosion control blankets are used.

Turf Reinforcement Mat Lining

- Turf reinforcement mats (TRMs) provide long-term erosion protection in channels where flow conditions exceed the ability of vegetation alone to withstand erosive forces (grades in excess of 2 percent or velocities exceeding 6 feet per second).
- Turf reinforcement mats may provide channel protection for conditions of up to approximately 8 lbs/ft^2 sheer stress. The appropriate TRM product must be selected in accordance with the manufacturer's specifications to meet the design flow conditions.
- Turf reinforcement mats are generally preferred over stone stabilization.
- TRM installation and anchoring shall conform to the recommendations shown within the manufacturer's published literature.
- Refer to the Fact Sheet E-4, Vegetation, for appropriate vegetation types and information on establishment of vegetation. In addition, consult the TRM manufacturer's literature for special considerations.

Crushed Stone and Riprap

- As an alternate to turf reinforcement mats, a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions may also be used for grades in excess of 2 percent or velocities exceeding 6 feet per second.
- The size and gradation of the stone or riprap and thickness of the lining must be designed appropriately for the flow conditions to prevent the lining from washing away.
- Riprap should be placed on a lining of geotextile fabric to prevent soil movement into or through the riprap. The geotextile must be keyed in at the top of the bank.

LIMITATIONS

The vegetation for grass-lined channels may be difficult to establish unless the seedbed is protected from high flows until the seed germinates and matures.

MAINTENANCE REQUIREMENTS

Channel protection measures should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for signs of bare spots, erosion, or excessive sediment deposition. Bare spots or areas experiencing erosion should be repaired immediately by replacing lining material. Where excessive sediment is discovered, remove sediment and repair lining as necessary. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

While vegetation is being established for grass-lining and turf reinforcement mats, check frequently to ensure proper growing conditions and adequate coverage. Also, remove any accumulated sediment in the channel bottom frequently to prevent damage to the vegetation.

SPECIFICATIONS

No specification for construction of temporary channel protection is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Dust Control

DESCRIPTION
Dust control includes those measures necessary to prevent wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

PRIMARY USE
Dust control is applied in areas (including roadways) subject to surface and air movement to dust where on-site and off-site impacts to roadways, drainage ways, or surface waters are likely.

DESIGN CRITERIA
- ❑ Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- ❑ Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original cover as long as practicable.
- ❑ Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- ❑ Sprinkle the site with water until dampened sufficiently to prevent dust and repeat as needed. Do not apply water in quantities to cause runoff.
- ❑ Irrigation water can be used for dust control. Irrigation systems should be installed as a first step on sites where dust control is a concern.

SPECIFICATIONS
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ● Sediment
- ○ Nutrients/Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ○ Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

E-8

North Central Texas Council of Governments

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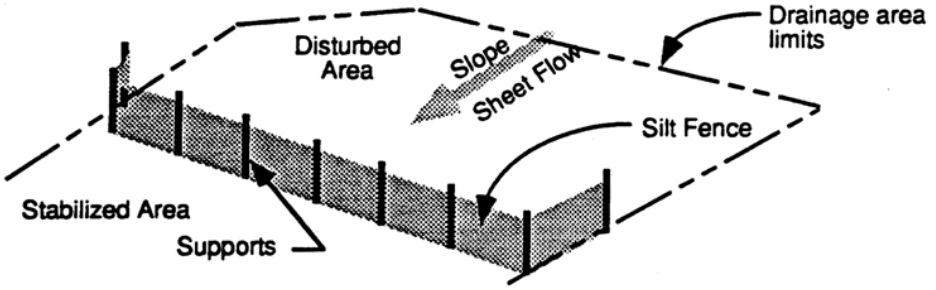
Silt Fence



DESCRIPTION
A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between either wooden or metal posts with the lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE
Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may be experienced (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

APPLICATIONS
Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fences should be used with caution in areas that have predominantly clay soil types. In this latter instance a soils engineer or soil scientist should confirm the suitability of silt fence for that application

DESIGN CRITERIA
- ❑ Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- ❑ Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- ❑ Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the fence shall be 2:1.
- ❑ If 50% or less soil, by weight, passes the U.S. Standard sieve No. 200; select the apparent opening size (A.O.S.) to retain 85% of the soil.
- ❑ If 85% or more of soil by weight, passes the U.S. Standard sieve No. 200, silt fences shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodiblity of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-1

North Central Texas Council of Governments

Silt Fence

- Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- Filter stone for overflow structure shall be 1-1/2" washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- Silt fence fabric must meet the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
  - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 70 (max) to No. 100 (min)
  - Ultraviolet Resistance, ASTM D4355. Minimum 70 percent.
- Fence posts shall be galvanized steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum. Wood Posts may be used depending on anticipated length of service and provided they are 4 feet in length minimum and have a nominal cross section of 2 inches by 4 inches for pine or 2 inches by 2 inches for hardwoods.
- Silt fence shall be supported by galvanized steel wire fence fabric as follows:
  - 4" x 4" mesh size, W1.4 /1.4, minimum 14-gauge wire fence fabric;
  - Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
  - Standard 2" x 2" chain link fence fabric; or
  - Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- A 6-inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs.
- Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- The ends of the fence shall be turned upstream to prevent bypass of storm water.

LIMITATIONS

Minor ponding will likely occur at the upstream side of the silt fence, which could result in minor localized flooding. Silt fences are not intended for use as check dams in swales or low areas subject to concentrated flow. Silt fences shall not be used where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches.

Silt fence can interfere with construction operations; therefore planning of access routes onto the site is critical. Silt fence can fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.

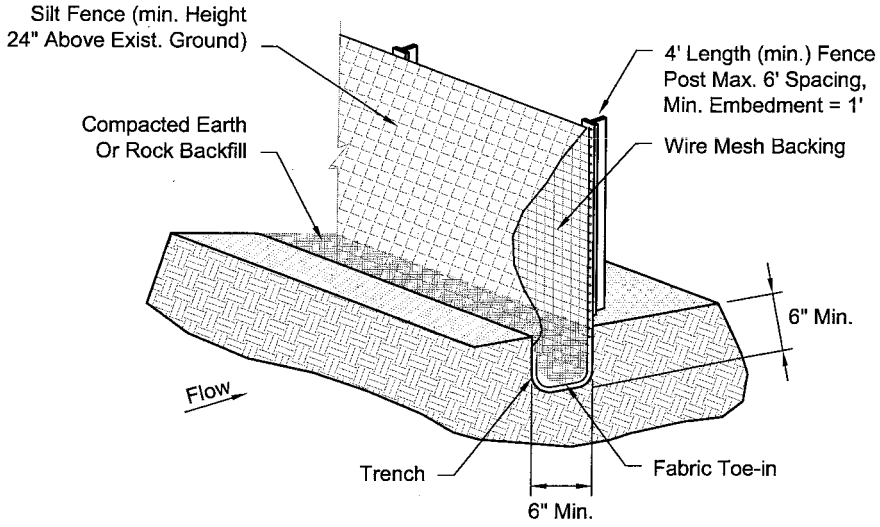
MAINTENANCE REQUIREMENTS

Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed when it reaches approximately one-half the height of the fence. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion. If the fabric becomes damaged or clogged, it should be repaired or replaced as necessary.

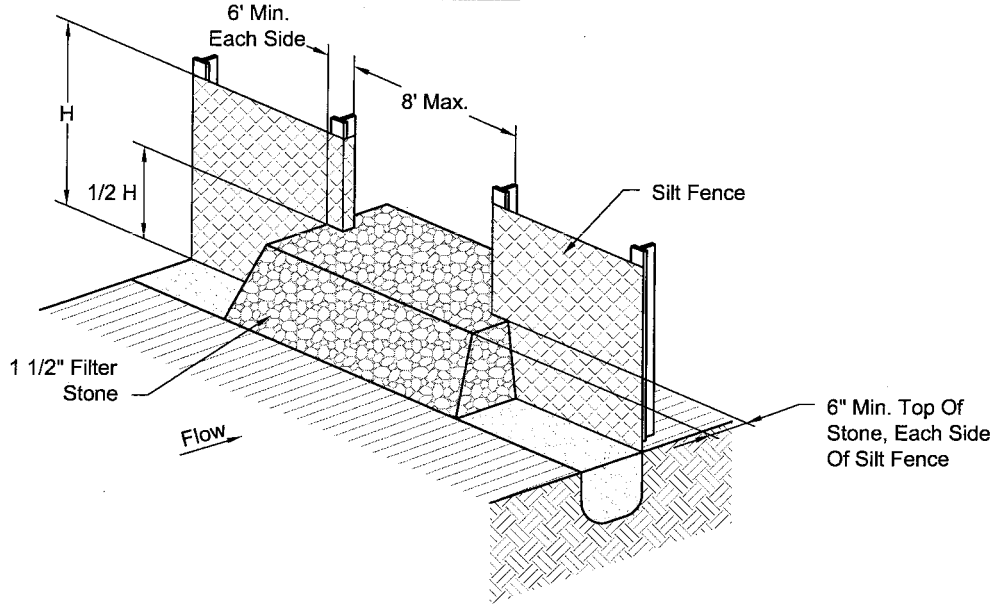
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.5 Silt Fence.

Silt Fence & Stone Overflow Structure



Silt Fence



Stone Overflow Structure

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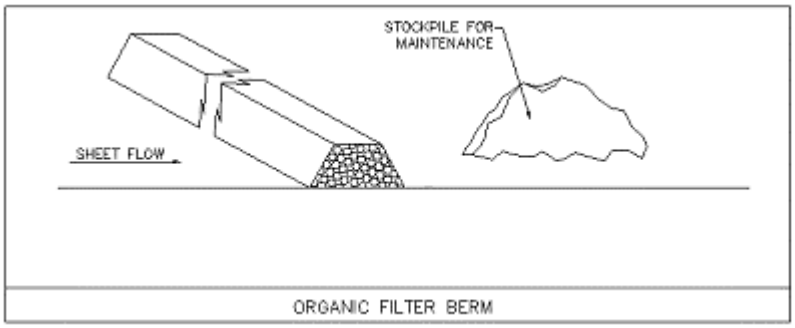
Organic Filter Berm



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

Organic filter berms are linear berms constructed of a mix of compost and mulch and placed on a contour to control runoff and filter sediment. The organic filter berm provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE

Organic filter berms are very well suited to sites with small disturbed drainage areas that are not subjected to concentrated flows and that will ultimately be seeded, sodded, or landscaped.

APPLICATIONS

Properly designed, the organic filter berm is economical due to the ease of emplacement and because it can be tilled into the soil at the end of project, limiting the cost of removal and adding to the organic content of the soil. The berms are used as perimeter control devices for both development sites and linear (roadway) type projects. They are most effective with coarse to silty soil types.

DESIGN CRITERIA

- ❑ Filter berms are to be constructed along a line of constant elevation (along a contour line) where possible.
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of filter berm.
- ❑ Maximum flow to any 20 foot section of filter berm shall be 1 CFS.
- ❑ Maximum distance of flow to berm shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the filter berm shall be 2:1.
- ❑ Trapezoidal shaped berms should be 1-1/2 to 3 feet high with a top width of 2 to 3 feet and a base of 3 to 5 feet wide.
- ❑ Windrow (triangular) shaped berms should be 1 to 2 feet high and 2 to 4 feet wide.
- ❑ Organic filter berms shall be constructed of a mixture of 50% compost and 50% wood mulch. The compost shall meet the Physical Requirements specified in Table 1 of TxDOT Special Specification 1058, Compost, which can be found in Appendix F. Mulch shall be untreated wood chips less than or equal to 5 inches in length with 95% passing a 2-inch screen and less than 30% passing a 1-inch screen.
- ❑ Organic filter berms may be seeded with a seed loading of 1 lb. per 10 linear feet for small berms (1ft. by 2 ft.) or 2.25 lbs per 10 linear ft. for larger berms (1.5 ft. by 3 ft.)

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-2

North Central Texas Council of Governments

Organic Filter Berm

LIMITATIONS
Minor ponding will likely occur at the upstream side of the organic filter berm that could result in minor localized flooding.

Berms should not be constructed in swales or low areas since they will be subject to concentrated flow and may be overtopped resulting in failure of the filter berm.

Berms can interfere with construction operations; therefore planning of access routes onto the site is critical. Typically excess material is stockpiled on site for repairs to berms disturbed by construction activity.

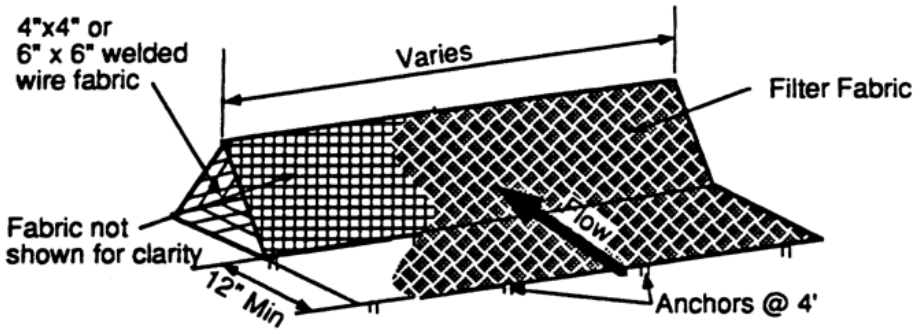
MAINTENANCE REQUIREMENTS
Filter berms should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, and other failures. Silt must be removed when it reaches ½ the height of the berm. Silt may be raked from the disturbed side of the device to clean side the berm for the first few times that it becomes clogged to prevent ponding. Repeated clogging of the berm at one location will require replacement of the organic filter material or may require installation of another BMP to prevent failure of the berm.

Dimensions of the berm must be maintained by replacing organic filter material when necessary.

There shall be no signs of erosion, breeching or runoff around or under the berm.

SPECIFICATION
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Triangular Sediment Filter Dike



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A Triangular Sediment Filter Dike is a self-contained silt fence consisting of filter fabric wrapped around welded wire fabric shaped into a triangular cross section. While similar in use to a silt fence, the dike is reusable, sturdier, transportable, and can be used on paved areas or in situations where it is impractical to install embedded posts for support.

PRIMARY USE

Triangular filter dikes are used in place of silt fence, treating sediment flow at the perimeter of construction areas and at the perimeter of the site. Also, the dikes can serve as stream protection devices by preventing sediment from entering the streams or as check dams in small swales.

Triangular sediment filter dikes are especially useful for construction areas surrounded by pavement, where silt fence, filter berm, or other BMP installation is impractical.

APPLICATIONS

Triangular dikes are used to provide perimeter control by detaining sediment on a disturbed site with drainage that would otherwise flow onto adjacent properties. Triangular dikes also serve as sediment trapping devices when used in areas of sheet flow across disturbed areas or are placed along stream banks to prevent sediment-laden sheet flow from entering the stream. The dikes can be subjected to more concentrated flows and a higher flow rate than silt fence.

DESIGN CRITERIA

- ❑ Dikes can be used on a variety of surfaces ranging from disturbed earth to pavement.
- ❑ Dikes are to be installed along a line of constant elevation (along a contour line).
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of dike.
- ❑ Maximum flow to any 20 foot section of dike shall be 1 CFS.
- ❑ Maximum distance of flow to dike shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the dike shall be 2:1.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-3

North Central Texas Council of Governments

Triangular Sediment Filter Dike

- If 50% or less of soil, by weight, passes the U.S. Standard sieve No. 200, select the apparent opening size (A.O.S.) to retain 85% of the soil.
- If 85% or more of soil, by weight, passes the U.S. Standard Sieve No. 200, triangular sediment dike shall not be used due to clogging.
- The filter fabric shall meet the material requirements specified in BMP Fact Sheet S-1, Silt Fence.
- The internal support for the dike structure shall be 6 gauge 6" x 6" wire mesh folded into triangular form eighteen (18) inches on each side.
- Filter material shall lap over ends six (6) inches to cover dike-to-dike junction; each junction shall be secured by shoat rings.
- Tie-in to the existing grade should be accomplished by (i) embedding the fabric six-inches below the top of ground on the upslope side, (ii) extending the fabric to form a 12-inch skirt on the upstream slope and covering it with 3 to 5 inches of crushed rock, or (iii) entrenching the base of the triangular dike four-inches below ground. For (ii) above, the skirt and the upslope portion of the triangular dike skeleton should be anchored by metal staples on two-foot centers, driven a minimum of six inches into the ground (except where crossing pavement or exposed limestone).
- Sand bags or large rock should be used as ballast inside the triangular dike section to stabilize the dike against the effects of high flows.
- Sufficient room for the operation of sediment removal equipment shall be provided between the dike and other obstructions in order to properly remove sediment.
- The ends of the dike shall be turned upgrade to prevent bypass of storm water.

LIMITATIONS

Effects of ponding caused by the dikes should be evaluated for effects on adjacent areas.
Triangular sediment filter dikes are not effective for conditions where there are substantial concentrated flows or when they are not constructed along a contour line due to the potential for flow concentration and overtopping.

MAINTENTANCE REQUIREMENTS

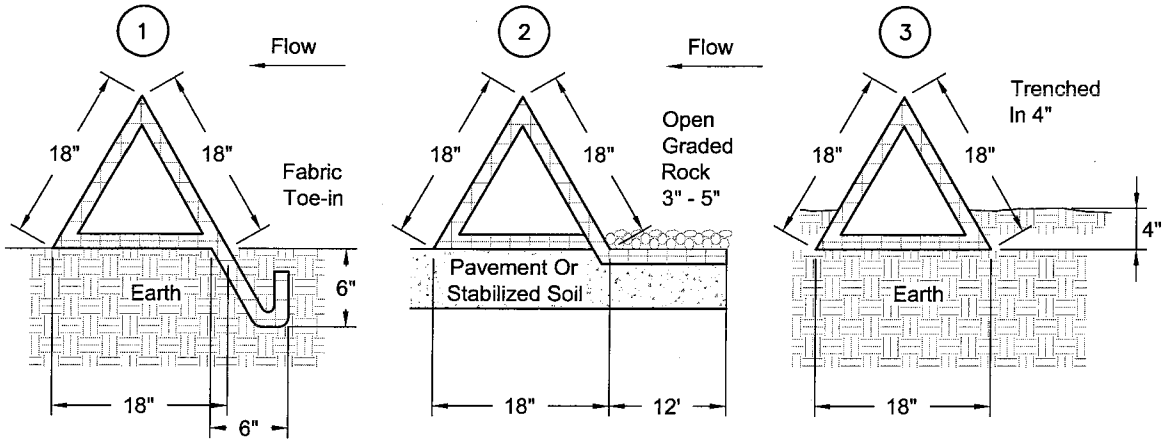
Triangular sediment filter dikes should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Sediment should be removed when it reaches approximately 6 inches in depth. If the fabric becomes clogged, it should be cleaned or, if necessary, replaced. If structural deficiencies are found, the dike should be immediately repaired or replaced.

As with silt fence, integrity of the filter fabric is important to the effectiveness of the dike. Overlap between dike sections must be checked on a regular basis and repaired if deficient.

SPECIFICATION

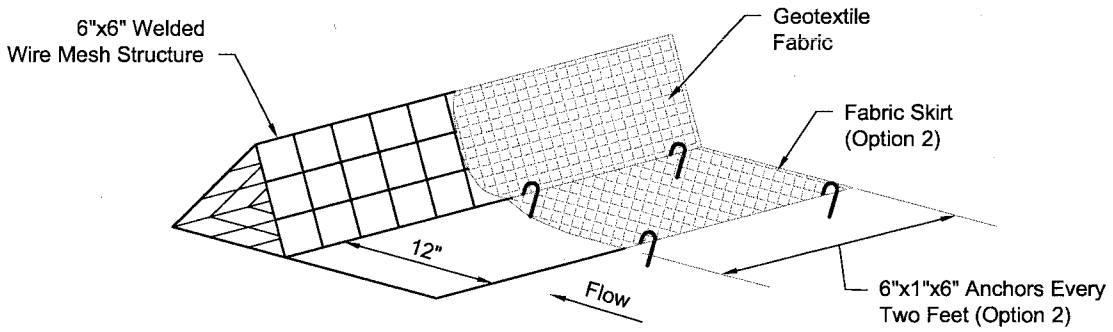
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.8 Triangular Sediment Filter Dike.

Triangular Sediment Filter Dike



Cross Section Of Installation Options

1. Toe-in 6" Min.
2. Fabric Skirt Weighted With Rock
3. Trenched In 4"



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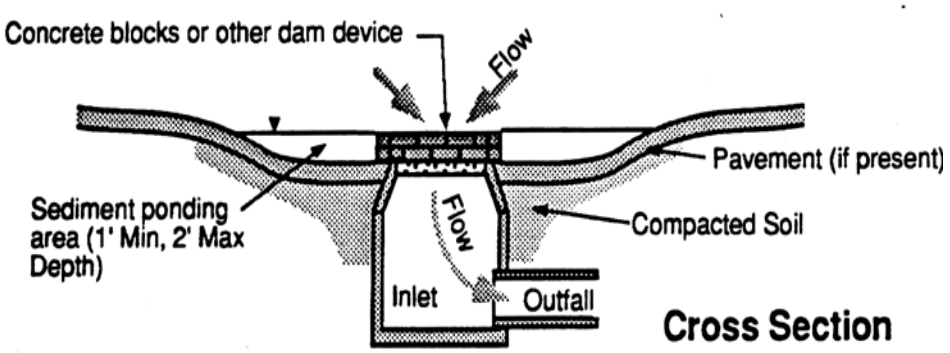
Inlet Protection



DESCRIPTION
Inlet protection consists of a variety of methods of intercepting sediment at low point inlets through the use of stone, filter fabric, inlet inserts, and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water.

PRIMARY USE
Inlet protection should be considered a secondary defense in site erosion control due to the limited effectiveness and applicability of the technique. It is normally used in new developments that include new inlets or roads with new curb inlets or during major repairs to existing roadways.

Inlet protection has limited use in developed areas due to the potential for flooding, traffic safety, pedestrian safety, and maintenance problems. Inlet protection can reduce sediment in storm sewer systems by serving as a back up system to onsite controls or by reducing sediment loads from controls with limited effectiveness.

APPLICATIONS
Different inlet protection variations are used for different conditions as follows:

- ❑ Filter barrier protection (similar to a silt fence barrier around the inlet) is appropriate when the drainage area is less than one acre and the basin slope is less than five (5) percent. This type of protection is not applicable in paved areas.
- ❑ Block and gravel (crushed stone, recycled concrete is also appropriate) protection is used when flows exceed 0.5 c.f.s. and it is necessary to allow for overtopping to prevent flooding.
- ❑ Excavated impoundment protection around a drop inlet may be used for protection against sediment entering a storm drain system. With this method, it is necessary to install weep holes to allow the impoundment to drain completely. The impoundment shall be sized such that the volume of excavation shall be equal to 1800 to 3600 cubic feet per acre of disturbed area entering the inlet for full effectiveness.

Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ● Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

S-4

North Central Texas Council of Governments

Inlet Protection

DESIGN CRITERIA

- Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.
- Filter fabric protection shall be designed and maintained in a manner similar to silt fence.
- Where applicable, filter fabric, posts, and wire backing shall meet the material requirements specified in BMP Fact Sheet S-1, Silt Fence.
- Filter gravel shall be ¾ inch (Block and Gravel Protection) or 1-1/2 to 2 inch (Excavated Impoundment Protection) washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- Concrete blocks shall be standard 8" x 8" x 16" concrete masonry units.
- Maximum depth of flow shall be eight (8) inches or less.
- Positive drainage is critical in the design of inlet protection. If overflow is not provided for at the inlet, excess flows shall be routed through established swales, streets, or other watercourses to minimize damage due to flooding.
- Filter Barrier Protection
  Silt Fence shall consist of nylon geotextile supported by wire mesh, W1.4 X W1.4, and galvanized steel posts set a minimum of 1 foot depth and spaced not more than 6 feet on center. A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence.
- Block and Gravel Protection (Curb and Drop Inlets)
  Concrete blocks are to be placed on their sides in a single row around the perimeter of the inlet, with ends abutting. Openings in the blocks should face outward, not upward. ½" x ½" wire mesh shall then be placed over the outside face of the blocks covering the holes. Filter stone shall then be piled against the wire mesh to the top of the blocks with the base of the stone being a minimum of 18 inches from the blocks. Alternatively, where loose stone is a concern (streets, etc.), the filter stone mayb be placed in appropriately sized geotextile fabric bags. Periodically, when the stone filter becomes clogged, the stone must be removed and cleaned in a proper manner or replaced with new stone and piled back against the wire mesh.
- Excavated Impoundment Protection
  An excavated impoundment shall be sized to provide a storage volume of between 1800 and 3600 cubic feet per acre of disturbed area. The trap shall have a minimum depth of one foot and a maximum depth of 2 feet as measured from the top of the inlet and shall have sideslopes of 2:1 or flatter. Weep holes are to be installed in the inlet walls to allow for the complete dewatering of the the trap. When the storage capacity of the impoundment has been reduced by one-half, the silt shall be removed and disposed in a proper manner.
- Inlet inserts are commercially available to remove sediment, constituents (pollutants) adsorbed to sediment, and oil and grease. Maintenance is required to removesediment and debris that could clog the filters. Inlet inserts must have a bypass function to prevent flooding from clogging or high flows.

LIMITATIONS

Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.

Inlet protection is only viable at low point inlets. Inlets that are on a slope cannot be effectively protected because storm water will bypass the inlet and continue downstream, causing an overload condition at inlets downstream.

Inlet Protection

MAINTENANCE REQUIREMENTS

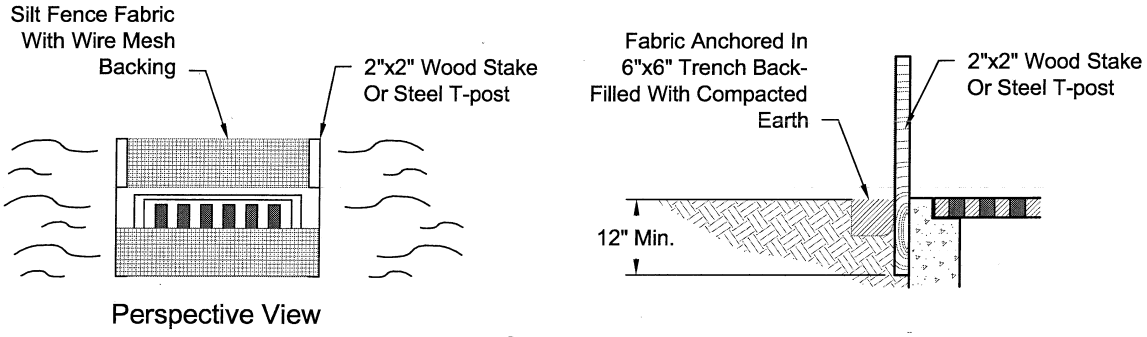
Inlet protection should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When silt fence is used and the fabric becomes clogged, it should be cleaned or, if necessary, replaced. Also, sediment should be removed when it reaches approximately one-half the height of the inlet protection device. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.

For systems using filter stone, when the filter stone becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of stone at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill material and put new stone around the inlet.

SPECIFICATION

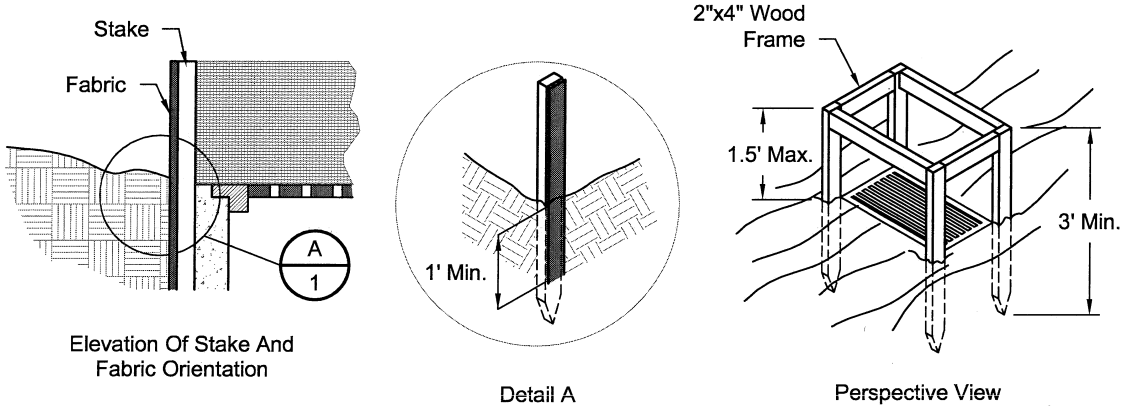
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.15 Inlet Protection.

Inlet Protection - Filter Barrier



Perspective View

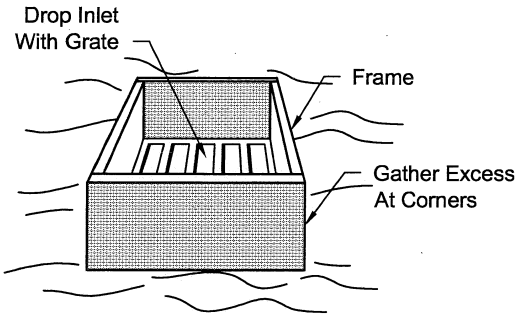
I. Standard Installation



Elevation Of Stake And
Fabric Orientation

Detail A

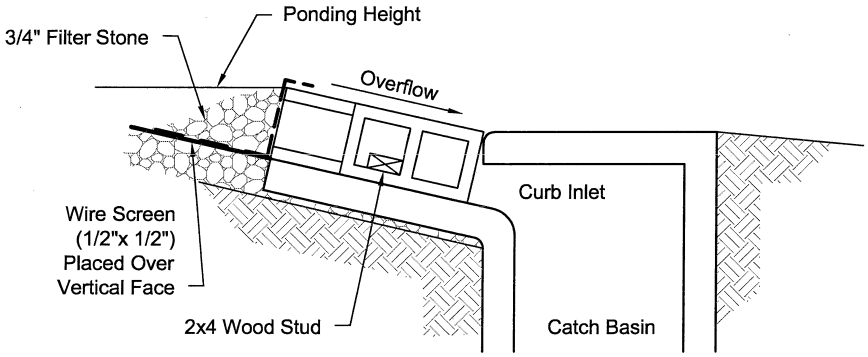
Perspective View



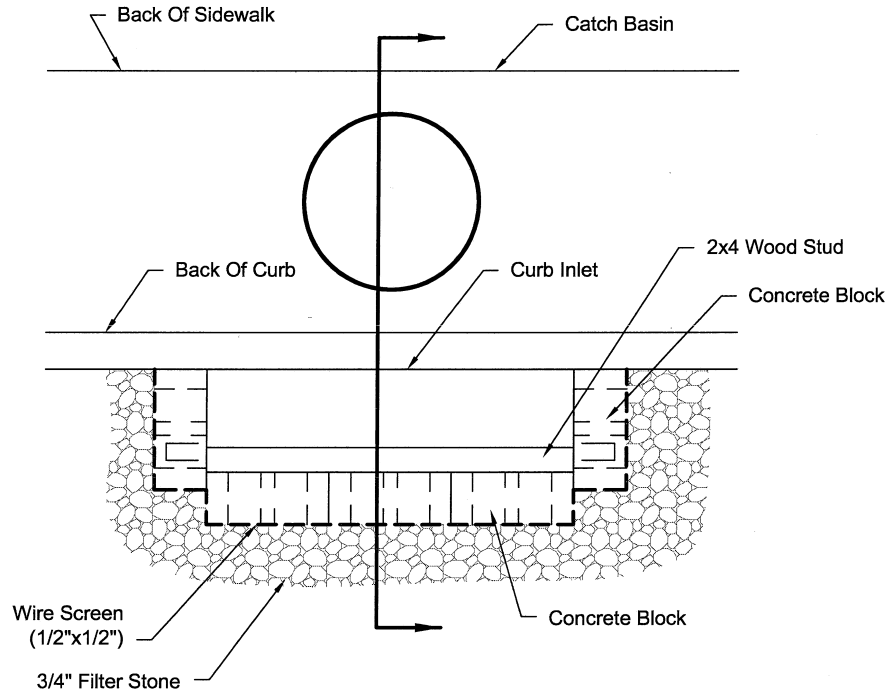
Perspective View

Specific application:
This method of inlet protection is applicable where the inlet drains a relatively flat area (slope no greater than 5%) where the inlet sheet or over-land flows (not to exceed 1 c.F.S.) are typical. The method shall not apply to inlets receiving concentrated flows such as in streets or highway medians.

Inlet Protection - Curb

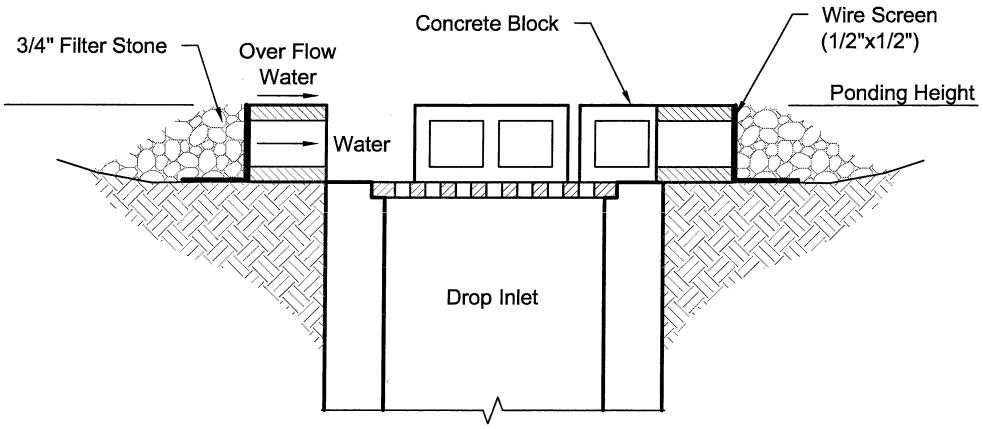


Cross Section

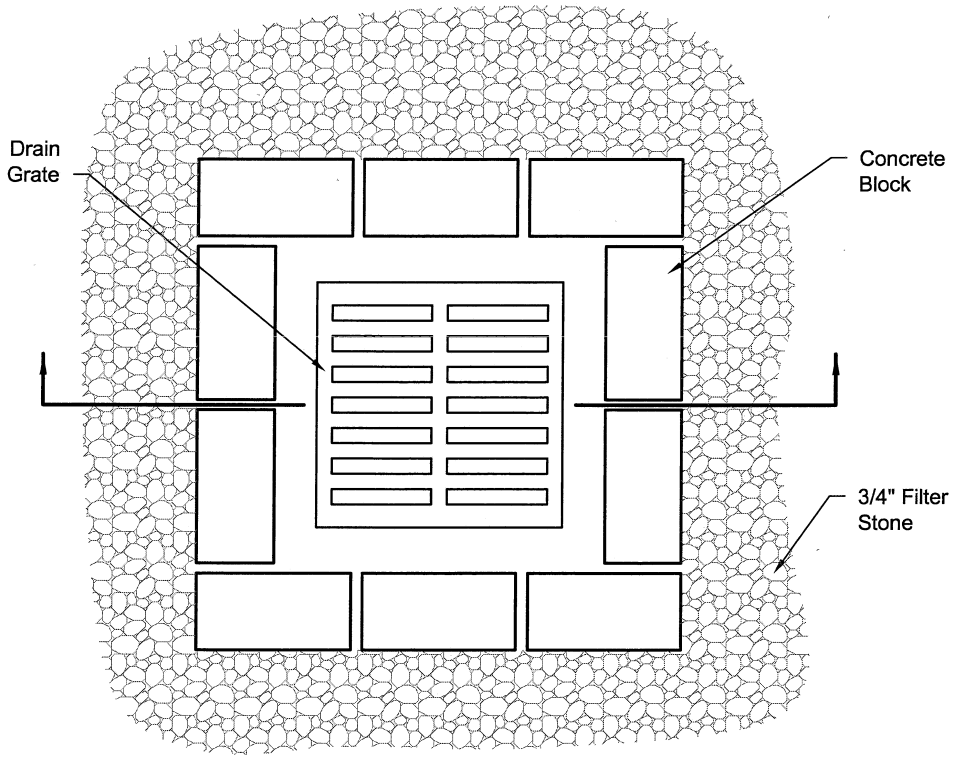


Plan View

Inlet Protection – Drop Inlet

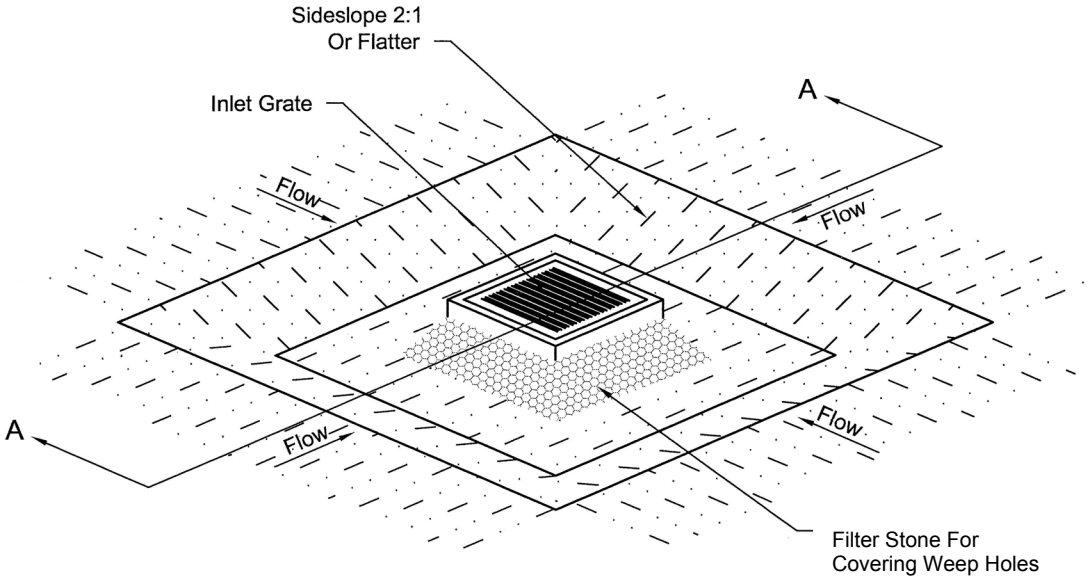


Cross Section

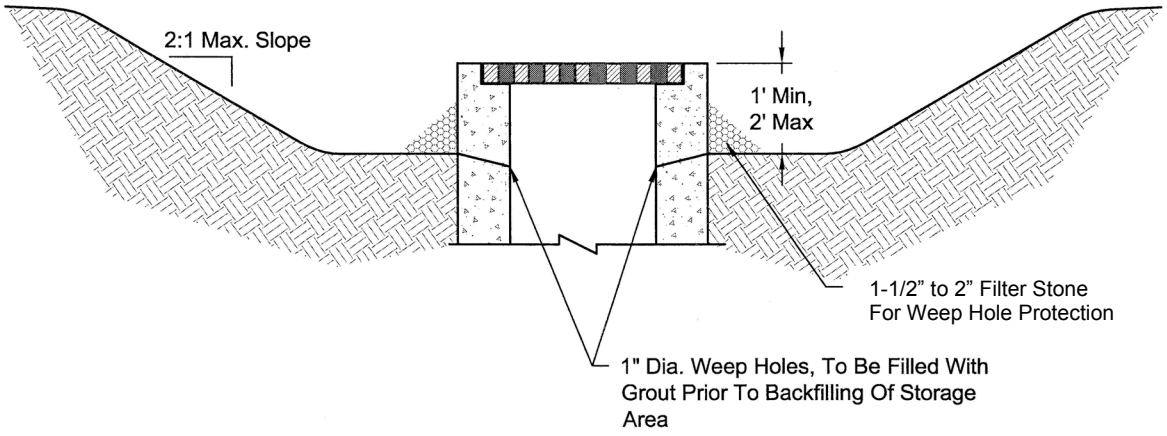


Plan View

Inlet Protection - Excavated Impoundment



Isometric Plan View



Section A-A

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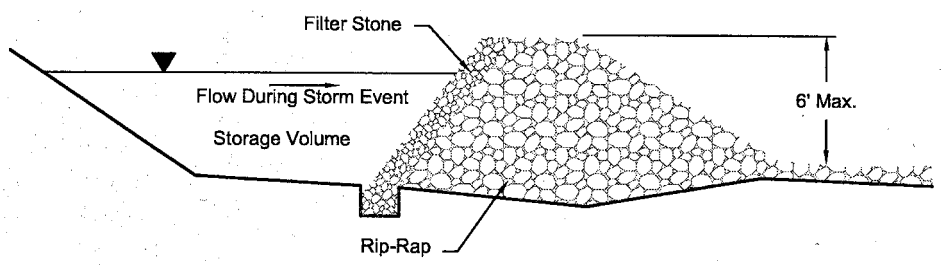
Stone Outlet Sediment Trap



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION
A stone outlet sediment trap is a small ponding area formed by placing a stone embankment with an integral stone filter outlet across a drainage swale for the purpose of detaining sediment-laden runoff generated by construction activities. The sediment trap detains runoff long enough to allow most of the suspended sediment to settle while still allowing for diffused flow of runoff.

PRIMARY USE
A sediment trap is used in situations where flows are concentrated in a drainage swale or channel. The sediment trap reduces velocities and allows for settling of sediment while allowing the area behind the trap to de-water. This is normally used for long term (18 months or less) applications in which a sediment basin is not feasible due to site or construction method restrictions.

APPLICATIONS
Temporary stone outlet sediment traps are installed at locations where concentrated flows require a protected outlet to contain sediment or spread flow prior to discharge.

DESIGN CRITERIA
- The maximum drainage area contributing to the trap shall be 10 acres. For larger drainage areas a sediment basin should be used.
- The minimum storage volume shall be 1800 cubic feet per acre of disturbed land draining to the device.
- The surface area of the design storage area shall be 1% of the area draining to the device.
- The maximum embankment height shall be 6 feet as measured from the toe of the slope on the downstream side
- Minimum width of the embankment at the top shall be 2 feet.
- Embankment slope shall be 1.5:1 or flatter.
- The embankment shall have a depressed area to serve as the outlet with a minimum width of 4 feet.
- A six inch minimum thickness layer of ¾ to 2 inch (1-½ inch nominal) well graded filter stone shall be placed on the face of the embankment.
- The embankment shall be comprised of well graded stone with a size range of 6 to 12 inches in diameter. The stone may be enclosed in wire mesh or gabion basket and anchored to the channel bottom to prevent washing away.
- The outlet shall be designed to have a minimum freeboard of 6" at design flow.

Targeted Constituents
- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.85

S-5

North Central Texas Council of Governments

Stone Outlet Sediment Trap

- The embankment shall be place on geotextile fabric meeting the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 250-lbs
  - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 135-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 420-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max).
- The geotextile fabric, covered with a layer of stone, shall extend past the base of the embankment on the downstream side a minimum of 2 feet.

LIMITATIONS

Limited applications due to cost of construction, availability of materials, and the amount of land required.

Can cause minor upstream flooding, possibly impacting construction operations.

MAINTENANCE REQUIREMENTS

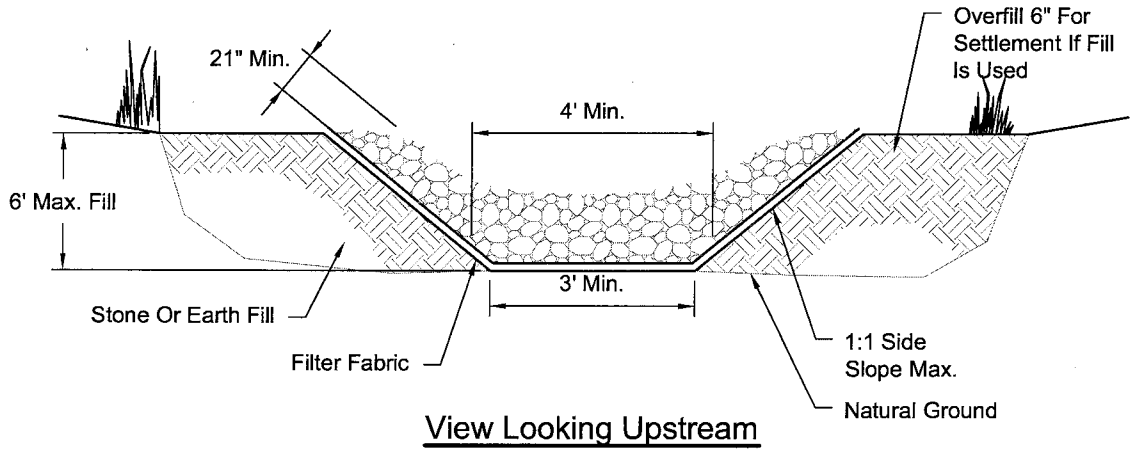
The stone outlet structure should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to check for clogging of the void spaces between stones. If the aggregate appears to be silted in such that efficiency is diminished, the stone should be replaced.

Deposited sediment shall be removed when the depth of sediment is equal to one-third of the height of the embankment as measured from the original toe of slope to the crest of the outlet, or has reached a depth of one foot, whichever is less. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.

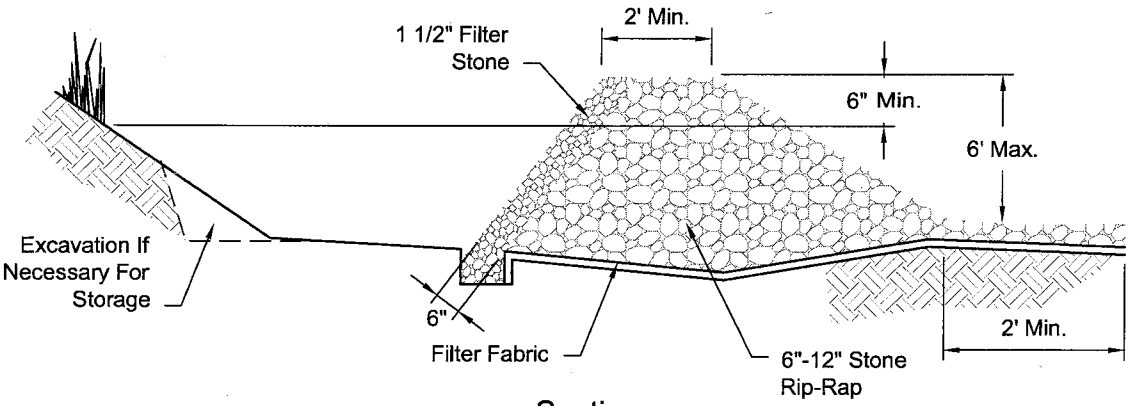
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.12 Stone Outlet Sediment Trap.

Stone Outlet Sediment Trap



View Looking Upstream



Section

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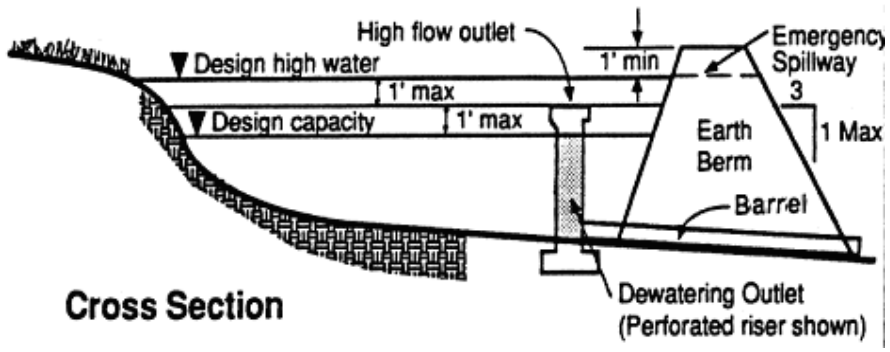
Sediment Basin



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A sediment basin is a pond area with a controlled outlet in which sediment-laden runoff is directed to allow settling of suspended sediment from the runoff. It provides treatment for the runoff as well as detention and controlled release of runoff, minimizing flood impacts downstream.

PRIMARY USE

Sediment basins should be used for all sites with adequate open space to locate the basin and where the site topography directs a majority of the site drainage into the basin. For sites with disturbed areas of 10 acres and larger that are part of a common drainage area, sediment basins are necessary as either temporary or permanent controls, unless specific site conditions limit their use.

APPLICATIONS

Sediment basins serve as treatment devices which can be used on a variety of project types. They are normally used in site development projects in which large areas of land are available for the basin, a minor stream or off-line drainage way crosses the site, or a specific water feature is planned for the site. Sediment basins are highly effective at reducing sediment and other pollutants for design storm conditions. Sediment basins are typically easier to maintain than other structural controls (e.g. silt fences, etc).

DESIGN CRITERIA

- ❑ Refer to Appendix D of this manual for specific design guidance on temporary sediment basins.
- ❑ The iSWM Design Manual for Development/ Redevelopment should be used for guidance on the design of permanent sediment basins
- ❑ Minimum capacity of the basin shall be the calculated volume of runoff from a 2-year, 24-hour duration storm event.
- ❑ Deposited sediment shall be removed when the storage capacity of the basin has been reduced by 20%.
- ❑ Minimum width of the embankment at the top shall be 8 feet.
- ❑ Embankment slope shall be 3:1 or flatter.
- ❑ Maximum embankment height shall be 6 feet as measured from the toe of slope on the downstream side. Sediment basins with embankments exceeding 6 feet are regulated by the Texas Commission on Environmental Quality and must meet specific requirements for dam safety.

Targeted Constituents

- ● Sediment
- ◒ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

S-6

North Central Texas Council of Governments

Sediment Basin

- The basin outlet shall be designed to accommodate a 25-year design storm without causing damage to the containment structure.
- The sediment basin shall have minimum design dewatering time of 36 hours.
- The basin must be laid out such that the effective flow length of the basin should be at least twice the effective flow width.
- The outlet of the outfall pipe (barrel) shall be stabilized with riprap or other form of stabilization with design flows and velocities based on 25-year design storm peak flows. For velocities in excess of 5 feet per second, velocity dissipation measures should be used to reduce outfall velocities.
- The effectiveness of sediment basins may be increased by using baffles to prevent short-circuiting of flow through the basin.

SPECIAL CONSIDERATION

Sediment basins must be designed, constructed, and maintained to minimize mosquito breeding habitats by minimizing the creation of standing water. Whenever possible, water should be held less than 72 hours.

LIMITATIONS

Sediment basins can be rather large depending on site conditions, requiring the use of expensive development area and comprehensive planning for construction phasing prior to implementation.

Storm events which exceed the design storm event can cause damage to the spillway structure of the basin and may impact downstream concerns**.**

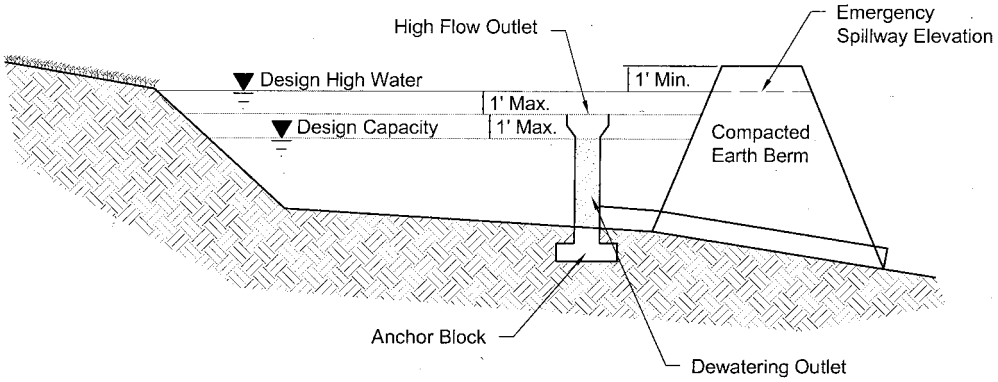
MAINTENANCE REQUIREMENTS

Sediment basins should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to check for damage and to insure that obstructions are not diminishing the effectiveness of the structure. Sediment shall be removed and the basin shall be regraded to its original dimensions at such point that the capacity of the impoundment has been reduced to 20% of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected by erosion and sediment controls.

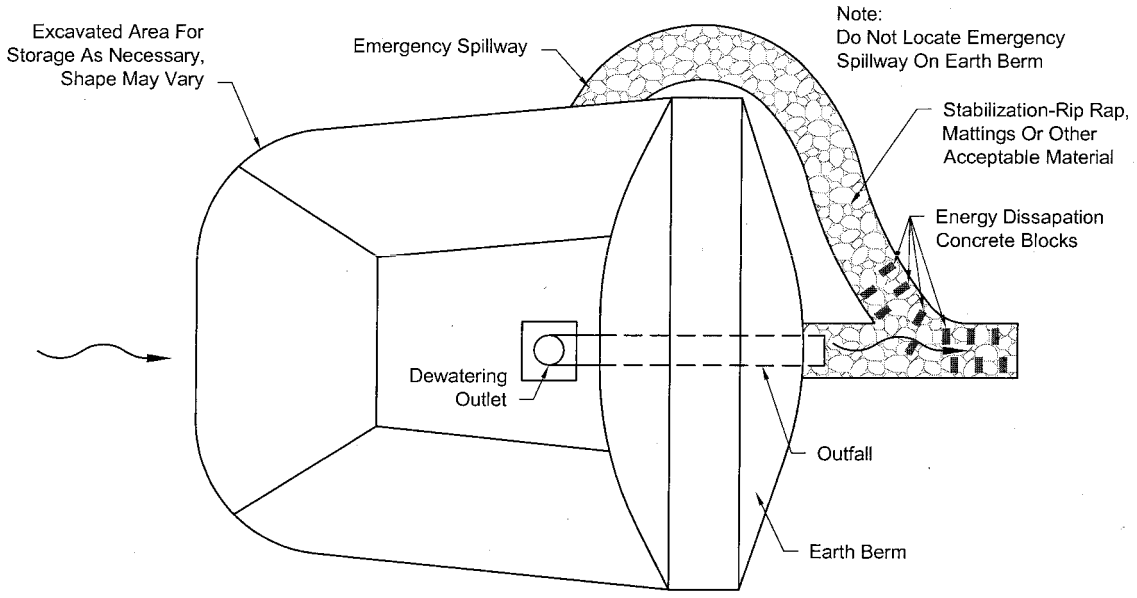
SPECIFICATION

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Sediment Basin



Cross Section



Plan View

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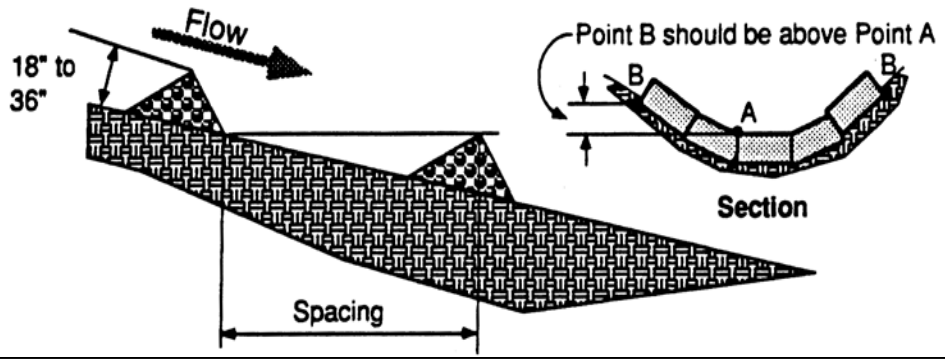
Check Dams



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION
Check dams are small barriers consisting of rock, sand bag or earth berms placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion.

PRIMARY USE
Check dams are used for long drainage swales or ditches to reduce erosive velocities. They are typically used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats. Check dams provide limited treatment to sediment-laden flows. They are more useful in reducing flow to acceptable levels for other techniques.

APPLICATIONS
Check dams are typically used early in construction in swales for long linear projects such as roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels

DESIGN CRITERIA
- ❑ Check dams should be placed at a distance and height to allow small pools to form between each one. Typically, dam height should be between 18" and 36". Dams should be spaced such that the top of the downstream dam should be at the same elevation as the toe of the upstream dam.
- ❑ Major flows (greater than 2 year design storm) must pass the check dam without causing excessive upstream flooding.
- ❑ Check dams should be used in conjunction with other sediment reduction techniques prior to releasing flow offsite.
- ❑ Use geotextile filter fabric under check dams exceeding 18 inches in height. The fabric shall meet the material specified for the Stone Outlet Sediment Trap, S-5.

Rock Check Dams
- ❑ Stone shall be well graded with size range from 1-1/2 to 3-1/2 inches in diameter depending on expected flows.
- ❑ Rock check dams should be triangular in cross section with side slopes of 1:1 or flatter on the upstream side and 2:1 or flatter on the downstream side.

Targeted Constituents
- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.40

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North Central Texas Council of Governments

Check Dams

Sand Bag Dams

- ❑ Sand bag check dams should have a maximum flow through rate of 0.1 cfs per square foot of surface with a minimum top width of 16 inches and bottom width of 48 inches. Bags should be filled with coarse sand, pea gravel, or filter stone that is clean and free of deleterious material.
- ❑ Bag length shall be 24-inches to 30-inches, width shall be 16-inches to 18-inches and thickness shall be 6-inches to 8-inches and having an approximate weight of 40-pounds.
- ❑ Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as determined by ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, and ultraviolet stability exceeding 70-percent.
- ❑ PVC pipes may be installed through the sand bag dam near the top to allow for controlled flow through the dam. Pipe should be schedule 40 or heavier polyvinyl chloride (PVC) having a nominal internal diameter of 4 inches.

LIMITATIONS

Minor ponding will occur upstream of the check dams. For heavy flows or high velocity flows, extensive maintenance or replacement of the dams will be required.

Care must be used when taking out rock check dams in order to remove as much rock as possible. Loose rock can create an extreme hazard during mowing operations once the area has been stabilized.

MAINTENANCE REQUIREMENTS

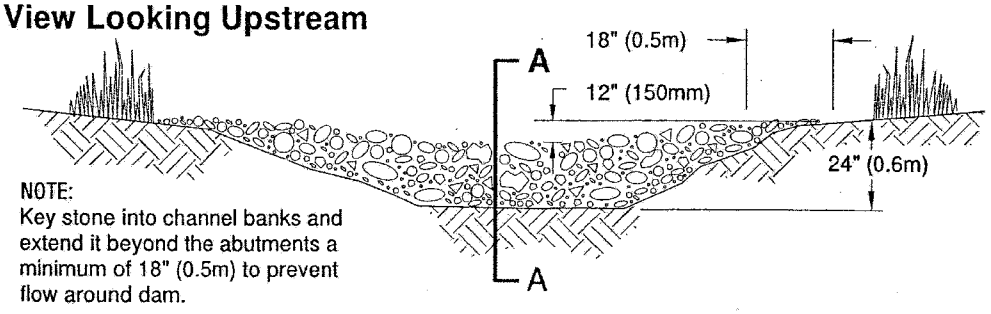
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12", whichever is less.

SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.9 Rock Dam and Item 201.11Sand Bag Dam.

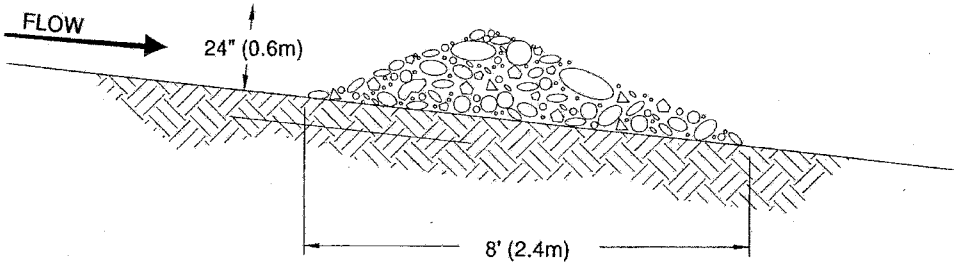
Check Dams

View Looking Upstream

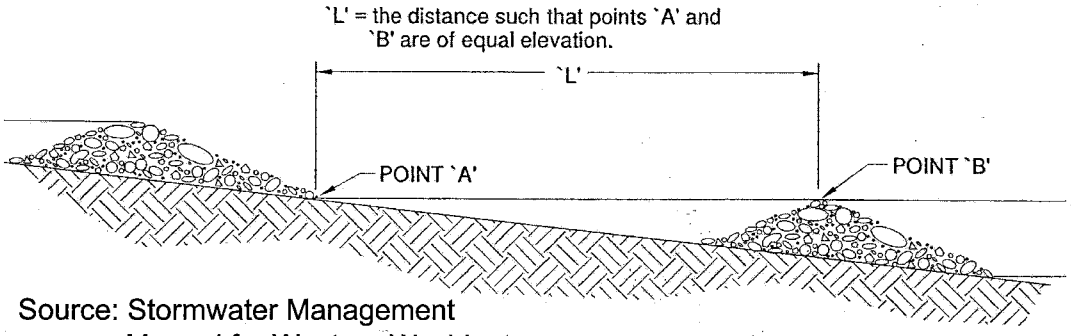


NOTE:
Key stone into channel banks and extend it beyond the abutments a minimum of 18" (0.5m) to prevent flow around dam.

Section A - A



Spacing Between Check Dams



Source: Stormwater Management Manual for Western Washington.

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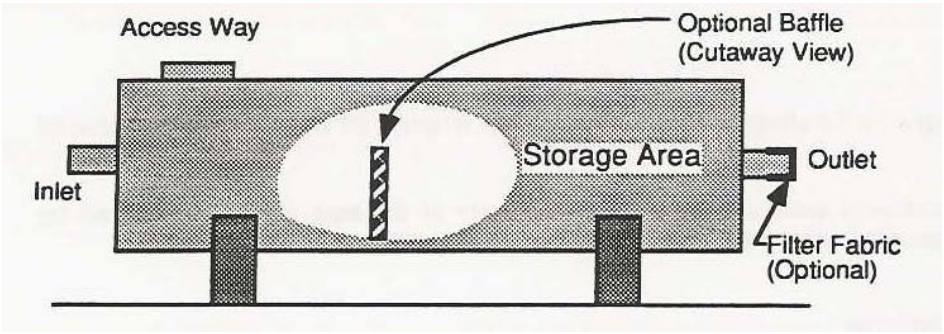
Temporary Sediment Tank



Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

DESCRIPTION
A temporary sediment tank (TST) is a large tank used to hold sediment-laden water to provide for sedimentation and filtration. For smaller applications, 55-gallon drums or other watertight container can be used for storage. Water is pumped into the tank where it is detained. If desired an outlet with a geofabric filter can be provided to release the flow after a period of detention.

PRIMARY USE
A TST is typically used at construction sites in urban areas where conventional methods of sediment removal (e. g., sediment traps, and sediment basins) are not practical.

APPLICATIONS
Applications for a TST include utility construction in confined areas (such as a business district or large developed area) or localized construction in which other BMPs are not required such as small, depressed construction areas (tank farms). This includes pumpage from excavation in heavily developed areas, such as a central business district, with flows due to groundwater or runoff entering the trench or excavated area.

DESIGN CRITERIA
- ❑ A TST can be used as either a sedimentation or filtration device. If an oil sheen is present in the runoff, additional treatment will be required before release of runoff.
- ❑ For use as a small scale sedimentation basin, de-watering discharge is directed into the TST to a level below the tank midpoint and held for a minimum of 2 hours to allow settlement of a majority of the suspended particles. The tank should be designed for a controlled release when the contents of the tank reach a level higher than the midpoint. When sediment occupies 1/3 the capacity of the TST, it should be removed from the tank.
- ❑ As a filtration device, a TST is used for collecting de-watering discharge and passing it through a filtered opening at the outlet of the tank to reduce suspended sediment volume. The filter opening in the TST should have an Apparant Opening Size (AOS) (see Silt Fence BMP) of 70 or smaller.

Targeted Constituents
- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.70

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North Central Texas Council of Governments

Temporary Sediment Tank

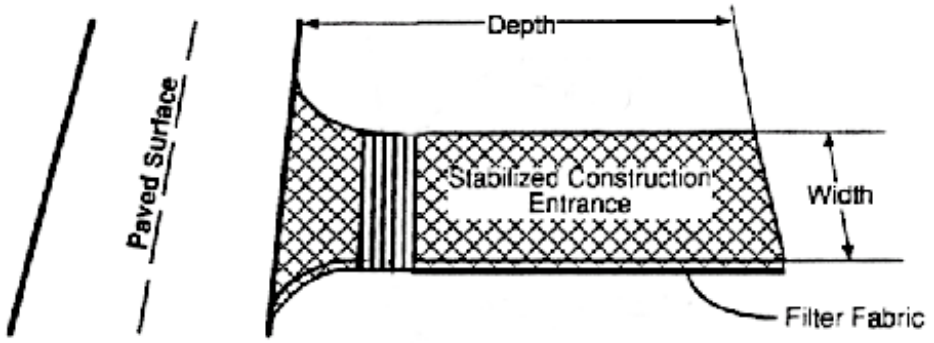
LIMITATIONS
This is a specialized technique for the situations listed. It is not cost effective for normal sediment removal conditions.

The use of a temporary sediment tank is limited by the capacity of the tank, the time required for settlement of suspended material, and disposal of the water and the sediment.

MAINTENANCE REQUIREMENTS
Sediment tanks should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). The tank should be cleaned out when it becomes 1/3 full of sediment.

SPECIFICATION
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Stabilized Construction Entrance



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- **Temporary Stabilization**
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A stabilized construction entrance consists of a pad consisting of crushed stone, recycled concrete or other rock like material on top of geotextile filter cloth to facilitate the removal of sediment and other debris from construction equipment prior to exiting the construction site. This directly addresses the problem of silt and mud deposition in roadways used for construction site access. For added effectiveness, a wash rack area can be incorporated into the design to further reduce sediment tracking (See Wheel Wash, Fact Sheet S-10).

PRIMARY USE

Stabilized construction entrances are used primarily for sites in which significant truck traffic occurs on a daily basis. It reduces the need to remove sediment from streets. If used properly, it also directs the majority of traffic to a single location, reducing the number and quantity of disturbed areas on the site and providing protection for other structural controls through traffic control.

APPLICATIONS

Stabilized construction entrances are a required part of the erosion control plan for all site developments larger than one acre and a recommended practice for all construction sites. If possible, controlled entrances should be incorporated into small lot construction due to the large percentage of disturbed area on the site and the high potential for offsite tracking of silt and mud.

DESIGN CRITERIA

- ❑ Stabilized construction entrances are to be constructed such that drainage across the entrance is directed to a controlled, stabilized outlet on site with provisions for storage, proper filtration, and removal of wash water.
- ❑ The entrance must be sloped away from the paved surface so that storm water is not allowed to leave the site onto roadways.
- ❑ Minimum width of entrance shall be 15 feet.
- ❑ Stone shall be placed in a layer of at least 12-inches thickness. The stone shall be a minimum of 3 to 5 inch coarse aggregate.
- ❑ Prevent shortcutting of the full length of the construction entrance by installing barriers as necessary.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe = N/A

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North Central Texas Council of Governments

Stabilized Construction Entrance

- The geotextile fabric must meet the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 300-lbs.
  - Puncture Strength, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Prodeucts, 120-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 600-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 40 (max).
- When necessary, vehicles must be cleaned to remove sediment prior to entrance onto paved roads, streets, or parking lots. When washing is required, it shall be done on a constructed wheel wash facility that drains into an approved sediment trap or sediment basin or other sedimentation/filtration device.
- Minimum dimensions for the entrance shall be as follows:

Tract Area	Avg. Tract Depth	Min. Width of Entrance	Min. Depth of Entrance
< 1 Acre	100 feet	15 feet	20 feet
< 5 Acres	200 feet	20 feet	50 feet
> 5 Acres	> 200 feet	25 feet	75-100 feet

LIMITATIONS

Selection of the construction entrance location is critical. To be effective, it must be used exclusively.

Stabilized entrances are rather expensive considering that it must be installed in combination with one or more other sediment control techniques, but it may be cost effective compared to labor-intensive street cleaning.

MAINTENANCE REQUIREMENTS

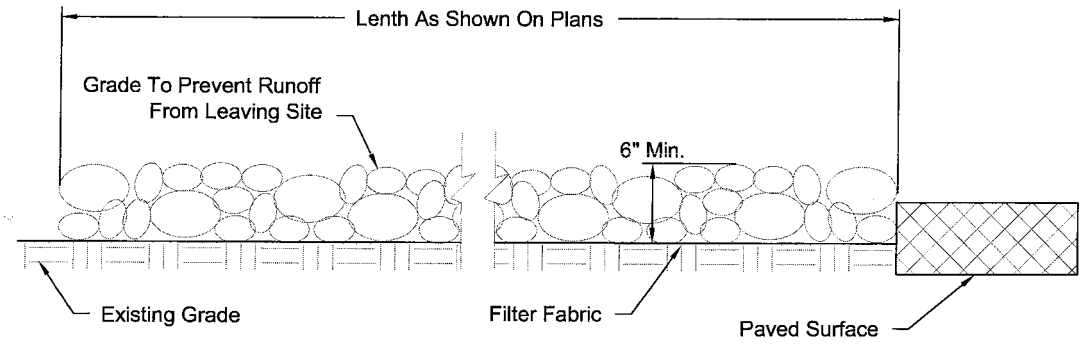
Construction entrances should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When sediment has substantially clogged the void area between the rocks, the aggregate mat must be washed down or replaced. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the entrance from diminishing.

If the stabilized construction entrance is not effectively removing sediment from wheels then a wheel wash should be considered.

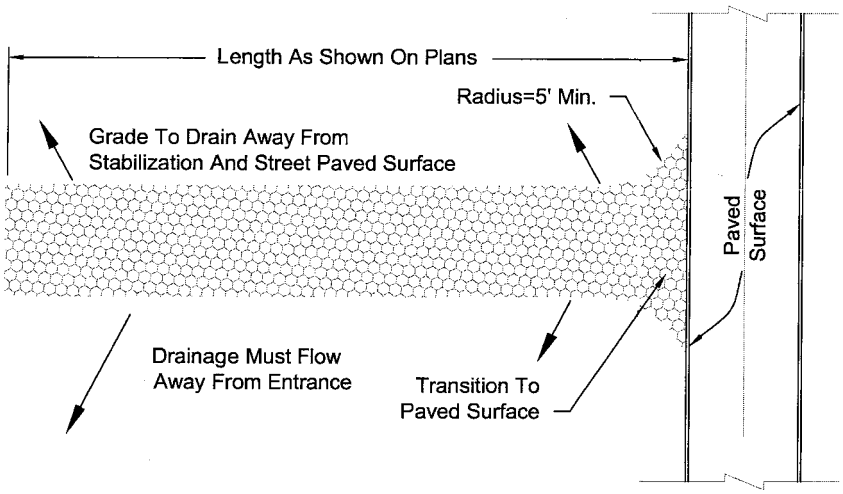
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.10 Stablilized Construction Entrance.

Stabilized Construction Entrance



Profile View



Entrance Must Be Sloped So That Storm Water Is Not Allowed To Leave The Site And Enter Roadways.

Plan View

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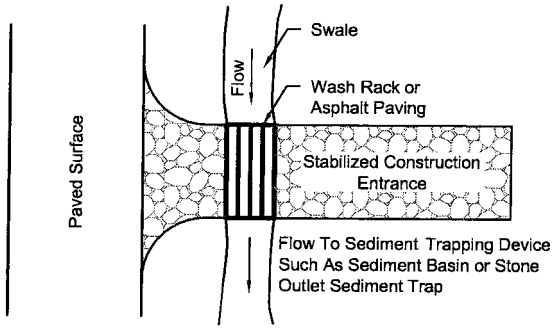
Wheel Wash



Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

The wheel wash is used in conjunction with a stabilized construction entrance to provide an area where truck wheels and undercarriages can be cleaned prior to traversing the stabilized construction entrance and entering the public road system. A wheel wash may consist of an impervious area or a grate over a swale. Wash water from hand held pressure washers or fixed nozzles is collected and drained to a sediment-trapping device such as a stone outlet sediment trap or sediment basin to provide for removal of sediment prior to discharge.

PRIMARY USE

Wheel washes should be used on large jobs where there is significant truck traffic, on those sites where site conditions cause the stabilized construction entrance to be overloaded with sediment and become ineffective, and in those instances where contaminated solids might be present on site. They provide added protection and reduce the need to remove sediment from streets.

APPLICATIONS

Wheel washes should be considered an ancillary component to the stabilized construction entrance.

DESIGN CRITERIA

- The location should be within the stabilized construction entrance so that the vehicle does not pick up additional sediment load by traversing disturbed areas.
- The size of the wheel wash facility should be sufficient so that all wash water and sediment is collected and drained to a sediment trapping device such as a sediment basin or stone outlet sediment trap.
- Suggested designs:
  - 4-inch thick asphalt pavement on an 8-inch base of crushed rock graded so that wash water drains to a swale; or
  - grate suitably designed to support construction vehicles installed over a swale.
- The facility should be designed so that it can be cleaned between uses.

LIMITATIONS

Sediment trapping BMPs used in conjunction with wheel wash facilities must be carefully designed for the anticipated amount of wash water to be treated.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe = N/A

S-10

North Central Texas Council of Governments

Wheel Wash

MAINTENANCE REQUIREMENTS

Wheel wash facilities should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). The surface of the wheel wash should be cleaned between vehicles as necessary. Sediment that has accumulated in the wash water sedimentation BMP (sediment trap, sediment basin, etc.) must be removed when it reaches a depth of approximately 1/3 the design depth of the device or 12", whichever is less. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.

SPECIFICATION

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Debris and Trash Management

DESCRIPTION
Large volumes of debris and trash are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. There are several techniques and procedures to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices. Recycling of construction debris also reduces the volume of material to be disposed of and associated costs.

PRIMARY USE
Debris and trash management should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

APPLICATIONS
Solid waste management for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits. Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures:

- ❑ Construction (and Demolition) Debris
  - Dimensional lumber
  - Miscellaneous wood (pallets, plywood, etc)
  - Copper (pipe and electrical wiring)
  - Miscellaneous metal (studs, pipe, conduit, sheathing, nails, etc)
  - Insulation
  - Concrete, brick, and mortar
  - Shingles
  - Roofing materials
  - Gypsum board

- ❑ Trash
  - Paper and cardboard (packaging, containers, wrappers)
  - Plastic (packaging, bottles, containers)
  - Styrofoam (cups, packing, and forms)
  - Food and beverage containers
  - Food waste

Storage Procedures
- ❑ Wherever possible, minimize production of debris and trash.
- ❑ Designate a foreman or supervisor to oversee and enforce proper debris and trash procedures.
- ❑ Instruct construction workers in proper debris and trash storage and handling procedures.
- ❑ Segregate potentially hazardous waste from non-hazardous construction site debris.
- ❑ Segregate recyclable construction debris from other non-recyclable materials.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents

○ Sediment
● Nutrients Toxic Materials
○ Oil & Grease
● Floatable Materials
● Other Construction Wastes

Implementation Requirements

◒ Capital Costs
◒ Maintenance
◒ Training
○ Suitability for Slopes > 5%

Legend

● Significant Impact
◒ Medium Impact
○ Low Impact
? Unknown or Questionable Impact

M-1

North Central Texas Council of Governments

Debris and Trash Management

- ❑ Keep debris and trash under cover in either a closed dumpster or other enclosed trash container that limits contact with rain and runoff and prevents light materials from blowing out.
- ❑ Store waste materials away from drainage ditches, swales and catch basins.
- ❑ Do not allow trash containers to overflow.
- ❑ Do not allow waste materials to accumulate on the ground.
- ❑ Prohibit littering by workers and visitors.
- ❑ Police site daily for litter and debris.
- ❑ Enforce solid waste handling and storage procedures.

Disposal Procedures
- ❑ If feasible, recycle construction and demolition debris such as wood, metal, and concrete.
- ❑ General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill).
- ❑ Use waste and recycling haulers/facilities approved by the local jurisdiction.

Education
- ❑ Educate all workers on solid waste storage and disposal procedures.
- ❑ Instruct workers in identification of solid waste and hazardous waste.
- ❑ Have regular meetings to discuss and reinforce disposal procedures (incorporate in regular safety seminars).
- ❑ Clearly mark on all debris and trash containers which materials are acceptable.

Quality Control
- ❑ Foreman and/or construction supervisor shall monitor on-site solid waste storage and disposal procedures.
- ❑ Discipline workers who repeatedly violate procedures.

Requirements
- ❑ Job-site waste handling and disposal education and awareness program.
- ❑ Compliance by workers.
- ❑ Sufficient and appropriate waste storage containers.
- ❑ Timely removal of stored solid waste materials.
- ❑ Training workers and monitoring compliance.

LIMITATIONS

Only addresses non-hazardous solid waste.
One part of a comprehensive construction site management program.

Chemical Management

DESCRIPTION
Chemical management addresses the problem of storm water polluted with chemical pollutants through spills or other forms of contact. The objective of the chemical management is to minimize the potential of storm water contamination from construction chemicals through appropriate recognition, handling, storage, and disposal practices.

It is not the intent of chemical management to supersede or replace normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken. Significant spills should be reported to the National Response Center (NRC) at (800) 424-8802.

PRIMARY USE
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites that use or generate hazardous wastes. Many chemicals such as fuel, oil, grease, fertilizer, and pesticide are present at most construction sites.

INSTALLATION, APPLICATION AND DISPOSAL CRITERIA
The chemical management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures:

- ❑ Targeted Chemical Materials
  - Paints
  - Solvents
  - Stains
  - Wood preservatives
  - Cutting oils
  - Greases
  - Roofing tar
  - Pesticides, herbicides, & fertilizer
  - Fuels & lube oils
  - Antifreeze

Storage Procedures
- ❑ Wherever possible, minimize use of hazardous materials.
- ❑ Minimize generation of hazardous wastes on the job-site.
- ❑ Segregate potentially hazardous waste from non-hazardous construction site debris.
- ❑ Designate a foreman or supervisor to oversee hazardous materials handling procedures.
- ❑ Keep chemicals in appropriate containers (closed drums or similar) and under cover.
- ❑ Store chemicals away from drainage ditches, swales and catch basins.
- ❑ Use containment berms in fueling and maintenance areas and where the potential for spills is high.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ● Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M-2

North Central Texas Council of Governments

Chemical Management

Waste Handling
- ❑ Ensure that adequate hazardous waste storage volume is available.
- ❑ Ensure that hazardous waste collection containers are conveniently located.
- ❑ Do not allow potentially hazardous waste materials to accumulate.
- ❑ Enforce hazardous waste handling and disposal procedures.
- ❑ Clearly mark on all hazardous waste containers which materials are acceptable for the container.

Disposal Procedures
- ❑ Ensure that adequate cleanup and containment materials are available onsite.
- ❑ Regularly schedule hazardous waste removal to minimize on-site storage.
- ❑ Use only licensed hazardous waste haulers.

Education
- ❑ Instruct workers on safety procedures for construction site chemical storage.
- ❑ Instruct workers in identification of chemical pollutants.
- ❑ Ensure that workers are trained in procedures for spill prevention and response.
- ❑ Educate workers of potential dangers to humans and the environment from chemical pollutants.
- ❑ Educate all workers on chemical storage and disposal procedures.
- ❑ Have regular meetings to discuss and reinforce identification, handling, and disposal procedures (incorporate in regular safety seminars).
- ❑ Establish a continuing education program to indoctrinate new employees.

Quality Assurance
- ❑ Foreman and/or construction supervisor shall monitor on-site chemical storage and disposal procedures.
- ❑ Educate and if necessary, discipline workers who violate procedures.
- ❑ Ensure that the hazardous waste disposal contractor is reputable and licensed.

Requirements
- ❑ Job-site chemical and hazardous waste handling and disposal education and awareness program.
- ❑ Commitment by management to implement chemical storage and hazardous waste management practices.
- ❑ Compliance by workers.
- ❑ Sufficient and appropriate chemical and hazardous waste storage containers.
- ❑ Timely removal of stored hazardous waste materials.

Cost
- ❑ Possible modest cost impact for additional chemical storage containers.
- ❑ Small cost impact for training and monitoring.
- ❑ Potential cost impact for hazardous waste collection and disposal by licensed hauler - actual cost depends on type of material and volume.

LIMITATIONS

This practice is not intended to address site-assessments and pre-existing contamination. Major contamination, large spills and other serious hazardous waste incidents require immediate response from specialists.

Demolition activities and potential pre-existing materials, such as lead and asbestos, are not addressed by this program. Site-specific information on plans is necessary.

Contaminated soils are not addressed.

Concrete Waste Management

DESCRIPTION
Concrete waste at construction sites comes in two forms: 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

PRIMARY USE
Concrete waste is present at most construction sites. This BMP should be utilized at sites in which concrete waste is present.

APPLICATIONS
A number of water quality parameters can be affected by introduction of concrete - especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste.

Unacceptable Waste Concrete Disposal Practices
- ❑ Dumping in vacant areas on the job-site.
- ❑ Illicit dumping off-jobsite.
- ❑ Dumping into ditches or drainage facilities.

Recommended Disposal Practices
- ❑ Avoid unacceptable disposal practices listed above.
- ❑ Develop pre-determined, safe concrete disposal areas.
- ❑ Provide a washout area with a minimum of 6 cubic feet of containment area volume for every 10 cubic yards of concrete poured.
- ❑ Never dump waste concrete illicitly or without property owner's knowledge and consent.
- ❑ Overflow of washdown water shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.

Education
- ❑ Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- ❑ Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement
- ❑ The construction site manager or foreman must ensure that employees and pre-mix companies follow proper procedures for concrete disposal and equipment washing.
- ❑ Employees violating disposal or equipment cleaning directives must be re-educated or disciplined if necessary.

Demolition Practices
- ❑ Monitor weather and wind direction to ensure concrete dust is not entering drainage structures and surface waters.
- ❑ Where appropriate, construct sediment traps or other types of sediment detention devices downstream of demolition activities.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M-3

North Central Texas Council of Governments

Concrete Waste Management

Requirements
- ❑ Use pre-determined disposal sites for waste concrete.
- ❑ Prohibit dumping waste concrete anywhere but pre-determined areas.
- ❑ Assign pre-determined truck and equipment washing areas.
- ❑ Educate drivers and operators on proper disposal and equipment cleaning procedures.

Costs
- ❑ Minimal cost impact for training and monitoring.
- ❑ Concrete disposal cost depends on availability and distance to suitable disposal areas
- ❑ Additional costs involved in equipment washing could be significant.

LIMITATIONS
Concrete waste management is one part of a comprehensive construction site waste management program.

Concrete Sawcutting Waste Management

DESCRIPTION
Sawcutting of concrete pavement is a routine practice, necessary to control shrinkage cracking immediately following placement of plastic concrete. It is also used to remove curb sections and pavement sections for pavement repairs, utility trenches, and driveways. Sawcutting for joints involves sawing a narrow, shallow groove in the concrete, while sawcutting for removals is usually done full depth through the slab. Water is used to control saw blade temperature and to flush the detritus from the sawed groove. The resulting slurry of process water and fine particles and high pH must be properly managed.

A number of water quality parameters can be affected by introduction of concrete fines. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of saw fines are also generated from sawcutting operations.

DESIGN CRITERIA
Slurry Collection
- ❑ During saw cutting operations, the slurry and cuttings shall be continuously vacuumed to control the flow of water from the operations site.
- ❑ The slurry and cuttings shall not be allowed to drain to the storm drain system, swale, stream or other water body.
- ❑ The slurry and cuttings shall not be allowed to remain on the pavement to dry out.

Slurry Disposal
- ❑ Develop pre-determined, safe slurry disposal areas.
- ❑ Collected slurry and cuttings shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.
- ❑ Never dump waste illicitly or without property owner's knowledge and consent.
- ❑ Slurry may be disposed of in facilities designated for washdown of concrete trucks (see M-3, Concrete Waste Management).

MAINTENANCE
Project personnel should inspect the operations to assure that operators are diligent in controlling the water produced by the saw cutting activities. Following operations the pavement should be inspected to ensure that waste removal has been adequately performed.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend
- ○ Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M-4

North Central Texas Council of Governments

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Sandblasting Waste Management

DESCRIPTION

The objective of sandblasting waste management is to minimize the potential of storm water quality degradation from sandblasting activities at construction sites. The key issues in this program are prudent handling and storage of sandblast media, dust suppression, and proper collection and disposal of spent media. It is not the intent of this BMP to outline all of the worker safety issues pertinent to this practice. Safety issues should be addressed by construction safety programs as well as local, state, and federal regulations.

INSTALLATION/APPLICATION CRITERIA

Since the sandblasting media consists of fine abrasive granules, it can be easily transported by running water. Sandblasting activities typically create a significant dust problem that must be contained and collected to prevent off-site migration of fines. Particular attention must be paid to sandblasting work on bridges, box culverts, and headwalls that span or are immediately adjacent to streams and waterways.

Operational Procedures

- ❑ Use only inert, non-degradable sandblast media.
- ❑ Use appropriate equipment for the job; do not over-blast.
- ❑ Wherever possible, blast in a downward direction.
- ❑ Install a windsock or other wind direction instrument.
- ❑ Cease blasting activities in high winds or if wind direction could transport grit to drainage facilities.
- ❑ Install dust shielding around sandblasting areas.
- ❑ Collect and dispose of all spent sandblast grit, use dust containment fabrics and dust collection hoppers and barrels.
- ❑ Non-hazardous sandblast grit may be disposed in permitted construction debris landfills or permitted sanitary landfills.
- ❑ If sandblast media cannot be fully contained, construct sediment traps downstream from blasting area where appropriate.
- ❑ Use sand fencing where appropriate in areas where blast media cannot be fully contained.
- ❑ If necessary, install misting equipment to remove sandblast grit from the air prevent runoff from misting operations from entering drainage systems.
- ❑ Use vacuum grit collection systems where possible.
- ❑ Keep records of sandblasting materials, procedures, and weather conditions on a daily basis.
- ❑ Take all reasonable precautions to ensure that sandblasting grit is contained and kept away from drainage structures.

Educational Issues

- ❑ Educate all on-site employees of potential dangers to humans and the environment from sandblast grit.
- ❑ Instruct all on-site employees of the potential hazardous nature of sandblast grit and the possible symptoms of over-exposure to sandblast grit.
- ❑ Instruct operators of sandblasting equipment on safety procedures and personal protection equipment.
- ❑ Instruct operators on proper procedures regarding storage, handling and containment of sandblast grit.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents

- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M-5

North Central Texas Council of Governments

Sandblasting Waste Management

- ❑ Instruct operators to recognize unfavorable weather conditions regarding sandblasting activities.
- ❑ Instruct operators and supervisors on current local, state and federal regulations regarding fugitive dust and hazardous waste from sandblast grit.
- ❑ Have weekly meetings with operators to discuss and reinforce proper operational procedures.
- ❑ Establish a continuing education program to indoctrinate new employees.

Materials Handling Recommendations
- ❑ Sandblast media should always be stored under cover away from drainage structures.
- ❑ Ensure that stored media or grit is not subject to transport by wind.
- ❑ Ensure that all sandblasting equipment as well as storage containers comply with current local, state and federal regulations.
- ❑ Refer to Hazardous Waste BMP fact sheet if sandblast grit is known or suspected to contain hazardous components.
- ❑ Capture and treat runoff, which comes into contact with sandblasting material or waste.

Quality Assurance
- ❑ Foremen and/or construction supervisor should monitor all sandblasting activities and safety procedures.
- ❑ Educate and if necessary, discipline workers who violate procedures.
- ❑ Take all reasonable precautions to ensure that sandblast grit is not transported off-site or into drainage facilities.

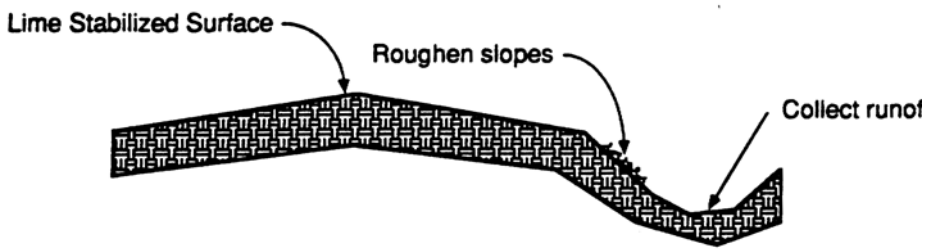
Requirements
- ❑ Education and awareness program for all employees regarding control of sandblasting and potential dangers to humans and the environment.
- ❑ Operator and supervisor education program for those directly involved in sandblasting activities - instructions on material handling, proper equipment operation, personal protective equipment, fugitive dust control, record keeping and reporting.
- ❑ Proper sandblast equipment for the job.
- ❑ Site-specific fugitive dust control and containment equipment.
- ❑ Site-specific fugitive dust control procedures.
- ❑ Compliance by supervisors and workers.

Costs
- ❑ Minimal cost for training and monitoring.
- ❑ Potential for significant cost for containment procedures on large jobs.
- ❑ Potential for significant costs associated with cleanup, correction and remediation if contamination occurs.

LIMITATIONS

Site-specific solutions to sandblasting problems may be required.
Sandblasting operations on structures known to contain hazardous materials require special procedures not specifically outlined above including professional hazardous waste specialists.
Where hazardous materials are known or suspected, a site assessment and remediation plan may be necessary.
Sandblasting waste management is one part of a comprehensive construction site waste management program.

Lime Stabilization Management



DESCRIPTION
Lime stabilization is used extensively in the North Central Texas region to stabilize pavement subbases for roadways, parking lots, and other paved surfaces, and as a subgrade amendment for building pad sites. Hydrated lime is applied to the soil and mixed through disking and other techniques, then allowed to cure. This practice will reduce the potential for runoff to carry lime offsite, where it may impact aquatic life by changing the pH balance of streams, ponds, and other water bodies.

PRIMARY USE
This BMP should be implemented when lime is required for soil stabilization.

APPLICATIONS
Lime stabilization can be used under a variety of conditions. The engineer should determine the applicability of lime stabilization based on site conditions such as available open space, quantity of area to be stabilized, proximity of nearby water courses and other BMPs employed at the site. The use of diversion dikes and interceptor swales (see appropriate fact sheets) to divert runoff away from areas to be stabilized can be used in conjunction with these techniques to reduce the impact of the lime.

DESIGN CRITERIA
- ❑ The contractor shall limit lime operations to that which can be thoroughly mixed and compacted by the end of each workday.
- ❑ No traffic other than water trucks and mixing equipment shall be allowed to pass over the spread lime until after completion of mixing.
- ❑ Areas adjacent and downstream of stabilized areas shall be roughened to intercept lime from runoff and reduce runoff velocity.
- ❑ Geotextile fabrics such as those used for silt fence should not be used to address lime since the grain size of lime is significantly smaller than the apparent opening size of the fabric.
- ❑ For areas for which phasing of lime operations is impractical, use of a curing seal such as Liquid Asphalt, Grade MC-250 or MC-800 applied at a rate of 0.15 gallons per sq. yd. of surface can be used to protect the base.
- ❑ Use of sediment basins with a significant (>36 hour) drawdown time is encouraged for large areas to be stabilized (see S-6, Sediment Basin).
- ❑ Provide containment around lime storage, loading, and dispensing areas.

LIMITATIONS
Lime stabilization can be part of an overall plan to reduce pollutants from an active construction site. In the case of pollution due to lime, prevention of contamination is the only effective method to address this pollutant. Proper application and mixing along with avoiding applications when there is a significant probability of rain will reduce lime runoff.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ◒ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M-6

North Central Texas Council of Governments

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Sanitary Facilities

DESCRIPTION

Facilities for collection and disposal of sanitary waste must be provided and properly managed to minimize the potential contamination of surface water with septic wastes. Location of portable facilities away from storm drain systems and surface waters or containment is necessary in case of spills.

PROCEDURES

- ❑ Sanitary facilities must be provided on the site in close proximity to areas where people are working.
- ❑ Portable toilets must be provided if no permanent facilities are available.
- ❑ Locate portable toilets a minimum of 20 feet away from storm drain inlets, conveyance channels, or surface waters
- ❑ If unable to meet 20-foot distance requirement, provide containment for portable toilets.
- ❑ Portable toilets should be regularly serviced.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents

- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements

- ○ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

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North Central Texas Council of Governments

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CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	**SWPPP INSPECTIONS, INC.–Don Wims** **972.530.5307**
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	**Stonebriar Legacy Medical Plaza** **DFW Mapsco D555-F** **Frisco, TX 75034** **Estimated Start Date: 12/2007** **Projected End Date: 07/2008**
Location of Storm Water Pollution Prevention Plan :	**Huffman Builders, L.P.** **5300 Plano Pkwy., Ste. 100** **Plano, TX 75093**

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I **Jerry Huffman** (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title

11-15-07
Date

OPERATOR CERTIFICATION

Each operator must be identified and must sign the following certification statement that they understand and will comply with the terms of the SWPPP.

Name of Operator: Huffman Builders, L.P.

Address: 5300 Plano Pkwy., Ste. 100
Plano, TX 75093

Telephone Number: 972.248.1667

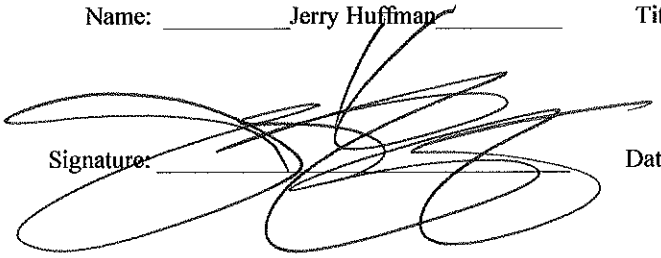
Type of construction service provided: Owner and General Contractor

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

This certification is signed in reference to the SWPPP associated with
Stonebriar Legacy Medical Plaza in Frisco, TX.

Name: Jerry Huffman Title: President



Signature: Date: 11-15-07

SUBCONTRACTOR CERTIFICATION

Each subcontractor engaged in activities that disturb surface soils should sign the following certification statement that they understand and will comply with the terms of the SWPPP.

Name of Contractor or Subcontractor:

Address:

Telephone Number:

Type of construction service provided:

Certification Statement:
"I certify under penalty of law that I understand the terms and conditions of the Texas Pollutant Discharge Elimination System (TPDES) General Permit NO. TXR150000."

This certification is signed in reference to the SWPPP associated with Stonebriar Legacy Medical Plaza in Frisco, TX.

Name: _____ Title: _____

Signature: _____ Date: _____

November 16, 2007

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Storm Water & General Permits Team; MC 228
PO Box 13087
Austin, TX 78711-3087

RE: Compliance with Texas Administrative Code 305.128

Executive Director:

Please be advised that for the project:

Stonebriar Legacy Medical Plaza

any Inspector for SWPPP INSPECTIONS, INC. is the duly authorized representative to sign all inspection reports requested by TXR150000; and,

any assigned Project Manager and/or assigned Superintendent

is the duly authorized representative to sign all other reports requested by TXR150000.

If there are any questions, or further information is needed, please contact me.

Sincerely,

Huffman Builders, L.P.

Jerry Huffman
President

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

SOIL DATA:

Stonebriar Legacy Medical Plaza

in
Frisco, TX

This information was taken from NRCS web soil survey of
Collin County, Texas.

United States Department of Agriculture
Soil Conservation Service in cooperation with
Texas Agricultural Experiment Station

Map Unit Description (Brief)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit. A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Description (Brief)" report gives a brief, general description of the major soils that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief)

Collin County, Texas

Description Category: SOI

Map Unit: HoB2—Houston Black clay, 2 to 4 percent slopes, eroded

THE HOUSTON BLACK SERIES CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED, VERY SLOWLY PERMEABLE, NEARLY LEVEL TO GENTLY SLOPING SOILS OF UPLANDS. THE SOIL FORMED IN CALCAREOUS MARINE CLAYS AND MARLS. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS VERY DARK GRAY CLAY ABOUT 24 INCHES THICK. BELOW 24 INCHES AND TO DEPTHS OF MORE THAN 80 INCHES THE SOIL IS CLAY THAT GRADES FROM DARK GRAY TO GRAYISH BROWN AS DEPTH INCREASES.

Map Unit: ScB—Stephen silty clay, 1 to 3 percent slopes

THE STEPHEN SERIES CONSISTS OF GENTLY SLOPING TO SLOPING, SHALLOW SOILS OF THE UPLANDS. THE SOIL FORMED IN INTER- BEDDED MARL AND CHALKY LIMESTONE. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS DARK BROWN SILTY CLAY ABOUT 8 INCHES THICK. THE NEXT 4 INCH LAYER CONSISTS OF ABOUT 65 PERCENT CHALK FRAGMENTS AND 35 PERCENT DARK BROWN SILTY CLAY. THE SUBSTRATA BELOW 12 INCHES IS PLATY CHALK.

Map Unit: SeC2—Stephen-Eddy complex, 3 to 5 percent slopes, eroded

THE STEPHEN SERIES CONSISTS OF GENTLY SLOPING TO SLOPING, SHALLOW SOILS OF THE UPLANDS. THE SOIL FORMED IN INTER- BEDDED MARL AND CHALKY LIMESTONE. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS DARK BROWN SILTY CLAY ABOUT 8 INCHES THICK. THE NEXT 4 INCH LAYER CONSISTS OF ABOUT 65 PERCENT CHALK FRAGMENTS AND 35 PERCENT DARK BROWN SILTY CLAY. THE SUBSTRATA BELOW 12 INCHES IS PLATY CHALK.

THE EDDY SERIES CONSISTS OF VERY SHALLOW TO SHALLOW, WELL DRAINED, GENTLY SLOPING TO STRONGLY SLOPING SOILS OF UPLANDS. THE SOIL FORMED IN CHALKY LIMESTONE. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS LIGHT BROWNISH GRAY GRAVELLY CLAY LOAM ABOUT 6 INCHES THICK. THE NEXT LAYER IS VERY GRAVELLY CLAY LOAM ABOUT 4 INCHES THICK AND CONTAINS OVER 60 PERCENT CHALKY FRAGMENTS. THE SUBSTRATUM BELOW 10 INCHES IS WHITE MARINE CHALKY.

Data Source Information

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 5, Jan 2, 2007

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings– Collin County, Texas							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HoB2—Houston Black clay, 2 to 4 percent slopes, eroded							
Houston black, eroded	100	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
ScB—Stephen silty clay, 1 to 3 percent slopes							
Stephen	100	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Dwellings and Small Commercial Buildings– Collin County, Texas							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SeC2—Stephen-Eddy complex, 3 to 5 percent slopes, eroded							
Stephen	70	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Eddy	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
Unnamed, minor components	5	Not rated		Not rated		Not rated	

Data Source Information

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 5, Jan 2, 2007

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties– Collin County, Texas														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
HoB2—Houston Black clay, 2 to 4 percent slopes, eroded														
Houston black, eroded	0-5	—	—	50-60	1.20-1.40	0.01-0.42	0.15-0.20	9.0-25.0	1.0-5.0	.32	.32	5	4	86
	5-48	—	—	50-60	1.25-1.50	0.01-0.42	0.12-0.18	9.0-25.0	0.5-3.0	.32	.32			
	48-80	—	—	45-65	1.30-1.55	0.01-0.42	0.10-0.16	9.0-25.0	0.1-1.0	.32	.32			
ScB—Stephen silty clay, 1 to 3 percent slopes														
Stephen	0-14	—	—	40-55	1.35-1.55	1.40-4.00	0.10-0.15	3.0-5.9	1.0-4.0	.32	.32	2	4	86
	14-20	—	—	—	—	0.42-14.00	—	—	—					
	20-28	—	—	—	—	0.42-14.00	—	—	—					

Physical Soil Properties– Collin County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
SeC2—Stephen-Eddy complex, 3 to 5 percent slopes, eroded														
Stephen	0-12	—	—	40-55	1.35-1.55	1.40-4.00	0.10-0.15	3.0-5.9	1.0-4.0	.32	.32	2	4	86
	12-16	—	—	—	—	0.42-14.00	—	—	—					
	16-20	—	—	—	—	0.42-14.00	—	—	—					
Eddy	0-4	—	—	20-40	1.30-1.50	4.00-14.00	0.10-0.13	0.0-2.9	0.5-2.0	.24	.32	1	5	56
	4-8	—	—	20-40	1.30-1.50	4.00-14.00	0.03-0.07	0.0-2.9	0.5-1.0	.24	.32			
	8-20	—	—	—	—	0.42-14.00	—	—	—					
Unnamed, minor components	—	—	—	—	—	—	—	—	—					

Data Source Information

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 5, Jan 2, 2007

Soil Features

This table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Report—Soil Features

Soil Features– Collin County, Texas									
Map symbol and soil name	Restrictive Layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
HoB2—Houston Black clay, 2 to 4 percent slopes, eroded									
Houston black, eroded		—	—		0	—	None	High	Low
ScB—Stephen silty clay, 1 to 3 percent slopes									
Stephen	Paralithic bedrock	7-20	—	Moderately cemented	0	—	None	High	Low
SeC2—Stephen-Eddy complex, 3 to 5 percent slopes, eroded									
Stephen	Paralithic bedrock	7-20	—	Moderately cemented	0	—	None	High	Low
Eddy	Paralithic bedrock	3-15	—	Moderately cemented	0	—	None	High	Low
Unnamed, minor components		—	—		—	—			

Data Source Information

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 5, Jan 2, 2007

Reportable Quantities

(1) The identification and inventory of applicable equipment, materials and supplies which are available locally and regionally.

(2) An estimate of the equipment, materials and supplies which would be required to remove the maximum oil discharge to be anticipated.

(3) Development of agreements and arrangements in advance of an oil discharge for the acquisition of equipment, materials and supplies to be used in responding to such a discharge.

(d) Provisions for well defined and specific actions to be taken after discovery and notification of an oil discharge including:

(1) Specification of an oil discharge response operating team consisting of trained, prepared and available operating personnel.

(2) Predesignation of a properly qualified oil discharge response coordinator who is charged with the responsibility and delegated commensurate authority for directing and coordinating response operations and who knows how to request assistance from Federal authorities operating under existing national and regional contingency plans.

(3) A preplanned location for an oil discharge response operations center and a reliable communications system for directing the coordinated overall response operations.

(4) Provisions for varying degrees of response effort depending on the severity of the oil discharge.

(5) Specification of the order of priority in which the various water uses are to be protected where more than one water use may be adversely affected as a result of an oil discharge and where response operations may not be adequate to protect all uses.

(e) Specific and well defined procedures to facilitate recovery of damages and enforcement measures as provided for by State and local statutes and ordinances.

§ 109.6 Coordination.

For the purposes of coordination, the contingency plans of State and local governments should be developed and implemented in consultation with private interests. A copy of any oil removal contingency plan developed by State and local governments should be forwarded to the Council on Environmental Quality upon request to facilitate the coordination of these contingency plans with the National Oil and Hazardous Materials Pollution Contingency Plan.

PART 110—DISCHARGE OF OIL

Sec.

AUTHORITY: 33 U.S.C. 1321(b)(3) and (b)(4) and 1361(a); E.O. 11735, 38 FR 21243, 3 CFR Parts 1971–1975 Comp., p. 793.

SOURCE: 52 FR 10719, Apr. 2, 1987, unless otherwise noted.

§ 110.1 Definitions.

Terms not defined in this section have the same meaning given by the Section 311 of the Act. As used in this part, the following terms shall have the meaning indicated below:

Act means the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 *et seq.*, also known as the Clean Water Act;

Administrator means the Administrator of the Environmental Protection Agency (EPA);

Applicable water quality standards means State water quality standards adopted by the State pursuant to section 303 of the Act or promulgated by EPA pursuant to that section;

MARPOL 73/78 means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, Annex I, which regulates pollution from oil and which entered into force on October 2, 1983;

Navigable waters means the waters of the United States, including the territorial seas. The term includes:

(a) All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters

that are subject to the ebb and flow of the tide;

(b) Interstate waters, including interstate wetlands;

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) That are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce;

(3) That are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as navigable waters under this section;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this section, including adjacent wetlands; and

(f) Wetlands adjacent to waters identified in paragraphs (a) through (e) of this section: Provided, That waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States;

Navigable waters do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

NPDES means National Pollutant Discharge Elimination System;

Sheen means an iridescent appearance on the surface of water;

Sludge means an aggregate of oil or oil and other matter of any kind in any form other than dredged spoil having a combined specific gravity equivalent to or greater than water;

United States means the States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands;

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds.

[52 FR 10719, Apr. 2, 1987, as amended at 58 FR 45039, Aug. 25, 1993; 61 FR 7421, Feb. 28, 1996]

§ 110.2 Applicability.

The regulations of this part apply to the discharge of oil prohibited by section 311(b)(3) of the Act.

[61 FR 7421, Feb. 28, 1996]

§ 110.3 Discharge of oil in such quantities as "may be harmful" pursuant to section 311(b)(4) of the Act.

For purposes of section 311(b)(4) of the Act, discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States include discharges of oil that:

(a) Violate applicable water quality standards; or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

[61 FR 7421, Feb. 28, 1996]

§ 110.4 Dispersants.

Addition of dispersants or emulsifiers to oil to be discharged that would circumvent the provisions of this part is prohibited.

[52 FR 10719, Apr. 2, 1987. Redesignated at 61 FR 7421, Feb. 28, 1996]

§ 110.5 Discharges of oil not determined "as may be harmful" pursuant to Section 311(b)(3) of the Act.

Notwithstanding any other provisions of this part, the Administrator has not determined the following discharges of oil ''as may be harmful'' for purposes of section 311(b) of the Act:

(a) Discharges of oil from a properly functioning vessel engine (including an

engine on a public vessel) and any discharges of such oil accumulated in the bilges of a vessel discharged in compliance with MARPOL 73/78, Annex I, as provided in 33 CFR part 151, subpart A;

(b) Other discharges of oil permitted under MARPOL 73/78, Annex I, as provided in 33 CFR part 151, subpart A; and

(c) Any discharge of oil explicitly permitted by the Administrator in connection with research, demonstration projects, or studies relating to the prevention, control, or abatement of oil pollution.

[61 FR 7421, Feb. 28, 1996]

§ 110.6 Notice.

Any person in charge of a vessel or of an onshore or offshore facility shall, as soon as he or she has knowledge of any discharge of oil from such vessel or facility in violation of section 311(b)(3) of the Act, immediately notify the National Response Center (NRC) (800–424–8802; in the Washington, DC metropolitan area, 202–426–2675). If direct reporting to the NRC is not practicable, reports may be made to the Coast Guard or EPA predesignated On-Scene Coordinator (OSC) for the geographic area where the discharge occurs. All such reports shall be promptly relayed to the NRC. If it is not possible to notify the NRC or the predesignated OCS immediately, reports may be made immediately to the nearest Coast Guard unit, provided that the person in charge of the vessel or onshore or offshore facility notifies the NRC as soon as possible. The reports shall be made in accordance with such procedures as the Secretary of Transportation may prescribe. The procedures for such notice are set forth in U.S. Coast Guard regulations, 33 CFR part 153, subpart B and in the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR part 300, subpart E.

(Approved by the Office of Management and Budget under control number 2050–0046)

[52 FR 10719, Apr. 2, 1987. Redesignated and amended at 61 FR 7421, Feb. 28, 1996; 61 FR 14032, Mar. 29, 1996]

PART 112—OIL POLLUTION PREVENTION

Sec.

saturated soil conditions. Wetlands generally included playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds): *Provided,* That waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States.

Navigable waters do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(j) *Process waste water* means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

[44 FR 50776, Aug. 29, 1979, as amended at 58 FR 45039, Aug. 25, 1993]

§ 117.2 Abbreviations.

NPDES equals National Pollutant Discharge Elimination System. RQ equals reportable quantity.

§ 117.3 Determination of reportable quantities.

Each substance in Table 117.3 that is listed in Table 302.4, 40 CFR part 302, is assigned the reportable quantity listed in Table 302.4 for that substance.

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

NOTE: The first number under the column headed ''RQ'' is the reportable quantity in pounds. The number in parentheses is the metric equivalent in kilograms. For convenience, the table contains a column headed ''Category'' which lists the code letters ''X'', ''A'', ''B'', ''C'', and ''D'' associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively.

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

Material	Category	RQ in pounds (kilograms)
Acetaldehyde	C	1,000 (454)
Acetic acid	D	5,000 (2,270)
Acetic anhydride	D	5,000 (2,270)
Acetone cyanohydrin	A	10 (4.54)
Acetyl bromide	D	5,000 (2,270)
Acetyl chloride	D	5,000 (2,270)
Acrolein	X	1 (0.454)
Acrylonitrile	B	100 (45.4)
Adipic acid	D	5,000 (2,270)
Aldrin	X	1 (0.454)
Allyl alcohol	B	100 (45.4)
Allyl chloride	C	1,000 (454)
Aluminum sulfate	D	5,000 (2,270)
Ammonia	B	100 (45.4)
Ammonium acetate	D	5,000 (2,270)
Ammonium benzoate	D	5,000 (2,270)
Ammonium bicarbonate	D	5,000 (2,270)
Ammonium bichromate	A	10 (4.54)
Ammonium bifluoride	B	100 (45.4)
Ammonium bisulfite	D	5,000 (2,270)
Ammonium carbamate	D	5,000 (2,270)
Ammonium carbonate	D	5,000 (2,270)
Ammonium chloride	D	5,000 (2,270)
Ammonium chromate	A	10 (4.54)
Ammonium citrate dibasic	D	5,000 (2,270)
Ammonium fluoborate	D	5,000 (2,270)
Ammonium fluoride	B	100 (45.4)
Ammonium hydroxide	C	1,000 (454)
Ammonium oxalate	D	5,000 (2,270)
Ammonium silicofluoride	C	1,000 (454)
Ammonium sulfamate	D	5,000 (2,270)
Ammonium sulfide	B	100 (45.4)
Ammonium sulfite	D	5,000 (2,270)
Ammonium tartrate	D	5,000 (2,270)
Ammonium thiocyanate	D	5,000 (2,270)

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Amyl acetate	D	5,000 (2,270)
Aniline	D	5,000 (2,270)
Antimony pentachloride	C	1,000 (454)
Antimony potassium tartrate	B	100 (45.4)
Antimony tribromide	C	1,000 (454)
Antimony trichloride	C	1,000 (454)
Antimony trifluoride	C	1,000 (454)
Antimony trioxide	C	1,000 (454)
Arsenic disulfide	X	1 (0.454)
Arsenic pentoxide	X	1 (0.454)
Arsenic trichloride	X	1 (0.454)
Arsenic trioxide	X	1 (0.454)
Arsenic trisulfide	X	1 (0.454)
Barium cyanide	A	10 (4.54)
Benzene	A	10 (4.54)
Benzoic acid	D	5,000 (2,270)
Benzonitrile	D	5,000 (2,270)
Benzoyl chloride	C	1,000 (454)
Benzyl chloride	B	100 (45.4)
Beryllium chloride	X	1 (0.454)
Beryllium fluoride	X	1 (0.454)
Beryllium nitrate	X	1 (0.454)
Butyl acetate	D	5,000 (2,270)
Butylamine	C	1,000 (454)
n-Butyl phthalate	A	10 (4.54)
Butyric acid	D	5,000 (2,270)
Cadmium acetate	A	10 (4.54)
Cadmium bromide	A	10 (4.54)
Cadmium chloride	A	10 (4.54)
Calcium arsenate	X	1 (0.454)
Calcium arsenite	X	1 (0.454)
Calcium carbide	A	10 (4.54)
Calcium chromate	A	10 (4.54)
Calcium cyanide	A	10 (4.54)
Calcium dodecylbenzenesulfonate	C	1,000 (454)
Calcium hypochlorite	A	10 (4.54)
Captan	A	10 (4.54)
Carbaryl	B	100 (45.4)
Carbofuran	A	10 (4.54)
Carbon disulfide	B	100 (45.4)
Carbon tetrachloride	A	10 (4.54)
Chlordane	X	1 (0.454)
Chlorine	A	10 (4.54)
Chlorobenzene	B	100 (45.4)
Chloroform	A	10 (4.54)
Chlorosulfonic acid	C	1,000 (454)
Chlorpyrifos	X	1 (0.454)
Chromic acetate	C	1,000 (454)
Chromic acid	A	10 (4.54)
Chromic sulfate	C	1,000 (454)
Chromous chloride	C	1,000 (454)
Cobaltous bromide	C	1,000 (454)
Cobaltous formate	C	1,000 (454)
Cobaltous sulfamate	C	1,000 (454)
Coumaphos	A	10 (4.54)
Cresol	B	100 (45.4)
Crotonaldehyde	B	100 (45.4)
Cupric acetate	B	100 (45.4)
Cupric acetoarsenite	X	1 (0.454)
Cupric chloride	A	10 (4.54)
Cupric nitrate	B	100 (45.4)
Cupric oxalate	B	100 (45.4)
Cupric sulfate	A	10 (4.54)
Cupric sulfate, ammoniated	B	100 (45.4)
Cupric tartrate	B	100 (45.4)
Cyanogen chloride	A	10 (4.54)
Cyclohexane	C	1,000 (454)
2,4-D Acid	B	100 (45.4)
2,4-D Esters	B	100 (45.4)
DDT	X	1 (0.454)
Diazinon	X	1 (0.454)

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Dicamba	C	1,000 (454)
Dichlobenil	B	100 (45.4)
Dichlone	X	1 (0.454)
Dichlorobenzene	B	100 (45.4)
Dichloropropane	C	1,000 (454)
Dichloropropene	B	100 (45.4)
Dichloropropene-Dichloropropane (mixture)	B	100 (45.4)
2,2-Dichloropropionic acid	D	5,000 (2,270)
Dichlorvos	A	10 (4.54)
Dicofol	A	10 (4.54)
Dieldrin	X	1 (0.454)
Diethylamine	B	100 (45.4)
Dimethylamine	C	1,000 (454)
Dinitrobenzene (mixed)	B	100 (45.4)
Dinitrophenol	A	10 (45.4)
Dinitrotoluene	A	10 (4.54)
Diquat	C	1,000 (454)
Disulfoton	X	1 (0.454)
Diuron	B	100 (45.4)
Dodecylbenzenesulfonic acid	C	1,000 (454)
Endosulfan	X	1 (0.454)
Endrin	X	1 (0.454)
Epichlorohydrin	B	100 (45.4)
Ethion	A	10 (4.54)
Ethylbenzene	C	1,000 (454)
Ethylenediamine	D	5,000 (2,270)
Ethylenediamine-tetraacetic acid (EDTA)	D	5,000 (2,270)
Ethylene dibromide	X	1 (0.454)
Ethylene dichloride	B	100 (45.4)
Ferric ammonium citrate	C	1,000 (454)
Ferric ammonium oxalate	C	1,000 (454)
Ferric chloride	C	1,000 (454)
Ferric fluoride	B	100 (45.4)
Ferric nitrate	C	1,000 (454)
Ferric sulfate	C	1,000 (454)
Ferrous ammonium sulfate	C	1,000 (454)
Ferrous chloride	B	100 (45.4)
Ferrous sulfate	C	1,000 (454)
Formaldehyde	B	100 (45.4)
Formic acid	D	5,000 (2,270)
Fumaric acid	D	5,000 (2,270)
Furfural	D	5,000 (2,270)
Guthion	X	1 (0.454)
Heptachlor	X	1 (0.454)
Hexachlorocyclopentadiene	A	10 (4.54)
Hydrochloric acid	D	5,000 (2,270)
Hydrofluoric acid	B	100 (45.4)
Hydrogen cyanide	A	10 (4.54)
Hydrogen sulfide	B	100 (45.4)
Isoprene	B	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	C	1,000 (454)
Kepone	X	1 (0.454)
Lead acetate	A	10 (4.54)
Lead arsenate	X	1 (0.454)
Lead chloride	A	10 (4.54)
Lead fluoborate	A	10 (4.54)
Lead fluoride	A	10 (4.54)
Lead iodide	A	10 (4.54)
Lead nitrate	A	10 (4.54)
Lead stearate	A	10 (4.54)
Lead sulfate	A	10 (4.54)
Lead sulfide	A	10 (4.54)
Lead thiocyanate	A	10 (4.54)
Lindane	X	1 (0.454)
Lithium chromate	A	10 (4.54)
Malathion	B	100 (45.4)
Maleic acid	D	5,000 (2,270)
Maleic anhydride	D	5,000 (2,270)
Mercaptodimethur	A	10 (4.54)
Mercuric cyanide	X	1 (0.454)
Mercuric nitrate	A	10 (4.54)

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Mercuric sulfate	A	10 (4.54)
Mercuric thiocyanate	A	10 (4.54)
Mercurous nitrate	A	10 (4.54)
Methoxychlor	X	1 (0.454)
Methyl mercaptan	B	100 (45.4)
Methyl methacrylate	C	1,000 (454)
Methyl parathion	B	100 (45.4)
Mevinphos	A	10 (4.54)
Mexacarbate	C	1,000 (454)
Monoethylamine	B	100 (45.4)
Monomethylamine	B	100 (45.4)
Naled	A	10 (4.54)
Naphthalene	B	100 (45.4)
Naphthenic acid	B	100 (45.4)
Nickel ammonium sulfate	B	100 (45.4)
Nickel chloride	B	100 (45.4)
Nickel hydroxide	A	10 (4.54)
Nickel nitrate	B	100 (45.4)
Nickel sulfate	B	100 (45.4)
Nitric acid	C	1,000 (454)
Nitrobenzene	C	1,000 (454)
Nitrogen dioxide	A	10 (4.54)
Nitrophenol (mixed)	B	100 (45.4)
Nitrotoluene	C	1,000 (454)
Paraformaldehyde	C	1,000 (454)
Parathion	A	10 (4.54)
Pentachlorophenol	A	10 (4.54)
Phenol	C	1,000 (454)
Phosgene	A	10 (4.54)
Phosphoric acid	D	5,000 (2,270)
Phosphorus	X	1 (0.454)
Phosphorus oxychloride	C	1,000 (454)
Phosphorus pentasulfide	B	100 (45.4)
Phosphorus trichloride	C	1,000 (454)
Polychlorinated biphenyls	X	1 (0.454)
Potassium arsenate	X	1 (0.454)
Potassium arsenite	X	1 (0.454)
Potassium bichromate	A	10 (4.54)
Potassium chromate	A	10 (4.54)
Potassium cyanide	A	10 (4.54)
Potassium hydroxide	C	1,000 (454)
Potassium permanganate	B	100 (45.4)
Propargite	A	10 (4.54)
Propionic acid	D	5,000 (2,270)
Propionic anhydride	D	5,000 (2,270)
Propylene oxide	B	100 (45.4)
Pyrethrins	X	1 (0.454)
Quinoline	D	5,000 (2,270)
Resorcinol	D	5,000 (2,270)
Selenium oxide	A	10 (4.54)
Silver nitrate	X	1 (0.454)
Sodium	A	10 (4.54)
Sodium arsenate	X	1 (0.454)
Sodium arsenite	X	1 (0.454)
Sodium bichromate	A	10 (4.54)
Sodium bifluoride	B	100 (45.4)
Sodium bisulfite	D	5,000 (2,270)
Sodium chromate	A	10 (4.54)
Sodium cyanide	A	10 (4.54)
Sodium dodecylbenzenesulfonate	C	1,000 (454)
Sodium fluoride	C	1,000 (454)
Sodium hydrosulfide	D	5,000 (2,270)
Sodium hydroxide	C	1,000 (454)
Sodium hypochlorite	B	100 (45.4)
Sodium methylate	C	1,000 (454)
Sodium nitrite	B	100 (45.4)
Sodium phosphate, dibasic	D	5,000 (2,270)
Sodium phosphate, tribasic	D	5,000 (2,270)
Sodium selenite	B	100 (45.4)
Strontium chromate	A	10 (4.54)
Strychnine	A	10 (4.54)

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Styrene	C	1,000 (454)
Sulfuric acid	C	1,000 (454)
Sulfur monochloride	C	1,000 (454)
2,4,5-T acid	C	1,000 (454)
2,4,5-T amines	D	5,000 (2,270)
2,4,5-T esters	C	1,000 (454)
2,4,5-T salts	C	1,000 (454)
TDE	X	1 (0.454)
2,4,5-TP acid	B	100 (45.4)
2,4,5-TP acid esters	B	100 (45.4)
Tetraethyl lead	A	10 (4.54)
Tetraethyl pyrophosphate	A	10 (4.54)
Thallium sulfate	B	100 (45.4)
Toluene	C	1,000 (454)
Toxaphene	X	1 (0.454)
Trichlorfon	B	100 (45.4)
Trichloroethylene	B	100 (45.4)
Trichlorophenol	A	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	C	1,000 (454)
Triethylamine	D	5,000 (2,270)
Trimethylamine	B	100 (45.4)
Uranyl acetate	B	100 (45.4)
Uranyl nitrate	B	100 (45.4)
Vanadium pentoxide	C	1,000 (454)
Vanadyl sulfate	C	1,000 (454)
Vinyl acetate	D	5,000 (2,270)
Vinylidene chloride	B	100 (45.4)
Xylene (mixed)	B	100 (45.4)
Xylenol	C	1,000 (454)
Zinc acetate	C	1,000 (454)
Zinc ammonium chloride	C	1,000 (454)
Zinc borate	C	1,000 (454)
Zinc bromide	C	1,000 (454)
Zinc carbonate	C	1,000 (454)
Zinc chloride	C	1,000 (454)
Zinc cyanide	A	10 (4.54)
Zinc fluoride	C	1,000 (454)
Zinc formate	C	1,000 (454)
Zinc hydrosulfite	C	1,000 (454)
Zinc nitrate	C	1,000 (454)
Zinc phenolsulfonate	D	5,000 (2,270)
Zinc phosphide	B	100 (45.4)
Zinc silicofluoride	D	5,000 (2,270)
Zinc sulfate	C	1,000 (454)
Zirconium nitrate	D	5,000 (2,270)
Zirconium potassium fluoride	C	1,000 (454)
Zirconium sulfate	D	5,000 (2,270)
Zirconium tetrachloride	D	5,000 (2,270)

[50 FR 13513, Apr. 4, 1985, as amended at 51 FR 34547, Sept. 29, 1986; 54 FR 33482, Aug. 14, 1989; 58 FR 35327, June 30, 1993; 60 FR 30937, June 12, 1995]

Subpart B—Applicability

§ 117.11 General applicability.

This regulation sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged into or upon the navigable waters of the United States, adjoining shorelines, into or upon the contiguous zone, or beyond the contiguous zone as provided in section 311(b)(3) of the Act, except to the extent that the owner or operator can show such that discharges are made:

(a) In compliance with a permit issued under the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1401 *et seq.*);

(b) In compliance with approved water treatment plant operations as

potentially responsible parties to undertake response actions.

(e) Because state and local public safety organizations would normally be the first government representatives at the scene of a discharge or release, they are expected to initiate public safety measures that are necessary to protect the public health and welfare and that are consistent with containment and cleanup requirements in the NCP, and are responsible for directing evacuations pursuant to existing state or local procedures.

[59 FR 47473, Sept. 15, 1994]

PART 302—DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION

Sec.

AUTHORITY: 42 U.S.C. 9602, 9603, and 9604; 33 U.S.C. 1321 and 1361.

SOURCE: 50 FR 13474, Apr. 4, 1985, unless otherwise noted.

§ 302.1 Applicability.

This regulation designates under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (''the Act'') those substances in the statutes referred to in section 101(14) of the Act, identifies reportable quantities for these substances, and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act.

§ 302.2 Abbreviations.

CASRN=Chemical Abstracts Service Registry Number
RCRA=Resource Conservation and Recovery Act of 1976, as amended
lb=pound
kg=kilogram
RQ=reportable quantity

§ 302.3 Definitions.

As used in this part, all terms shall have the meaning set forth below:

The Act, CERCLA, or *Superfund* means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Pub. L. 96–510);

Administrator means the Administrator of the United States Environmental Protection Agency (''EPA'');

Consumer product shall have the meaning stated in 15 U.S.C. 2052;

Environment means (1) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Fishery Conservation and Management Act of 1976, and (2) any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States;

Facility means (1) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (2) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel;

Hazardous substance means any substance designated pursuant to 40 CFR part 302;

Hazardous waste shall have the meaning provided in 40 CFR 261.3;

Navigable waters or *navigable waters of the United States* means waters of the United States, including the territorial seas;

Offshore facility means any facility of any kind located in, on, or under, any of the navigable waters of the United States, and any facility of any kind which is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel;

Onshore facility means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land or

non-navigable waters within the United States;

Person means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, State, municipality, commission, political subdivision of a State, or any interstate body;

Release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, but excludes (1) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (3) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or for the purposes of section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978, and (4) the normal application of fertilizer;

Reportable quantity means that quantity, as set forth in this part, the release of which requires notification pursuant to this part;

United States include the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the Northern Marianas, and any other territory or possession over which the United States has jurisdiction; and

Vessel means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

§ 302.4 Designation of hazardous substances.

(a) *Listed hazardous substances.* The elements and compounds and hazardous wastes appearing in table 302.4 are designated as hazardous substances under section 102(a) of the Act.

(b) *Unlisted hazardous substances.* A solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), is a hazardous substance under section 101(14) of the Act if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24.

NOTE: The numbers under the column headed ''CASRN'' are the Chemical Abstracts Service Registry Numbers for each hazardous substance. Other names by which each hazardous substance is identified in other statutes and their implementing regulations are provided in the ''Regulatory Synonyms'' column. The ''Statutory RQ'' column lists the RQs for hazardous substances established by section 102 of CERCLA. The ''Statutory Code'' column indicates the statutory source for designating each substance as a CERCLA hazardous substance: ''1'' indicates that the statutory source is section 311(b)(4) of the Clean Water Act, ''2'' indicates that the source is section 307(a) of the Clean Water Act, ''3'' indicates that the source is section 112 of the Clean Air Act, and ''4'' indicates that the source is RCRA section 3001. The ''RCRA Waste Number'' column provides the waste identification numbers assigned to various substances by RCRA regulations. The column headed ''Category'' lists the code letters ''X,'' ''A,'' ''B,'' ''C,'' and ''D,'' which are associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively. The ''Pounds (kg)'' column provides the reportable quantity adjustment for each hazardous substance in pounds and kilograms.

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Acenaphthene	83329		1*	2		B	100 (45.4)
Acenaphthylene	208968		1*	2		D	5000 (2270)
Acetaldehyde	75070	Ethanal	1000	1,3,4	U001	C	1000 (454)
Acetaldehyde, chloro-	107200	Chloroacetaldehyde	1*	4	P023	C	1000 (454)
Acetaldehyde, trichloro-	75876	Chloral	1*	4	U034	D	5000 (2270)
Acetamide	60355		1*	3		B	100 (45.4)
Acetamide, N-(aminothioxomethyl)-	591082	1-Acetyl-2-thiourea	1*	4	P002	C	1000 (454)
Acetamide, N-(4-ethoxyphenyl)-	62442	Phenacetin	1*	4	U187	B	100 (45.4)
Acetamide, 2-fluoro-	640197	Fluoroacetamide	1*	4	P057	B	100 (45.4)
Acetamide, N-9H-fluoren-2-yl-	53963	2-Acetylaminofluorene	1*	3,4	U005	X	1 (0.454)
Acetic acid	64197		1000	1		D	5000 (2270)
Acetic acid (2,4-dichlorophenoxy)-, salts & esters	94757	2,4-D Acid, 2,4-D,salts and esters	100	1,3,4	U240	B	100 (45.4)
Acetic acid, Lead(2+) salt	301042	Lead acetate	5000	1,4	U144	A	10 (4.54)
Acetic acid, thallium (1+) salt	563688	Thallium(I) acetate	1*	4	U214	B	100 (45.4)
Acetic acid, (2,4,5-trichlorophenoxy)	93765	2,4,5-T 2,4,5-T acid	100	1,4	U232	C	1000 (454)
Acetic acid, ethyl ester	141786	Ethyl acetate	1*	4	U112	D	5000 (2270)
Acetic acid, fluoro-, sodium salt	62748	Fluoroacetic acid, sodium salt	1*	4	P058	A	10 (4.54)
Acetic anhydride	108247		1000	1		D	5000 (2270)
Acetone	67641	2-Propanone	1*	4	U002	D	5000 (2270)
Acetone cyanohydrin	75865	Propanenitrile, 2-hydroxy-2-methyl-2-Methyllactonitrile.	10	1,4	P069	A	10 (4.54)
Acetonitrile	75058		1*	3,4	U003	D	5000 (2270)
Acetophenone	98862	Ethanone, 1-phenyl-	1*	3,4	U004	D	5000 (2270)
2-Acetylaminofluorene	53963	Acetamide, N-9H-fluoren-2-yl-	1*	3,4	U005	X	1 (0.454)
Acetyl bromide	506967		5000	1		D	5000 (2270)
Acetyl chloride	75365		5000	1,4	U006	D	5000 (2270)
1-Acetyl-2-thiourea	591082	Acetamide, N-(aminothioxomethyl)-	1*	4	P002	C	1000 (454)
Acrolein	107028	2-Propenal	1	1,2,3,4	P003	X	1 (0.454)
Acrylamide	79061	2-Propenamide	1*	3,4	U007	D	5000 (2270)
Acrylic acid	79107	2-Propenoic acid	1*	3,4	U008	D	5000 (2270)
Acrylonitrile	107131	2-Propenenitrile	100	1,2,3,4	U009	B	100 (45.4)
Adipic acid	124049		5000	1		D	5000 (2270)
Aldicarb	116063	Propanal, 2-methyl-2-(methylthio)-,O-[(methylamino)carbonyl]oxime.	1*	4	P070	X	1 (0.454)
Aldrin	309002	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha,4abeta,5alpha,8alpha,8abeta)-.	1	1,2,4	P004	X	1 (0.454)
Allyl alcohol	107186	2-Propen-1-ol	100	1,4	P005	B	100 (45.4)

Allyl chloride	107051		1000	1,3		C	1000 (454)
Aluminum phosphide	20859738		1*	4	P006	B	100 (45.4)
Aluminum sulfate	10043013		5000	1		D	5000 (2270)
4-Aminobiphenyl	92671		1*	3		X	1 (0.454)
5-(Aminomethyl)-3-isoxazolol	2763964	Muscimol 3(2H)-Isoxazolone, 5-(aminomethyl)-	1*	4	P007	C	1000 (454)
4-Aminopyridine	504245	4-Pyridinamine	1*	4	P008	C	1000 (454)
Amitrole	61825	1H-1,2,4-Triazol-3-amine	1*	4	U011	A	10 (4.54)
Ammonia	7664417		100	1		B	100 (45.4)
Ammonium acetate	631618		5000	1		D	5000 (2270)
Ammonium benzoate	1863634		5000	1		D	5000 (2270)
Ammonium bicarbonate	1066337		5000	1		D	5000 (2270)
Ammonium bichromate	7789095		1000	1		A	10 (4.54)
Ammonium bifluoride	1341497		5000	1		B	100 (45.4)
Ammonium bisulfite	10192300		5000	1		D	5000 (2270)
Ammonium carbamate	1111780		5000	1		D	5000 (2270)
Ammonium carbonate	506876		5000	1		D	5000 (2270)
Ammonium chloride	12125029		5000	1		D	5000 (2270)
Ammonium chromate	7788989		1000	1		A	10 (4.54)
Ammonium citrate, dibasic	3012655		5000	1		D	5000 (2270)
Ammonium fluoborate	13826830		5000	1		D	5000 (2270)
Ammonium fluoride	12125018		5000	1		B	100 (45.4)
Ammonium hydroxide	1336216		1000	1		C	1000 (454)
Ammonium oxalate	6009707		5000	1		D	5000 (2270)
	5972736						
	14258492						
Ammonium picrate	131748	Phenol, 2,4,6-trinitro-, ammonium salt	1*	4	P009	A	10 (4.54)
Ammonium silicofluoride	16919190		1000	1		C	1000 (454)
Ammonium sulfamate	7773060		5000	1		D	5000 (2270)
Ammonium sulfide	12135761		5000	1		B	100 (45.4)
Ammonium sulfite	10196040		5000	1		D	5000 (2270)
Ammonium tartrate	14307438		5000	1		D	5000 (2270)
	3164292						
Ammonium thiocyanate	1762954		5000	1		D	5000 (2270)
Ammonium vanadate	7803556	Vanadic acid, ammonium salt	1*	4	P119	C	1000 (454)
Amyl acetate	628637		1000	1		D	5000 (2270)
iso-Amyl acetate	123922						
sec-Amyl acetate	626380						
tert-Amyl acetate	625161						
Aniline	62533	Benzenamine	1000	1,3,4	U012	D	5000 (2270)
o-Anisidine	90040		1*	3		B	100 (45.4)
Anthracene	120127		1*	2		D	5000 (2270)
Antimony††	7440360		1*	2		D	5000 (2270)
ANTIMONY AND COMPOUNDS	N.A.	Antimony Compounds	1*	2,3			**
Antimony Compounds	N.A.	ANTIMONY AND COMPOUNDS	1*	2,3			**
Antimony pentachloride	7647189		1000	1		C	1000 (454)
Antimony potassium tartrate	28300745		1000	1		B	100 (45.4)
Antimony tribromide	7789619		1000	1		C	1000 (454)
Antimony trichloride	10025919		1000	1		C	1000 (454)
Antimony trifluoride	7783564		1000	1		C	1000 (454)
Antimony trioxide	1309644		5000	1		C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Argentate(1-), bis(cyano-C)-, potassium	506616	Potassium silver cyanide	1*	4	P099	X	1 (0.454)
Aroclor 1016	12674112	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclors	1336363	PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1016	12674112		10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282		10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165		10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219		10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296		10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691		10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825		10	1,2,3		X	1 (0.454)
Arsenic††	7440382		1*	2,3		X	1 (0.454)
Arsenic acid	1327522 7778394	Arsenic acid H_3 AsO_4	1*	4	P010	X	1 (0.454)
Arsenic acid H_3 AsO_4	1327522 7778394	Arsenic acid	1*	4	P010	X	1 (0.454)
ARSENIC AND COMPOUNDS	N.A.	Arsenic Compounds (inorganic including arsine).	1*	2,3			**
Arsenic Compounds (inorganic including arsine)	N.A.	ARSENIC AND COMPOUNDS	1*	2,3			**
Arsenic disulfide	1303328		5000	1		X	1 (0.454)
Arsenic oxide As_2 O_3	1327533	Arsenic trioxide	5000	1,4	P012	X	1 (0.454)

Arsenic oxide As_2O_5	1303282	Arsenic pentoxide	5000	1,4	P011	X	1 (0.454)
Arsenic pentoxide	1303282	Arsenic oxide As_2O_5	5000	1,4	P011	X	1 (0.454)
Arsenic trichloride	7784341		5000	1		X	1 (0.454)
Arsenic trioxide	1327533	Arsenic oxide As_2O_3	5000	1,4	P012	X	1 (0.454)
Arsenic trisulfide	1303339		5000	1		X	1 (0.454)
Arsine, diethyl-	692422	Diethylarsine	1*	4	P038	X	1 (0.454)
Arsinic acid, dimethyl-	75605	Cacodylic acid	1*	4	U136	X	1 (0.454)
Arsonous dichloride, phenyl-	696286	Dichlorophenylarsine	1*	4	P036	X	1 (0.454)
Asbestos †††	1332214		1*	2,3		X	1 (0.454)
Auramine	492808	Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-.	1*	4	U014	B	100 (45.4)
Azaserine	115026	L-Serine, diazoacetate (ester)	1*	4	U015	X	1 (0.454)
Aziridine	151564	Ethyleneimine	1*	3,4	P054	X	1 (0.454)
Aziridine, 2-methyl-	75558	2-Methyl aziridine 1,2-Propylenemine	1*	3,4	P067	X	1 (0.454)
Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-(1aalpha,8beta,8aalpha,8balpha)]-	50077	Mitomycin C	1*	4	U010	A	10 (4.54)
Barium cyanide	542621		10	1,4	P013	A	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56495	3-Methylcholanthrene	1*	4	U157	A	10 (4.54)
Benz[c]acridine	225514		1*	4	U016	B	100 (45.4)
Benzal chloride	98873	Benzene, dichloromethyl-	1*	4	U017	D	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950585	Pronamide	1*	4	U192	D	5000 (2270)
Benz[a]anthracene	56553	Benzo[a]anthracene 1,2-Benzanthracene	1*	2,4	U018	A	10 (4.54)
1,2-Benzanthracene	56553	Benz[a]anthracene Benzo[a]anthracene	1*	2,4	U018	A	10 (4.54)
Benz[a]anthracene, 7,12-dimethyl-	57976	7,12-Dimethylbenz[a]anthracene	1*	4	U094	X	1 (0.454)
Benzenamine	62533	Aniline	1000	1,3,4	U012	D	5000 (2270)
Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	492808	Auramine	1*	4	U014	B	100 (45.4)
Benzenamine, 4-chloro-	106478	p-Chloroaniline	1*	4	P024	C	1000 (454)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	3165933	4-Chloro-o-toluidine, hydrochloride	1*	4	U049	B	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo-)	60117	Dimethyl aminoazobenzene p-Dimethylaminoazobenzene	1*	3,4	U093	A	10 (4.54)
Benzenamine, 2-methyl-	95534	o-Toluidine	1*	3,4	U328	B	100 (45.4)
Benzenamine, 4-methyl-	106490	p-Toluidine	1*	4	U353	B	100 (45.4)
Benzenamine, 4,4'-methylenebis(2-chloro-	101144	4,4'-Methylenebis(2-chloroaniline)	1*	3,4	U158	A	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	636215	o-Toluidine hydrochloride	1*	4	U222	B	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	99558	5-Nitro-o-toluidine	1*	4	U181	B	100 (45.4)
Benzenamine, 4-nitro-	100016	p-Nitroaniline	1*	4	P077	D	5000 (2270)
Benzene [a]	71432		1000	1,2,3,4	U109	A	10 (4.54)
Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester	510156	Chlorobenzilate	1*	3,4	U038	A	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	101553	4-Bromophenyl phenyl ether	1*	2,4	U030	B	100 (45.4)
Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305033	Chlorambucil	1*	4	U035	A	10 (4.54)
Benzene, chloro-	108907	Chlorobenzene	100	1,2,3,4	U037	B	100 (45.4)
Benzene, chloromethyl-	100447	Benzyl chloride	100	1,3,4	P028	B	100 (45.4)
Benzenediamine, ar-methyl-	95807	Toluenediamine	1*	3,4	U221	A	10 (4.54)
	496720	2,4-Toluene diamine					
	823405						
	25376458						
1,2-Benzenedicarboxylic acid, dioctyl ester	117840	Di-n-octyl phthalate	1*	2,4	U107	D	5000 (2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	117817	Bis(2-ethylhexyl)phthalate DEHP Diethylhexyl phthalate	1*	2,3,4	U028	B	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	84742	n-Butyl phthalate Dibutyl phthalate Di-n-butyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	84662	Diethyl phthalate	1*	2,4	U088	C	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	131113	Dimethyl phthalate	1*	2,3,4	U102	D	5000 (2270)
Benzene, 1,2-dichloro-	95501	o-Dichlorobenzene 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
Benzene, 1,3-dichloro-	541731	m-Dichlorobenzene 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
Benzene, 1,4-dichloro-	106467	p-Dichlorobenzene 1,4-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
Benzene, 1,1′-(2,2-dichloroethylidene)bis[4-chloro-	72548	DDD TDE 4,4′ DDD	1	1,2,4	U060	X	1 (0.454)
Benzene, dichloromethyl-	98873	Benzal chloride	1*	4	U017	D	5000 (2270)
Benzene, 1,3-diisocyanatomethyl-	91087 584849 26471625	Toluene diisocyanate 2,4-Toluene diisocyanate	1*	3,4	U223	B	100 (45.4)
Benzene, dimethyl-	1330207	Xylene Xylene (mixed) Xylenes (isomers and mixture)	1000	1,3,4	U239	B	100 (45.4)
Benzene,m-dimethyl-	108383	m-Xylene	1*	3		C	1000 (454)
Benzene, o-dimethyl-	95476	o-Xylene	1*	3		C	1000 (454)
Benzene, p-dimethyl-	106423	p-Xylene	1*	3		B	100 (45.4)
1,3-Benzenediol	108463	Resorcinol	1000	1,4	U201	D	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	51434	Epinephrine	1*	4	P042	C	1000 (454)
Benzeneethanamine, alpha,alpha-dimethyl-	122098	alpha,alpha-Dimethylphenethylamine	1*	4	P046	D	5000 (2270)
Benzene, hexachloro-	118741	Hexachlorobenzene	1*	2,3,4	U127	A	10 (4.54)
Benzene, hexahydro-	110827	Cyclohexane	1000	1,4	U056	C	1000 (454)
Benzene, hydroxy-	108952	Phenol	1000	1,2,3,4	U188	C	1000 (454)
Benzene, methyl-	108883	Toluene	1000	1,2,3,4	U220	C	1000 (454)
Benzene, 2-methyl-1,3-dinitro-	606202	2,6-Dinitrotoluene	1000	1,2,4	U106	B	100 (45.4)
Benzene, 1-methyl-2,4-dinitro-	121142	2,4-Dinitrotoluene	1000	1,2,3,4	U105	A	10 (4.54)
Benzene, (1-methylethyl)-	98828	Cumene	1*	3,4	U055	D	5000 (2270)
Benzene, nitro-	98953	Nitrobenzene	1000	1,2,3,4	U169	C	1000 (454)
Benzene, pentachloro-	608935	Pentachlorobenzene	1*	4	U183	A	10 (4.54)

Benzene, pentachloronitro-	82688	PCNB	1*	3,4	U185	B	100 (45.4)
		Pentachloronitrobenzene					
		Quintobenzene					
Benzenesulfonic acid chloride	98099	Benzenesulfonyl chloride	1*	4	U020	B	100 (45.4)
Benzenesulfonyl chloride	98099	Benzenesulfonic acid chloride	1*	4	U020	B	100 (45.4)
Benzene, 1,2,4,5-tetrachloro-	95943	1,2,4,5-Tetrachlorobenzene	1*	4	U207	D	5000 (2270)
Benzenethiol	108985	Thiophenol	1*	4	P014	B	100 (45.4)
Benzene, 1,1′-(2,2,2-tri- chloroethylidene)bis[4-chloro-	50293	DDT	1	1,2,4	U061	X	1 (0.454)
		4,4′DDT					
Benzene, 1,1′-(2,2,2-trichloroethylidene) bis[4-methoxy-	72435	Methoxychlor	1	1,3,4	U247	X	1 (0.454)
Benzene, (trichloromethyl)-	98077	Benzotrichloride	1*	3,4	U023	A	10 (4.54)
Benzene, 1,3,5-trinitro-	99354	1,3,5-Trinitrobenzene	1*	4	U234	A	10 (4.54)
Benzidine	92875	[1,1′-Biphenyl]-4,4′-diamine	1*	2,3,4	U021	X	1 (0.454)
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81072	Saccharin and salts	1*	4	U202	B	100 (45.4)
Benzo[a]anthracene	56553	Benz[a]anthracene	1*	2,4	U018	A	10 (4.54)
		1,2-Benzanthracene					
Benzo[b]fluoranthene	205992		1*	2		X	1 (0.454)
Benzo(k)fluoranthene	207089		1*	2		D	5000 (2270)
Benzo[j,k]fluorene	206440	Fluoranthene	1*	2,4	U120	B	100 (45.4)
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)	22961826		1*	4	U364		##
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb)	22781233		1*	4	U278		##
1,3-Benzodioxole, 5-)1-propenyl)-	120581	Isosafrole	1*	4	U141	B	100 (45.4)
1,3-Benzodioxole,5-(2-propenyl)-	94597	Safrole	1*	4	U203	B	100 (45.4)
1,3-Benzodioxole, 5-propyl-	94586	Dihydrosafrole	1*	4	U090	A	10 (4.54)
7-Benzofuranol, 2,3-dihydro-2,2-dimethyl- (Carbofuran phenol)	1563388		1*	4	U367		##
Benzoic acid	65850		5000	1		D	5000 (2270)
Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate).	57647		1*	4	P188		##
Benzonitrile	100470		1000	1		D	5000 (2270)
Benzo [rst]pentaphene	189559	Dibenz[a,i]pyrene	1*	4	U064	A	10 (4.54)
Benzo[ghi]perylene	191242		1*	2		D	5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	81812	Warfarin, & salts, when present at concentrations greater than 0.3%.	1*	4	P001	B	100 (45.4)
Benzo[a]pyrene	50328	3,4-Benzopyrene	1*	2,4	U022	X	1 (0.454)
3,4-Benzopyrene	50328	Benzo[a]pyrene	1*	2,4	U022	X	1 (0.454)
p-Benzoquinone	106514	2,5-Cyclohexadiene-1,4-dione	1*	3,4	U197	A	10 (4.54)
		Quinone					
Benzotrichloride	98077	Benzene, (trichloromethyl)-	1*	3,4	U023	A	10 (4.54)
Benzoyl chloride	98884		1000	1		C	1000 (454)
1,2-Benzphenanthrene	218019	Chrysene	1*	2,4	U050	B	100 (45.4)
Benzyl chloride	100447	Benzene, chloromethyl-	100	1,3,4	P028	B	100 (45.4)
BERYLLIUM AND COMPOUNDS	N.A.	Beryllium Compounds	1*	2,3			**
Beryllium Compounds	N.A.	BERYLLIUM AND COMPOUNDS	1*	2,3			**
Beryllium chloride	7787475		5000	1		X	1 (0.454)
Beryllium fluoride	7787497		5000	1		X	1 (0.454)
Beryllium nitrate	13597994		5000	1		X	1 (0.454)
	7787555						
Beryllium powder††	7440417	Beryllium††	1*	2,3,4	P015	A	10 (4.54)
alpha—BHC	319846		1*	2		A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
beta—BHC	319857		1*	2		X	1 (0.454)
delta—BHC	319868		1*	2		X	1 (0.454)
γ-BHC	58899	Cyclohexane, 1,2,3,4,5,6-hexa chloro- (1α, 2α, 3β,4α,5α,6β)-. Hexachlorocyclohexane (gamma isomer) Lindane	1	1,2,3,4	U129	X	1 (0.454)
2,2′-Bioxirane	1464535	1,2:3,4-Diepoxybutane	1*	4	U085	A	10 (4.54)
(1,1′-Biphenyl)-4,4′diamine	92875	Benzidine	1*	2,4	U021	X	1 (0.454)
[1,1′-Biphenyl]-4,4′diamine,3,3′dichloro-	91941	3,3′-Dichlorobenzidine	1*	2,4	U073	X	1 (0.454)
[1,1′-Biphenyl]-4,4′diamine,3,3′dimethoxy-	119904	3,3′-Dimethoxybenzidine	1*	4	U091	B	100 (45.4)
[1,1′Biphenyl]-4,4′-diamine,3,3′-dimethyl-	119937	3,3′-Dimethylbenzidine	1*	4	U095	A	10 (4.54)
Biphenyl	92524		1*	3		B	100 (45.4)
Bis (2-chloroethyl) ether	111444	Dichloroethyl ether	1*	2,4	U025	A	10 (4.54)
Bis(2-chloroethoxy) methane	111911	Ethane,1,1′-oxybis[2-chloro- Dichloromethoxy ethane	1*	2,4	U024	C	1000 (454)
Bis (2-ethylhexyl)phthalate	117817	Ethane, 1,1′-[methylenebis(oxy)]bis(2-chloro- Diethylhexyl phthalate	1*	2,4	U028	B	100 (45.4)
		1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester					
Bromoacetone	598312	2-Propanone, 1-bromo-	1*	4	P017	C	1000 (454)
Bromoform	75252	Methane, tribromo-	1*	2,4	U225	B	100 (45.4)
4-Bromophenyl phenyl ether	101553	Benzene, 1-bromo-4-phenoxy-	1*	2,4	U030	B	100 (45.4)
Brucine	357573	Strychnidin-10-one, 2,3-dimethoxy-	1*	4	P018	B	100 (45.4)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87683	Hexachlorobutadiene	1*	2,4	U128	X	1 (0.454)
1,3-Butadiene	106990		1*	3		A	10 (4.54)
1-Butanamine, N-butyl-N-nitroso-	924163	N-Nitrosodi-n-butylamine	1*	4	U172	A	10 (4.54)
1-Butanol	71363	n-Butyl alcohol	1*	4	U031	D	5000 (2270)
2-Butanone	78933	MEK Methyl ethyl ketone	1*	3,4	U159	D	5000 (2270)
2-Butanone peroxide	1338234	Methyl ethyl ketone peroxide	1*	4	U160	A	10 (4.54)
2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime.	39196184	Thiofanox	1*	4	P045	B	100 (45.4)
2-Butenal	123739 4170303	Crotonaldehyde	100	1,4	U053	B	100 (45.4)
2-Butene, 1,4-dichloro-	764410	1,4-Dichloro-2-butene	1*	4	U074	X	1 (0.454)
2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	303344	Lasiocarpine	1*	4	U143	A	10 (4.54)
Butyl acetate	123864		5000	1		D	5000 (2270)
iso-Butyl acetate	110190						
sec-Butyl acetate	105464						

tert-Butyl acetate	540885						
n-Butyl alcohol	71363	1-Butanol	1*	4	U031	D	5000 (2270)
Butylamine	109739		1000	1		C	1000 (454)
iso-Butylamine	78819						
sec-Butylamine	513495						
	13952846						
tert-Butylamine	75649						
Butyl benzyl phthalate	85687		1*	2		B	100 (45.4)
n-Butyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,3,4	U069	A	10 (4.54)
		Dibutyl phthalate					
		Di-n-butyl phthalate					
Butyric acid	107926		5000	1		D	5000 (2270)
iso-Butyric acid	79312						
Cacodylic acid	75605	Arsinic acid, dimethyl-	1*	4	U136	X	1 (0.454)
Cadmium ††	7440439		1*	2		A	10 (4.54)
Cadmium acetate	543908		100	1		A	10 (4.54)
CADMIUM AND COMPOUNDS	N.A.	Cadmium Compounds	1*	2,3			**
Cadmium Compounds	N.A.	CADMIUM AND COMPOUNDS	1*	2,3			**
Cadmium bromide	7789426		100	1		A	10 (4.54)
Cadmium chloride	10108642		100	1		A	10 (4.54)
Calcium arsenate	7778441		1000	1		X	1 (0.454)
Calcium arsenite	52740166		1000	1		X	1 (0.454)
Calcium carbide	75207		5000	1		A	10 (4.54)
Calcium chromate	13765190	Chromic acid H_2 CrO_4, calcium salt	1000	1,4	U032	A	10 (4.54)
Calcium cyanamide	156627		1*	3		C	1000 (454)
Calcium cyanide	592018	Calcium cyanide Ca(CN)2	10	1,4	P021	A	10 (4.54)
Calcium cyanide Ca(CN)2	592018	Calcium cyanide	10	1,4	P021	A	10 (4.54)
Calcium dodecylbenzenesulfonate	26264062		1000	1		C	1000 (454)
Calcium hypochlorite	7778543		100	1		A	10 (4.54)
Camphene, octachloro-	8001352	Chlorinated camphene	1	1,2,3,4	P123	X	1 (0.454)
		Toxaphene					
Captan	133062		10	1,3		A	10 (4.54)
Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl, methyl ester (Benomyl).	17804352		1*	4	U271		##
Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim)	10605217		1*	4	U372		##
Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban)	101279		1*	4	U280		##
Carbamic acid, [(dibutylamino)thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan).	55285148		1*	4	P189		##
Carbamic acid, dimethyl-,1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan).	644644		1*	4	P191		##
Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan).	119380		1*	4	P192		##
Carbamic acid, ethyl ester	51796	Ethyl carbamate	1*	3,4	U238	B	100 (45.4)
		Urethane					
Carbamic acid, methylnitroso-, ethyl ester	615532	N-Nitroso-N-methylurethane	1*	4	U178	X	1 (0.454)
Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb)	1129415		1*	4	P190		##
Carbamic acid, [1,2- phenylenebis(iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl).	23564058		1*	4	U409		##
Carbamic acid, phenyl-, 1-methylethyl ester (Propham)	122429		1*	4	U373		##
Carbamic chloride, dimethyl-	79447	Dimethylcarbamoyl chloride	1*	3,4	U097	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Carbamodithioic acid, 1,2-ethanediylbis, salts & esters	111546	Ethylenebisdithiocarbamic acid, salts & esters ..	1*	4	U114	D	5000 (2270)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303164	Diallate	1*	4	U062	B	100 (45.4)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate).	2303175		1*	4	U389		##
Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb)	52888809		1*	4	U387		##
Carbaryl	63252		100	1,3		B	100 (45.4)
Carbofuran	1563662		10	1		A	10 (4.54)
Carbon disulfide	75150		5000	1,3,4	P022	B	100 (45.4)
Carbon oxyfluoride	353504	Carbonic difluoride	1*	4	U033	C	1000 (454)
Carbonic acid, dithallium(1+) salt	6533739	Thallium(I) carbonate	1*	4	U215	B	100 (45.4)
Carbonic dichloride	75445	Phosgene	5000	1,3,4	P095	A	10 (4.54)
Carbonic difluoride	353504	Carbon oxyfluoride	1*	4	U033	C	1000 (454)
Carbonochloridic acid, methyl ester	79221	Methyl chlorocarbonate Methyl chloroformate	1*	4	U156	C	1000 (454)
Carbon tetrachloride	56235	Methane, tetrachloro-	5000	1,2,3,4	U211	A	10 (4.54)
Carbonyl sulfide	463581		1*	3		B	100 (45.4)
Catechol	120809		1*	3		B	100 (45.4)
Chloral	75876	Acetaldehyde, trichloro-	1*	4	U034	D	5000 (2270)
Chloramben	133904		1*	3		B	100 (45.4)
Chlorambucil	305033	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-.	1*	4	U035	A	10 (4.54)
Chlordane	57749	Chlordane, alpha & gamma isomers CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	1	1,2,3,4	U036	X	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	N.A.		1*	2			**
Chlordane, alpha & gamma isomers	57749	Chlordane CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	1	1,2,3,4	U036	X	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	57749	Chlordane, alpha & gamma isomers Chlordane, alpha & gamma isomers 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,3,4	U036	X	1 (0.454)
CHLORINATED BENZENES	N.A.		1*	2			**
Chlorinated camphene	8001352	Camphene, octachloro- Toxaphene	1	1,2,3,4	P123	X	1 (0.454)
CHLORINATED ETHANES	N.A.		1*	2			**

CHLORINATED NAPHTHALENE	N.A.	1*	2			**
CHLORINATED PHENOLS	N.A.	1*	2			**
Chlorine	7782505	10	1,3		A	10 (4.54)
Chlornaphazine	494031	1*	4	U026	B	100 (45.4)
Chloroacetaldehyde	107200	1*	4	P023	C	1000 (454)
Chloroacetic acid	79118	1*	3		B	100 (45.4)
2-Chloroacetophenone	532274	1*	3		B	100 (45.4)
CHLOROALKYL ETHERS	N.A.	1*	2			**
p-Chloroaniline	106478	1*	4	P024	C	1000 (454)
Chlorobenzene	108907	100	1,2,3,4	U037	B	100 (45.4)
Chlorobenzilate	510156	1*	3,4	U038	A	10 (4.54)
4-Chloro-m-cresol	59507	1*	2,4	U039	D	5000 (2270)
p-Chloro-m-cresol	59507	1*	2,4	U039	D	5000 (2270)
Chloroethane	75003	1*	2,3		B	100 (45.4)
Chlorodibromomethane	124481	1*	2		B	100 (45.4)
1-Chloro-2,3-epoxypropane	106898	1000	1,3,4	U041	B	100 (45.4)
2-Chloroethyl vinyl ether	110758	1*	2,4	U042	C	1000 (454)
Chloroform	67663	5000	1,2,3,4	U044	A	10 (4.54)
Chloromethane	74873	1*	2,3,4	U045	B	100 (45.4)
Chloromethyl methyl ether	107302	1*	3,4	U046	A	10 (4.54)
beta-Chloronaphthalene	91587	1*	2,4	U047	D	5000 (2270)
2-Chloronaphthalene	91587	1*	2,4	U047	D	5000 (2270)
2-Chlorophenol	95578	1*	2,4	U048	B	100 (45.4)
o-Chlorophenol	95578	1*	2,4	U048	B	100 (45.4)
4-Chlorophenyl phenyl ether	7005723	1*	2		D	5000 (2270)
1-(o-Chlorophenyl)thiourea	5344821	1*	4	P026	B	100 (45.4)
Chloroprene	126998	1*	3		B	100 (45.4)
3-Chloropropionitrile	542767	1*	4	P027	C	1000 (454)
Chlorosulfonic acid	7790945	1000	1		C	1000 (454)
4-Chloro-o-toluidine, hydrochloride	3165933	1*	4	U049	B	100 (45.4)
Chlorpyrifos	2921882	1	1		X	1 (0.454)
Chromic acetate	1066304	1000	1		C	1000 (454)
Chromic acid	11115745	1000	1		A	10 (4.54)
Chromic acid H_2CrO_4, calcium salt	7738945	1000	1,4	U032	A	10 (4.54)
Chromic sulfate	13765190	1000	1		C	1000 (454)
Chromium††	10101538	1000	1		C	1000 (454)
CHROMIUM AND COMPOUNDS	7440473	1*	2		D	5000 (2270)
Chromium Compounds	N.A.	1*	2,3			**
Chromous chloride	N.A.	1*	2,3			**
	10049055	1000	1		C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Chrysene	218019	1,2-Benzphenanthrene	1*	2,4	U050	B	100 (45.4)
Cobalt compounds	N.A.		1*	3			**
Cobaltous bromide	7789437		1000	1		C	1000 (454)
Cobaltous formate	544183		1000	1		C	1000 (454)
Cobaltous sulfamate	14017415		1000	1		C	1000 (454)
Coke Oven Emissions	N.A.		1*	3		X	1 (0.454)
Copper††	7440508		1*	2		D	5000 (2270)
COPPER AND COMPOUNDS	N.A.		1*	2			**
Copper cyanide	544923	Copper cyanide CuCN	1*	4	P029	A	10 (4.54)
Copper cyanide CuCN	544923	Copper cyanide	1*	4	P029	A	10 (4.54)
Coumaphos	56724		10	1		A	10 (4.54)
Creosote	8001589		1*	4	U051	X	1 (0.454)
Cresols (isomers and mixture)	1319773	Cresylic acid (isomers and mixture)	1000	1,3,4	U052	B	100 (45.4)
		Phenol, methyl					
m-Cresol	108394	m-Cresylic acid	1*	3		B	100 (45.4)
o-Cresol	95487	o-Cresylic acid	1*	3		B	100 (45.4)
p-Cresol	106445	p-Cresylic acid	1*	3		B	100 (45.4)
Cresylic acid (isomers and mixture)	1319773	Cresols (isomers and mixture)	1000	1,3,4	U052	B	100 (45.4)
		Phenol, methyl					
m-Cresylic acid	108394	m-Cresol	1*	3		B	100 (45.4)
o-Cresylic acid	95487	o-Cresol	1*	3		B	100 (45.4)
p-Cresylic acid	106445	p-Cresol	1*	3		B	100 (45.4)
Crotonaldehyde	123739	2-Butenal	100	1,4	U053	B	100 (45.4)
	4170303						
Cumene	98828	Benzene, (1-methylethyl)-	1*	3,4	U055	D	5000 (2270)
Cupric acetate	142712		100	1		B	100 (45.4)
Cupric acetoarsenite	12002038		100	1		X	1 (0.454)
Cupric chloride	7447394		10	1		A	10 (4.54)
Cupric nitrate	3251238		100	1		B	100 (45.4)
Cupric oxalate	5893663		100	1		B	100 (45.4)
Cupric sulfate	7758987		10	1		A	10 (4.54)
Cupric sulfate, ammoniated	10380297		100	1		B	100 (45.4)
Cupric tartrate	815827		100	1		B	100 (45.4)
Cyanide Compounds	N.A.	CYANIDES	1*	2,3			**
CYANIDES	N.A.	Cyanide Compounds	1*	2,3			**
Cyanides (soluble salts and complexes) not otherwise specified	57125		1*	4	P030	A	10 (4.54)
Cyanogen	460195	Ethanedinitrile	1*	4	P031	B	100 (45.4)
Cyanogen bromide	506683	Cyanogen bromide (CN)Br	1*	4	U246	C	1000 (454)
Cyanogen bromide (CN)Br	506683	Cyanogen bromide	1*	4	U246	C	1000 (454)
Cyanogen chloride	506774	Cyanogen chloride (CN)Cl	10	1,4	P033	A	10 (4.54)
Cyanogen chloride (CN)Cl	506774	Cyanogen chloride	10	1,4	P033	A	10 (4.54)

2,5-Cyclohexadiene-1,4-dione	106514	p-Benzoquinone Quinone	1*	3,4	U197	A	10 (4.54)
Cyclohexane	110827	Benzene, hexahydro-	1000	1,4	U056	C	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-	58899	γ-BHC Hexachlorocyclohexane (gamma isomer) Lindane Lindane (all isomers)	1	1,2,3,4	U129	X	1 (0.454)
Cyclohexanone	108941		1*	4	U057	D	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	131895	Phenol, 2-cyclohexyl-4,6-dinitro-	1*	4	P034	B	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77474	Hexachlorocyclopentadiene	1	1,2,3,4	U130	A	10 (4.54)
Cyclophosphamide	50180	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	1*	4	U058	A	10 (4.54)
2,4-D Acid	94757	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters. 2,4-D, salts and esters	100	1,3,4	U240	B	100 (45.4)
2,4-D Ester	94111 94791 94804 1320189 1928387 1928616 1929733 2971382 25168267 53467111		100	1		B	100 (45.4)
2,4-D salts and esters	94757	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters. 2,4-D Acid	100	1,3,4	U240	B	100 (45.4)
Daunomycin	20830813	5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6- trideoxy-alpha-L-lyxo-hexo-pyranosyl)oxy]-7,8,9,10- tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-.	1*	4	U059	A	10 (4.54)
DDD	72548	Benzene, 1,1′-(2,2-dichloroethylidene)bis[4-chloro-. TDE 4,4′ DDD	1	1,2,4	U060	X	1 (0.454)
4,4′ DDD	72548	Benzene, 1,1′-(2,2-dichloroethylidene)bis[4-chloro- DDD TDE	1	1,2,4	U060	X	1 (0.454)
DDE	72559	4,4′-DDE	1*	2,3		X	1 (0.454)
4,4′-DDE	72559	DDE	1*	2,3		X	1 (0.454)
DDE[b]	3547044		1*	3		D	5000 (2270)
DDT	50293	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-chloro- 4,4′DDT	1	1,2,4	U061	X	1 (0.454)
4,4′DDT	50293	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-chloro- DDT	1	1,2,4	U061	X	1 (0.454)
DDT AND METABOLITES	N.A.		1*	2			**

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
DEHP	117817	1,2-Benzenedicarboxylic acid, bis(2-ethyl-hexyl) ester. Bis(2-ethylhexyl)phthalate Diethylhexyl phthalate	1*	2,3,4	U028	B	100 (45.4)
Diallate	2303164	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester.	1*	4	U062	B	100 (45.4)
Diazinon	333415		1	1		X	1 (0.454)
Diazomethane	334883		1*	3		B	100 (45.4)
Dibenz[a,h]anthracene	53703	Dibenzo[a,h]anthracene 1,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
1,2:5,6-Dibenzanthracene	53703	Dibenz[a,h]anthracene Dibenzo[a,h]anthracene	1*	2,4	U063	X	1 (0.454)
Dibenzo[a,h]anthracene	53703	Dibenz[a,h]anthracene ,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
Dibenz[a,i]pyrene	189559	Benzo[rst]pentaphene	1*	4	U064	A	10 (4.54)
Dibenzofuran	132649		1*	3		B	100 (45.4)
1,2-Dibromo-3-chloropropane	96128	Propane, 1,2-dibromo-3-chloro-	1*	3,4	U066	X	1 (0.454)
Dibromoethane	106934	Ethane, 1,2-dibromo- Ethylene dibromide	1000	1,3,4	U067	X	1 (0.454)
Dibutyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester n-Butyl phthalate Di-n-butyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
Di-n-butyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester n-Butyl phthalate Dibutyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
Dicamba	1918009		1000	1		C	1000 (454)
Dichlobenil	1194656		1000	1		B	100 (45.4)
Dichlone	117806		1	1		X	1 (0.454)
Dichlorobenzene	25321226		100	1		B	100 (45.4)
1,2-Dichlorobenzene	95501	Benzene, 1,2-dichloro- o-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
1,3-Dichlorobenzene	541731	Benzene, 1,3-dichloro m-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
1,4-Dichlorobenzene	106467	Benzene, 1,4-dichloro- p-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
m-Dichlorobenzene	541731	Benzene, 1,3-dichloro 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
o-Dichlorobenzene	95501	Benzene, 1,2-dichloro 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
p-Dichlorobenzene	106467	Benzene, 1,4-dichloro- 1,4-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
DICHLOROBENZIDINE	N.A.		1*	2			**
3,3′-Dichlorobenzidine	91941	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dichloro-	*	2,3,4	U073	X	1 (0.454)
Dichlorobromomethane	75274		1*	2		D	5000 (2270)
1,4-Dichloro-2-butene	764410	2-Butene, 1,4-dichloro-	1*	4	U074	X	1 (0.454)

Dichlorodifluoromethane	75718	Methane, dichlorodifluoro-	1*	4	U075	D	5000 (2270)
1,1-Dichloroethane	75343	Ethane, 1,1-dichloro-	1*	2,3,4	U076	C	1000 (454)
		Ethylidene dichloride					
1,2-Dichloroethane	107062	Ethane, 1,2-dichloro-	5000	1,2,3,4	U077	B	100 (45.4)
		Ethylene dichloride					
1,1-Dichloroethylene	75354	Ethene, 1,1-dichloro-	5000	1,2,3,4	U078	B	100 (45.4)
		Vinylidene chloride					
1,2-Dichloroethylene	156605	Ethene, 1,2-dichloro- (E)	1*	2,4	U079	C	1000 (454)
Dichloroethyl ether	111444	Bis(2-chloroethyl) ether	1*	2,3,4	U025	A	10 (4.54)
		Ethane, 1,1'-oxybis[2-chloro-					
Dichloroisopropyl ether	108601	Propane, 2,2'-oxybis[2-chloro-	1*	2,4	U027	C	1000 (454)
Dichloromethane	75092	Methane, dichoro-	1*	2,3,4	U080	C	1000 (454)
		Methylene chloride					
Dichloromethoxy ethane	111911	Bis(2-chloroethoxy) methane	1*	2,4	U024	C	1000 (454)
		Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-					
Dichloromethyl ether	542881	Bis(chloromethyl) ether	1*	3,4	P016	A	10 (4.54)
		Methane, oxybis(chloro-					
2,4-Dichlorophenol	120832	Phenol, 2,4-dichloro-	1*	2,4	U081	B	100 (45.4)
2,6-Dichlorophenol	87650	Phenol, 2,6-dichloro-	1*	4	U082	B	100(45.4)
Dichlorophenylarsine	696286	Arsonous dichloride, phenyl-	1*	4	P036	X	1 (0.454)
Dichloropropane	26638197		5000	1		C	1000 (454)
1,1-Dichloropropane	78999						
1,3-Dichloropropane	142289						
1,2-Dichloropropane	78875	Propane, 1,2-dichloro-	5000	1,2,3,4,	U083	C	1000 (454)
		Propylene dichloride					
Dichloropropane—Dichloropropene (mixture)	8003198		5000	1		B	100 (45.4)
Dichloropropene	26952238		5000	1		B	100 (45.4)
2,3-Dichloropropene	78886						
1,3-Dichloropropene	542756	1-Propene, 1,3-dichloro-	5000	1,2,3,4	U084	B	100 (45.4)
2,2-Dichloropropionic acid	75990		5000	1		D	5000 (2270)
Dichlorvos	62737		10	1,3		A	10 (4.54)
Dicofol	115322		5000	1		A	10 (4.54)
Dieldrin	60571	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-.	1	1,2,4	P037	X	1 (0.454)
1,2:3,4-Diepoxybutane	1464535	2,2'-Bioxirane	1*	4	U085	A	10 (4.54)
Diethanolamine	111422		1*	3		B	100 (45.4)
Diethylamine	109897		1000	1		B	100 (454.4)
N,N-Diethylaniline	91667		1*	3		C	1000 (454)
Diethylarsine	692422	Arsine, diethyl-	1*	4	P038	X	1 (0.454)
1,4-Diethylenedioxide	123911	1,4-Dioxane	1*	3,4	U108	B	100 (45.4)
		1,4-Diethyleneoxide					
1,4-Diethyleneoxide	123911	1,4-Dioxane	1*	3,4	U108	B	100 (45.4)
		1,4-Diethylenedioxide					
Diethylhexyl phthalate	117817	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester.	1*	2,3,4	U028	B	100 (45.4)
		Bis(2-ethylhexyl)phthalate DEHP					
N,N'-Diethylhydrazine	1615801	Hydrazine, 1,2-diethyl-	1*	4	U086	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
O,O-Diethyl S-methyl dithiophosphate	3288582	Phosphorodithioic acid, O,O-diethyl S-methyl ester.	1*	4	U087	D	5000 (2270)
Diethyl-p-nitrophenyl phosphate	311455	Phosphoric acid, diethyl 4-nitrophenyl ester	1*	4	P041	B	100 (45.4)
Diethyl phthalate	84662	1,2-Benzenedicarboxylic acid, diethyl ester	1*	2,4	U088	C	1000 (454)
O,O-Diethyl O-pyrazinyl phosphorothioate	297972	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.	1*	4	P040	B	100 (45.4)
Diethylstilbestrol	56531	Phenol, 4,4′-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	1*	4	U089	X	1 (0.454)
Diethyl sulfate	64675		1*	3		A	10 (4.54)
Dihydrosafrole	94586	1,3-Benzodioxole, 5-propyl-	1*	4	U090	A	10 (4.54)
Diisopropylfluorophosphate	55914	Phosphorofluoridic acid, bis(1-methylethyl) ester.	1*	4	P043	B	100 (45.4)
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,	309002	Aldrin	1	1,2,4	P004	X	1 (0.454)
8abeta)-1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5abeta,8beta,	465736	Isodrin	1*	4	P060	X	1 (0.454)
8abeta)-2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,	60571	Dieldrin	1	1,2,4	P037	X	1 (0.454)
6aalpha,7beta,7aalpha)-2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,	72208	Endrin Endrin, & metabolites	1	1,2,4	P051	X	1 (0.454)
6abeta,7beta,7aalpha)-Dimethoate	60515	Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.	1*	4	P044	A	10 (4.54)
3,3′-Dimethoxybenzidine	119904	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dimethoxy-	1*	3,4	U091	B	100 (45.4)
Dimethylamine	124403	Methanamine, N-methyl-	1000	1,4	U092	C	1000 (454)
Dimethyl aminoazobenzene	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-) P-Dimethylaminoazobenzene	1*	3,4	U093	A	10 (4.54)
p-Dimethylaminoazobenzene	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-) Dimethyl aminoazobenzene	1*	3,4	U093	A	10 (4.54)
N,N-Dimethylaniline	121697		1*	3		B	100 (45.4)
7,12-Dimethylbenz[a]anthracene	57976	Benz[a]anthracene, 7,12-dimethyl-	1*	4	U094	X	1 (0.454)
3,3′-Dimethylbenzidine	119937	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dimethyl-	1*	3,4	U095	A	10 (4.54)
alpha,alpha-Dimethylbenzylhydroperoxide	80159	Hydroperoxide, 1-methyl-1-phenylethyl-	1*	4	U096	A	10 (4.54)
Dimethylcarbamoyl chloride	79447	Carbamic chloride, dimethyl-	1*	3,4	U097	X	1 (0.454)
Dimethylformamide	68122		1*	3		B	100 (45.4)
1,1-Dimethylhydrazine	57147	Hydrazine, 1,1-dimethyl-	1*	3,4	U098	A	10 (4.54)
1,2-Dimethylhydrazine	540738	Hydrazine, 1,2-dimethyl-	1*	4	U099	X	1 (0.454)
alpha,alpha-Dimethylphenethylamine	122098	Benzeneethanamine, alpha,alpha-dimethyl-	1*	4	P046	D	5000 (2270)
2,4-Dimethylphenol	105679	Phenol, 2,4-dimethyl-	1*	2,4	U101	B	100 (45.4)

Dimethyl phthalate	131113	1,2-Benzenedicarboxylic acid, dimethyl ester	1*	2,3,4	U102	D	5000 (2270)
Dimethyl sulfate	77781	Sulfuric acid, dimethyl ester	1*	3,4	U103	B	100 (45.4)
Dinitrobenzene (mixed)	25154545		1000	1		B	100 (45.4)
m-Dinitrobenzene	99650						
o-Dinitrobenzene	528290						
p-Dinitrobenzene	100254						
4,6-Dinitro-o-cresol, and salts	534521	Phenol, 2-methyl-4,6-dinitro-, & salts	1*	2,3,4	P047	A	10 (4.54)
Dinitrophenol	25550587		1000	1		A	10 (4.54)
2,5-Dinitrophenol	329715						
2,6-Dinitrophenol	573568						
2,4-Dinitrophenol	51285	Phenol, 2,4-dinitro-	1000	1,2,3,4,	P048	A	10 (4.54)
Dinitrotoluene	25321146		1000	1,2		A	10 (4.54)
3,4-Dinitrotoluene	610399						
2,4-Dinitrotoluene	121142	Benzene, 1-methyl-2,4-dinitro-	1000	1,2,3,4	U105	A	10 (4.54)
2,6-Dinitrotoluene	606202	Benzene, 2-methyl-1,3-dinitro-	1000	1,2,4	U106	B	100 (45.4)
Dinoseb	88857	Phenol, 2-(1-methylpropyl)-4,6-dinitro	1*	4	P020	C	1000 (454)
Di-n-octyl phthalate	117840	1,2-Benzenedicarboxylic acid, dioctyl ester	1*	2,4	U107	D	5000 (2270)
1,4-Dioxane	123911	1,4-Diethyleneoxide	1*	3,4	U108	B	100 (45.4)
		1,4-Diethlyenedioxide					
DIPHENYLHYDRAZINE	N.A.		1*	2			**
1,2-Diphenyl-hydrazine	122667	Hydrazine, 1,2-diphenyl-	1*	2,3,4	U109	A	10(4.54)
Diphosphoramide, octamethyl-	152169	Octamethylpyrophosphoramide	1*	4	P085	B	100 (45.4)
Diphosphoric acid, tetraethyl ester	107493	Tetraethyl pyrophosphate	100	1,4	P111	A	10 (4.54)
Dipropylamine	142847	1-Propanamine, N-propyl-	1*	4	U110	D	5000 (2270)
Di-n-propylnitrosamine	621647	1-Propanamine, N-nitroso-N-propyl-	1*	2,4	U111	A	10 (4.54)
Diquat	85007		1000	1		C	1000 (454)
	2764729						
Disulfoton	298044	Phosphorodithioic acid, o,o-diethyl S-[2-(ethylthio)ethyl]ester.	1	1,4	P039	X	1 (0.454)
Dithiobiuret	541537	Thioimidodicarbonic diamide [(HG2KN) C(S)]2NH	1*	4	P049	B	100 (45.4)
1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, [(methylamino)carbonyl]oxime (Tirpate).	26419738		1*	4	P185		##
Diuron	330541		100	1		B	100 (45.4)
Dodecylbenzenesulfonic acid	27176870		1000	1		C	1000 (454)
Endosulfan	115297	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide.	1	1,2,4	P050	X	1 (0.454)
alpha - Endosulfan	959988		1*	2		X	1 (0.454)
beta - Endosulfan	33213659		1*	2		X	1 (0.454)
ENDOSALFAN AND METABOLITES	N.A.		1*	2			**
Endosulfan sulfate	1031078		1*	2		X	1 (0.454)
Endothall	145733	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid.	1*	4	P088	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Endrin	72208	Endrin, & metabolites 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9 -hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Endrin aldehyde	7421934		1*	2		X	1 (0.454)
ENDRIN AND METABOLITES	N.A.		1*	2			**
Endrin, & metabolites	72208	Endrin 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Epichlorohydrin	106898	1-Chloro-2,3-epoxypropane Oxirane, (chloromethyl)-	1000	1,3,4	U041	B	100(45.4)
Epinephrine	51434	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-.	1*	4	P042	C	1000 (454)
1,2-Epoxybutane	106887		1*	3		B	100 (45.4)
Ethanal	75070	Acetaldehyde	1000	1,3,4	U001	C	1000(454)
Ethanamine, N-ethyl-N-nitroso-	55185	N-Nitrosodiethylamine	1*	4	U174	X	1 (0.454)
1,2-Ethanediamine, N,N-dimethyl-N′-2-pyridinyl-N′-(2-thienylmethyl)-	91805	Methapyrilene	1*	4	U155	D	5000 (2270)
Ethane, 1,2-dibromo	106934	Dibromoethane Ethylene dibromide	1000	1,3,4	U067	X	1(0.454)
Ethane, 1,1-dichloro	75343	1,1-Dichloroethane Ethylidene dichloride	1*	2,3,4	U076	C	1000(454)
Ethane, 1,2-dichloro	107062	1,2-Dichloroethane Ethylene dichloride	5000	1,2,3,4	U077	B	100(45.4)
Ethanedinitrile	460195	Cyanogen	1*	4	P031	B	100 (45.4)
Ethane, hexachloro-	67721	Hexachloroethane	1*	2,3,4	U131	B	100(45.4)
Ethane, 1,1′-[methylenebis(oxy)]bis(2-chloro-	111911	Bis(2-chloroethoxy) methane Dichloromethoxy ethane	1*	2,4	U024	C	1000 (454)
Ethane, 1,1′-oxybis-	60297	Ethyl ether	1*	4	U117	B	100 (45.4)
Ethane, 1,1′-oxybis[2-chloro-	111444	Bis(2-chloroethyl) ether Dichloroethyl ether	1*	2,3,4	U025	A	10(4.54)
Ethane, pentachloro-	76017	Pentachloroethane	1*	4	U184	A	10 (4.54)
Ethane, 1,1,1,2-tetrachloro-	630206	1,1,1,2-Tetrachloroethane	1*	4	U208	B	100 (45.4)
Ethane, 1,1,2,2-tetrachloro-	79345	1,1,2,2-Tetra-chloroethane	1*	2,3,4	U209	B	100(45.4)
Ethanethioamide	62555	Thioacetamide	1*	4	U218	A	10 (4.54)

Ethane, 1,1,1-trichloro-	71556	Methyl chloroform	1*	2,3,4	U226	C	1000(454)
		1,1,1-Trichloroethane					
Ehane, 1,1,2-trichloro-	79005	1,1,2-Trichloroethane	1*	2,3,4	U227	B	100(45.4)
Ethanimidothioci acid, 2-(dimethylamino-N-hydroxy-2-oxo-, methyl ester (A2213).	30558431		1*	4	U394		##
Ethanimidothoic acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl).	23135220		1*	4	P194		##
Ethanimidothioic acid, N-[[(methyl- amino)carbonyl]oxy]-, methyl ester	16752775	Methomyl	1*	4	P066	B	100 (45.4)
Ethanimidothioic acid, N,N'- [thiobis[(methylimino)carbonyloxy]]bis-,dimethyl ester (Thiodicarb).	59669260		1*	4	U410		##
Ethanol, 2-ethoxy-	110805	Ethylene glycol monoethyl ether	1*	4	U359	C	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	1116547	N-Nitrosodiethanolamine	1*	4	U173	X	1 (0.454)
Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate)	5952261		1*	4	U395		##
Ethanone, 1-phenyl-	98862	Acetophenone	1*	3,4	U004	D	5000(2270)
Ethene, chloro-	75014	Vinyl chloride	1*	2,3,4	U043	X	1 (0.454)
Ethene, 2-chloroethoxy-	110758	2-Chloroethyl vinyl ether	1*	2,4	U042	C	1000 (454)
Ethene, 1,1-dichloro-	75354	1,1-Dichloroethylene	5000	1,2,3,4	U078	B	100(45.4)
		Vinylidene chloride					
Ethene, 1,2-dichloro- (E)	156605	1,2-Dichloroethylene	1*	2,4	U079	C	1000 (454)
Ethene, tetrachloro-	127184	Perchloroethylene	1*	2,3,4	U210	B	100(45.4)
		Tetrachloroethene					
		Tetrachloroethylene					
Ethene, trichloro-	79016	Trichloroethene	1000	1,2,3,4	U228	B	100(45.4)
		Trichloroethylene					
Ethion	563122		10	1		A	10 (4.54)
Ethyl acetate	141786	Acetic acid, ethyl ester	1*	4	U112	D	5000 (2270)
Ethyl acrylate	140885	2-Propenoic acid, ethyl ester	1*	3,4	U113	C	1000(454)
Ethylbenzene	100414		1000	1,2,3		C	1000(454)
Ethyl carbamate	51796	Carbamic acid, ethyl ester	1*	3,4	U238	B	100(45.4)
		Urethane					
Ethyl chloride	75003	Chloroethane	1*	2,3		B	100(45.4)
Ethyl cyanide	107120	Propanenitrile	1*	4	P101	A	10 (4.54)
Ethylenebisdithiocarbamic acid, salts & esters	111546	Carbamodithioic acid, 1,2-ethanediylbis, salts & esters.	1*	4	U114	D	5000 (2270)
Ethylenediamine	107153		1000	1		D	5000 (2270)
Ethylenediamine-tetraacetic acid (EDTA)	60004		5000	1		D	5000 (2270)
Ethylene dibromide	106934	Dibromoethane	1000	1,3,4	U067	X	1(0.454)
		Ethane, 1,2-dibromo-					
Ethylene dichloride	107062	1,2-Dichloroethane	5000	1,2,3,4	U077	B	100(45.4)
		Ethane, 1,2-dichloro-					
Ethylene glycol	107211		1*	3		D	5000 (2270)
Ethylene glycol monoethyl ether	110805	Ethanol, 2-ethoxy-	1*	4	U359	C	1000 (454)
Ethyleneimine	151564	Aziridine	1*	3,4	P054	X	1(0.454)
Ethylene oxide	75218	Oxirane	1*	3,4	U115	A	10(4.54)
Ethylenethiourea	96457	2-Imidazolidinethione	1*	3,4	U116	A	10(4.54)
Ethyl ether	60297	Ethane, 1,1'-oxybis-	1*	4	U117	B	100 (45.4)
Ethylidene dichloride	75343	1,1-Dichloroethane	*	2,3,4	U076	C	1000 (454)
		Ethane, 1,1-dichloro-					
Ethyl methacrylate	97632	2-Propenoic acid, 2-methyl-, ethyl ester	1*	4	U118	C	1000 (454)
Ethyl methanesulfonate	62500	Methanesulfonic acid, ethyl ester	1*	4	U119	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA waste Number	Category	Pounds (Kg)
Famphur	52857	Phosphorothioic acid, O,[4-[(di- methylamino) sulfonyl] phenyl] O,O-dimethyl ester.	1*	4	P097	C	1000 (454)
Ferric ammonium citrate	1185575		1000	1		C	1000 (454)
Ferric ammonium oxalate	2944674		1000	1		C	1000 (454)
	55488874						
Ferric chloride	7705080		1000	1		C	1000 (454)
Ferric fluoride	7783508		100	1		B	100 (45.4)
Ferric nitrate	10421484		1000	1		C	1000 (454)
Ferric sulfate	10028225		1000	1		C	1000 (454)
Ferrous ammonium sulfate	10045893		1000	1		C	1000 (454)
Ferrous chloride	7758943		100	1		B	100 (45.4)
Ferrous sulfate	7720787		1000	1		C	1000 (454)
	7782630						
Fine mineral fibers [c]	N.A.		1*	3			**
Fluoranthene	206440	Benzo[j,k]fluorene	1*	2,4	U120	B	100 (45.4)
Fluorene	86737		1*	2		D	5000 (2270)
Fluorine	7782414		1*	4	P056	A	10 (4.54)
Fluoroacetamide	640197	Acetamide, 2-fluoro-	1*	4	P057	B	100 (45.4)
Fluoroacetic acid, sodium salt	62748	Acetic acid, fluoro-, sodium salt	1*	4	P058	A	10 (4.54)
Formaldehyde	50000		1000	1,3,4	U122	B	100 (45.4)
Formic acid	64186		5000	1,4	U123	D	5000 (2270)
Fulminic acid, mercury(2+)salt	628864	Mercury fulminate	1*	4	P065	A	10 (4.54)
Fumaric acid	110178		5000	1		D	5000 (2270)
Furan	110009	Furfuran	1*	4	U124	B	100 (45.4)
Furan, tetrahydro-	109999	Tetrahydrofuran	1*	4	U213	C	1000 (454)
2-Furancarboxaldehyde	98011	Furfural	1000	1,4	U125	D	5000 (2270)
2,5-Furandione	108316	Maleic anhydride	5000	1,3,4	U147	D	5000 (2270)
Furfural	98011	2-Furancarboxaldehyde	1000	1,4	U125	D	5000 (2270)
Furfuran	110009	Furan	1*	4	U124	B	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino] Streptozotocin.	1*	4	U206	X	1 (0.454)
D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-	18883664	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-. Streptozotocin	1*	4	U206	X	1 (0.454)
Glycidylaldehyde	765344	Oxiranecarboxyaldehyde	1*	4	U126	A	10 (4.54)
Glycol ethers [d]	N.A.		1*	3			**
Guanidine, N-methyl-N′-nitro-N-nitroso-	70257	MNNG	1*	4	U163	A	10 (4.54)
Guthion	86500		1	1		X	1 (0.454)
HALOETHERS	N.A.		1*	2			**
HALOMETHANES	N.A.		1*	2			**

Heptachlor	76448	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro-3a,4,7,7a-tetrahydro-	1	1,2,3,4	P059	X	1, (0.454)
HEPTACHLOR AND METABOLITES	N.A.		1*	2			**
Heptachlor epoxide	1024573		1*	2		X	1 (0.454)
Hexachlorobenzene	118741	Benzene, hexachloro-	1*	2,3,4	U127	A	10 (4.54)
Hexachlorobutadiene	87683	1,3-Butadiene 1,1,2,3,4,4-hexachloro-	1*	2,3,4	U128	X	1 (0.454)
HEXACHLOROCYCLOHEXANE (all isomers)	608731		1*	2			**
Hexachlorocyclohexane (gamma isomer)	58899	γ-BHC Cyclohexane, 1,2,3,4,5,6- hexachloro- (1α,2α,3β,4α, 5α,6β)- Lindane Lindane (all isomers)	1	1,2,3,4	U129	X	1 (0.454)
Hexachlorocyclopentadiene	77474	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	1	1,2,3,4	U130	A	10 (4.54)
Hexachloroethane	67721	Ethane, hexachloro-	1*	2,3,4	U131	B	100 (45.4)
Hexachlorophene	70304	Phenol, 2,2′-methylenebis[3,4,6-trichloro-	1*	4	U132	B	100 (45.4)
Hexachloropropene	1888717	1-Propene, 1,1,2,3,3,3-hexachloro-	1*	4	U243	C	1000 (454)
Hexaethyl tetraphosphate	757584	Tetraphosphoric acid, hexaethyl ester	1*	4	P062	B	100 (45.4)
Hexamethylene-1,6-diisocyanate	822060		1*	3		B	100 (45.4)
Hexamethylphosphoramide	680319		1*	3		X	1 (0.454)
Hexane	110543		1*	3		D	5000 (2270)
Hexone	108101	Methyl isobutyl ketone 4-Methyl-2-pentanone	1"	3,4	U161	D	5000 (2270)
Hydrazine	302012		1"	3,4	U133	X	1 (0.454)
Hydrazine, 1,2-diethyl-	1615801	N,N′-Diethylhydrazine	1*	4	U086	A	10 (4.54)
Hydrazine, 1,1-dimethyl-	57147	1,1-Dimethylhydrazine	1"	3,4	U098	A	10 (4.54)
Hydrazine, 1,2-dimethyl-	540738	1,2-Dimethylhydrazine	1*	4	U099	X	1 (0.454)
Hydrazine, 1,2-diphenyl-	122667	1,2-Diphenylhydrazine	1"	2,3,4	U109	A	10 (4.54)
Hydrazine, methyl-	60344	Methyl hydrazine	1"	3,4	P068	A	10 (4.54)
Hydrazinecarbothioamide	79196	Thiosemicarbazide	1*	4	P116	B	100 (45.4)
Hydrochloric acid	7647010	Hydrogen chloride	5000	1,3		D	5000 (2270)
Hydrocyanic acid	74908	Hydrogen cyanide	10	1,4	P063	A	10 (4.54)
Hydrofluoric acid	7664393	Hydrogen fluoride	5000	1,3,4	U134	B	100 (45.4)
Hydrogen chloride	7647010	Hydrochloric acid	5000	1,3		D	5000 (2270)
Hydrogen cyanide	74908	Hydrocyanic acid	10	1,4	P063	A	10 (4.54)
Hydrogen fluoride	7664393	Hydrofluoric acid	5000	1,3,4	U134	B	100 (45.4)
Hydrogen phosphide	7803512	Phosphine	1"	3,4	P096	B	100 (45.4)
Hydrogen sulfide	7783064	Hydrogen sulfide H_2 S	100	1,4	U135	B	100 (45.4)
Hydrogen sulfide H_2 S	7783064	Hydrogen sulfide	100	1,4	U135	B	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl-	80159	alpha,alpha-Dimethylbenzylhydroperoxide	1*	4	U096	A	10 (4.54)
Hydroquinone	123319		1*	3		B	100 (45.4)
2-Imidazolidinethione	96457	Ethylenethiourea	1"	3,4	U116	A	10 (4.54)
Indeno(1,2,3-cd)pyrene	193395	1,10-(1,2-Phenylene)pyrene	1*	2,4	U137	B	100 (45.4)
Iodomethane	74884	Methane, iodo- Methyl iodide	1"	3,4	U138	B	100 (45.4)
1,3-Isobenzofurandione	85449	Phthalic anhydride	1"	3,4	U190	D	5000 (2270)
Isobutyl alcohol	78831	1-Propanol, 2-methyl-	1*	4	U140	D	5000 (2270)
Isodrin	465736	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5beta, 8beta,8abeta)-.	1*	4	P060	X	1 (0.454)
Isophorone	78591		1"	2,3		D	5000 (2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Isoprene	78795		1000	1		B	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	42504461		1000	1		C	1000 (454)
Isosafrole	120581	1,3-Benzodioxole, 5-)1-propenyl)-	1*	4	U141	B	100 (45.4)
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763964	Muscimol 5-(Aminomethyl)-3-isoxazolol	1*	4	P007	C	1000 (454)
Kepone	143500	1,3,4-Metheno-2H-cyclobutal[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-.	1	1,4	U142	X	1 (0.454)
Lasiocarpine	303344	2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*),7aalpha]]-.	1*	4	U143	A	10 (4.54)
Lead††	7439921		1*	2		A	10 (4.54)
Lead acetate	301042	Acetic acid, lead(2+) salt	5000	1,4	U144	A	10 (4.54)
LEAD AND COMPOUNDS	N.A.	Lead Compounds	1*	2,3			**
Lead Compounds	N.A.	LEAD AND COMPOUNDS	1*	2,3			**
Lead arsenate	7784409 7645252 10102484		5000	1		X	1 (0.454)
Lead, bis(acetatato-O)tetrahydroxytri-	1335326	Lead subacetate	1*	4	U146	A	10 (4.54)
Lead chloride	7758954		5000	1		A	10 (4.54)
Lead fluoborate	13814965		5000	1		A	10 (4.54)
Lead fluoride	7783462		1000	1		A	10 (4.54)
Leod iodide	10101630		5000	1		A	10 (4.54)
Lead nitrate	10099748		5000	1		A	10 (4.54)
Lead phosphate	7446277	Phosphoric acid, lead(2+) salt (2:3)	1*	4	U145	A	10 (4.54)
Lead stearate	1072351 7428480 52652592 56189094		5000	1		A	10 (4.54)
Lead subacetate	1335326	Lead, bis(acetato-O)tetrahydroxytri-	1*	4	U146	A	10 (4.54)
Lead sulfate	7446142 15739807		5000	1		A	10 (4.54)
Lead sulfide	1314870		5000	1		A	10 (4.54)
Lead thiocyanate	592870		5000	1		A	10 (4.54)

Lindane	58899	γ-BHC	1	1,2,3,4	U129	X	1 (0.454)
		Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α, 3β,4α,5α,6β)-, Hexachlorocyclo-hexane (gamma isomer)					
		Lindane (all isomers)					
Lindane (all isomers)	58899	γ-BHC	1	1,2,3,4	U129	X	1 (0.454)
		Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-, Hexachlorocyclo-hexane (gamma isomer)					
		Lindane					
Lithium chromate	14307358		1000	1		A	10 (4.54)
Malathion	121755		10	1		B	100 (45.4)
Maleic acid	110167		5000	1		D	5000 (2270)
Maleic anhydride	108316	2,5-Furandione	5000	1,3,4	U147	D	5000 (2270)
Maleic hydrazide	123331	3,6-Pyridazinedione, 1,2-dihydro-	1*	4	U148	D	5000 (2270)
Malononitrile	109773	Propanedinitrile	1*	4	U149	C	1000 (454)
Manganese, bis(dimethylcarbamodithioato-S,S')-(Manganese dimethyldithiocarbamate).	15339363		1*	4	P196		##
Manganese Compounds	N.A.		1*	3			**
MDI	101688	Methylene diphenyl diisocyanate	1*	3		D	5000 (2270)
Melphalan	148823	L-Phenylalanine, 4-[bis(2-chloroethyl) aminol]	1*	4	U150	X	1 (0.454)
MEK	78933	2-Butanone	1*	3,4	U159	D	5000 (2270)
		Methyl ethyl ketone					
Mercaptodimethur	2032657		100	1		A	10 (4.54)
Mercuric cyanide	592041		1	1		X	1 (0.454)
Mercuric nitrate	10045940		10	1		A	10 (4.54)
Mercuric sulfate	7783359		10	1		A	10 (4.54)
Mercuric thiocyanate	592858		10	1		A	10 (4.54)
Mercurous nitrate	10415755		10	1		A	10 (4.54)
	7782867						
Mercury	7439976		1*	2,3,4	U151	X	1 (0.454)
MERCURY AND COMPOUNDS	N.A.	Mercury Compounds	1*	2,3			**
Mercury Compounds	N.A.	MERCURY AND COMPOUNDS	1*	2,3			**
Mercury, (acetate-O)phenyl-	62384	Phenylmercury acetate	1*	4	P092	B	100 (45.4)
Mercury fulminate	628864	Fulminic acid, mercury(2+)salt	1*	4	P065	A	10 (4.54)
Methacrylonitrile	126987	2-Propenenitrile, 2-methyl-	1*	4	U152	C	1000 (454)
Methanamine, N-methyl-	124403	Dimethylamine	1000	1,4	U092	C	1000 (454)
Methanamine, N-methyl-N-nitroso-	62759	N-Nitrosodimethylamine	1*	2,3,4	P082	A	10 (4.54)
Methane, bromo-	74839	Bromomethane	1*	2,3,4	U029	C	1000 (454)
		Methyl bromide					
Methane, chloro-	74873	Chloromethane	1*	2,3,4	U045	B	100 (45.4)
		Methyl chloride					
Methane, chloromethoxy-	107302	Chloromethyl methyl ether	1*	3,4	U046	A	10 (4.54)
Methane, dibromo-	74953	Methylene bromide	1*	4	U068	C	1000 (454)
Methane, dichloro-	75092	Methylene chloride	1*	2,3,4	U080	C	1000 (454)
		Dichloromethane					
Methane, dichlorodifluoro-	75718	Dichlorodifluoromethane	1*	4	U075	D	5000 (2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Methane, iodo-	74884	Iodomethane Methyl iodide	1*	3,4	U138	B	100 (45.4)
Methane, isocyanato-	624839	Methyl isocyanate	1*	3,4	P064	A	10 (4.54)
Methane, oxybis(chloro-	542881	Bis(chloromethyl)ether Dichloromethyl ether	1*	3,4	P016	A	10 (4.54)
Methanesulfenyl chloride, trichloro-	594423	Trichloromethanesulfenyl chloride	1*	4	P118	B	100 (45.4)
Methanesulfonic acid, ethyl ester	62500	Ethyl methanesulfonate	1*	4	U119	X	1 (0.454)
Methane, tetrachloro-	56235	Carbon tetrachloride	5000	1,2,3,4	U211	A	10 (4.54)
Methane, tetranitro-	509148	Tetranitromethane	1*	4	P112	A	10 (4.54)
Methane, tribromo-	75252	Bromoform	1*	2,3,4	U225	B	100 (45.4)
Methane, trichloro-	67663	Chloroform	5000	1,2,3,4	U044	A	10 (4.54)
Methane, trichlorofluoro-	75694	Trichloromonofluoromethane	1*	4	U121	D	5000 (2270)
Methanethiol	74931	Methylmercaptan Thiomethanol	100	1,4	U153	B	100 (45.4)
Methanimidamide, N,N-dimethyl-N′-[3-[[(methylamino)carbonyl]oxylphenyl]-, monohydrochioride (Formetanate hydrochloride).	23422539		1*	4	P198		##
Methanimidamide, N,N-dimethyl-N′-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-(Formparanate).	17702577		1*	4	P197		##
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- hexahydro-, 3-oxide	115297	Endosulfan	1	1,2,4	P050	X	1 (0.454)
1,3,4-Metheno-2H-cyclobutal[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-	143500	Kepone	1	1,4	U142	X	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	76448	Heptachlor	1*	1,2,3,4	P059	X	1 (0.454)
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	57749	Chlordane Chlordane, alpha & gamma isomers CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	1	1,2,3,4	U036	X	1 (0.454)
Methanol	67561	Methyl alcohol	1*	3,4	U154	D	5000 (2270)
Methapyrilene	91805	1,2-Ethanediamine, N,N-dimethyl-N′-2-pyridinyl-N′-(2-thienylmethyl)-.	1*	4	U155	D	5000 (2270)
Methomyl	16752775	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester.	1*	4	P066	B	100 (45.4)
Methoxychlor	72435	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-methoxy-	1	1,3,4	U247	X	1 (0.454)
Methyl alcohol	67561	Methanol	1*	3,4	U154	D	5000 (2270)
2-Methyl aziridine	75558	Aziridine, 2-methyl- 1,2-Propylenimine	1*	3,4	P067	X	1 (0.454)
Methyl bromide	74839	Bromomethane Methane, bromo-	1*	2,3,4	U029	C	1000 (454)

1-Methylbutadiene	504609	1,3-Pentadiene	1*	4	U186	B	100 (45.4)
Methyl chloride	74873	Chloromethane	1*	2,3,4	U045	B	100 (45.4)
		Methane, chloro-					
Methyl chlorocarbonate	79221	Carbonochloridic acid, methyl ester	1*	4	U156	C	1000 (454)
		Methyl chloroformate					
Methyl chloroform	71556	Ethane, 1,1,1,-trichloro-	1*	2,3,4	U226	C	1000 (454)
		1,1,1-Trichloroethane					
Methyl chloroformate	79221	Carbonochloridic acid, methyl ester	1*	4	U156	C	1000 (454)
		Methyl chlorocarbonate					
3-Methylcholanthrene	56495	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	1*	4	U157	A	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	101144	Benzenamine, 4,4'-methylene-bis(2-chloro-	1*	3,4	U158	A	10 (4.54)
Methylene bromide	74953	Methane, dibromo-	1*	4	U068	C	1000 (454)
Methylene chloride	75092	Dichloromethane	1*	2,3,4	U080	C	1000 (454)
		Methane, dichloro-					
4,4'-Methylenedianiline	101779		1*	3		A	10 (4.54)
Methylene diphenyl diisocyanate	101688	MDI	1*	3		D	5000 (2270)
Methyl ethyl ketone	78933	2-Butanone	1*	3,4	U159	D	5000 (2270)
		MEK					
Methyl ethyl ketone peroxide	1338234	2-Butanone peroxide	1*	4	U160	A	10 (4.54)
Methyl hydrazine	60344	Hydrazine, methyl-	1*	3,4	P068	A	10 (4.54)
Methyl iodide	74884	Iodomethane	1*	3,4	U138	B	100 (45.4)
		Methane, iodo-					
Methyl isobutyl ketone	108101	Hexone	1*	3,4	U161	D	5000 (2270)
		4-Methyl-2-pentanone					
Methyl isocyanate	624839	Methane, isocyanato-	1*	3,4	P064	A	10 (4.54)
2-Methyllactonitrile	75865	Acetone cyanohydrin	10	1,4	P069	A	10 (4.54)
		Propanenitrile, 2-hydroxy-2-methyl-					
Methylmercaptan	74931	Methanethiol	100	1,4	U153	B	100 (45.4)
		Thiomethanol					
Methyl methacrylate	80626	2-Propenoic acid, 2-methyl-, methyl ester	5000	1,3,4	U162	C	1000 (454)
Methyl parathion	298000	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.	100	1,4	P071	B	100 (45.4)
4-Methyl-2-pentanone	108101	Hexone	1*	3,4	U161	D	5000 (2270)
		Methyl isobutyl ketone					
Methyl tert-butyl ether	1634044		1*	3		C	1000 (454)
Methylthiouracil	56042	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-.	1*	4	U164	A	10 (4.54)
Mevinphos	7786347		1	1		A	10 (4.54)
Mexacarbate	315184		1000	1		C	1000 (454)
Mitomycin C	50077	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta, 8aalpha, 8balpha)]-.	1*	4	U010	A	10 (4.54)
MNNG	70257	Guanidine, N-methyl-N'-nitro-N-nitroso-	1*	4	U163	A	10 (4.54)
Monoethylamine	75047		1000	1		B	100 (45.4)
Monomethylamine	74895		1000	1		B	100 (45.4)
Multi Source Leachate			1*	4	F039	X	1 (0.454)
Muscimol	2763964	3(2H)-Isoxazolone, 5-(aminomethyl)- (Aminomethyl)-3-isoxazolol.	1*	4	P007	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Naled	300765		10	1		A	10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830813	Daunomycin	1*	4	U059	A	10 (4.54)
1-Naphthalenamine	134327	alpha-Naphthylamine	1*	4	U167	B	100 (45.4)
2-Naphthalenamine	91598	beta-Naphthylamine	1*	4	U168	A	10 (4.54)
Naphthalenamine, N,N′-bis(2-chloroethyl)-	494031	Chlornaphazine	1*	4	U026	B	100 (45.4)
Naphthalene	91203		5000	1,2,3,4	U165	B	100 (45.4)
Naphthalene, 2-chloro-	91587	beta-Chloronaphthalene 2-Chloronaphthalene	1*	2,4	U047	D	5000 (2270)
1,4-Naphthalenedione	130154	1,4-Naphthoquinone	1*	4	U166	D	5000 (2270)
2,7-Naphthalenedisulfonic acid, 3,3′-[(3,3′-dimethyl-(1,1′-biphenyl)-4,4′-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	72571	Trypan blue	1*	4	U236	A	10 (4.54)
Naphthenic acid	1338245		100	1		B	100 (45.4)
1,4-Naphthoquinone	130154	1,4-Naphthalenedione	1*	4	U166	D	5000 (2270)
alpha-Naphthylamine	134327	1-Naphthalenamine	1*	4	U167	B	100 (45.4)
beta-Naphthylamine	91598	2-Naphthalenamine	1*	4	U168	A	10 (4.54)
alpha-Naphthylthiourea	86884	Thiourea, 1-naphthalenyl-	1*	4	P072	B	100 (45.4)
Nickel††	7440020		1*	2		B	100 (45.4)
Nickel ammonium sulfate	15699180		5000	1		B	100 (45.4)
NICKEL AND COMPOUNDS	N.A.	Nickel Compounds	1*	2,3			**
Nickel Compounds	N.A.	NICKEL AND COMPOUNDS	1*	2,3			**
Nickel carbonyl	13463393	Nickel carbonyl Ni(CO)4, (T-4)-	1*	4	P073	A	10 (4.54)
Nickel carbonyl Ni(CO)4, (T-4)-	13463393	Nickel carbonyl	1*	4	P073	A	10 (4.54)
Nickel chloride	7718549 37211055		5000	1		B	100 (45.4)
Nickel cyanide	557197	Nickel cyanide Ni(CN)2	1*	4	P074	A	10 (4.54)
Nickel cyanide Ni(CN)2	557197	Nickel cyanide	1*	4	P074	A	10 (4.54)
Nickel hydroxide	12054487		1000	1		A	10 (4.54)
Nickel nitrate	14216752		5000	1		B	100 (45.4)
Nickel sulfate	7786814		5000	1		B	100 (45.4)
Nicotine, & salts	54115	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	1*	4	P075	B	100 (45.4)
Nitric acid	7697372		1000	1		C	1000 (454)
Nitric acid, thallium (1+) salt	10102451	Thallium (I) nitrate	1*	4	U217	B	100 (45.4)
Nitric oxide	10102439	Nitrogen oxide NO	1*	4	P076	A	10 (4.54)
p-Nitroaniline	100016	Benzenamine, 4-nitro-	1*	4	P077	D	5000 (2270)
Nitrobenzene	98953	Benzene, nitro-	1000	1,2,3,4	U169	C	1000 (454)
4-Nitrobiphenyl	92933		1*	3		A	10 (4.54)
Nitrogen dioxide	10102440 10544726	Nitrogen oxide NO_2	1000	1,4	P078	A	10 (4.54)
Nitrogen oxide NO	10102439	Nitric oxide	1*	4	P076	A	10 (4.54)

Nitrogen oxide NO_2	10102440	Nitrogen dioxide	1000	1,4	P078	A	10 (4.54)
	10544726						
Nitroglycerine	55630	1,2,3-Propanetriol, trinitrate-	1*	4	P081	A	10 (4.54)
Nitrophenol (mixed)	25154556		1000	1		B	100 (45.4)
m-Nitrophenol	554847					B	100 (45.4)
o-Nitrophenol	88755	2-Nitrophenol	1000	1,2		B	100 (45.4)
p-Nitrophenol	100027	4-Nitrophenol	1000	1,2,3,4	U170	B	100 (45.4)
		Phenol, 4-nitro-					
o-Nitrophenol	88755	2-Nitrophenol	1000	1,2		B	100 (45.4)
p-Nitrophenol	100027	Phenol, 4-nitro-	1000	1,2,4	U170	B	100 (45.4)
		4-Nitrophenol					
2-Nitrophenol	88755	o-Nitrophenol	1000	1,2		B	100 (45.4)
4-Nitrophenol	100027	p-Nitrophenol	1000	1,2,3,4	U170	B	100 (45.4)
		Phenol, 4-nitro-					
NITROPHENOLS	N.A.		1*	2			**
2-Nitropropane	79469	Propane, 2-nitro	1*	3,4	U171	A	10 (4.54)
NITROSAMINES	N.A.		1*	2			**
N-Nitrosodi-n-butylamine	924163	1-Butanamine, N-butyl-N-nitroso-	1*	4	U172	A	10 (4.54)
N-Nitrosodiethanolamine	1116547	Ethanol, 2,2'-(nitrosoimino)bis-	1*	4	U173	X	1 (0.454)
N-Nitrosodiethylamine	55185	Ethanamine, N-ethyl-N-nitroso-	1*	4	U174	X	1 (0.454)
N-Nitrosodimethylamine	62759	Methanamine, N-methyl-N-nitroso-	1*	2,3,4	P082	A	10 (4.54)
N-Nitrosodiphenylamine	86306		1*	2		B	100 (45.4)
N-Nitroso-N-ethylurea	759739	Urea, N-ethyl-N-nitroso-	1*	4	U176	X	1 (0.454)
N-Nitroso-N-methylurea	684935	Urea, N-methyl-N-nitroso	1*	3,4	U177	X	1 (0.454)
N-Nitroso-N-methylurethane	615532	Carbamic acid, methylnitroso-, ethyl ester	1*	4	U178	X	1 (0.454)
N-Nitrosomethylvinylamine	4549400	Vinylamine, N-methyl-N-nitroso-	1*	4	P084	A	10 (4.54)
N-Nitrosomorpholine	59892		1*	3		X	1 (0.454)
N-Nitrosopiperidine	100754	Piperidine, 1-nitroso-	1*	4	U179	A	10 (4.54)
N-Nitrosopyrrolidine	930552	Pyrrolidine, 1-nitroso-	1*	4	U180	X	1 (0.454)
Nitrotoluene	1321126		1000	1		C	1000 (454)
m-Nitrotoluene	99081						
o-Nitrotoluene	88722						
p-Nitrotoluene	99990						
5-Nitro-o-toluidine	99558	Benzenamine, 2-methyl-5-nitro-	1*	4	U181	B	100 (45.4)
Octamethylpyrophosphoramide	152169	Diphosphoramide, octamethyl-	1*	4	P085	B	100 (45.4)
Osmium oxide OsO_4 (T-4)-	20816120	Osmium tetroxide	1*	4	P087	C	1000 (454)
Osmium tetroxide	20816120	Osmium oxide OsO_4 (T-4)-	1*	4	P087	C	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145733	Endothall	1*	4	P088	C	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	1120714	1,3-Propane sultone	1*	3,4	U193	A	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	50180	Cyclophosphamide	1*	4	U058	A	10 (4.54)
Oxirane	75218	Ethylene oxide	1*	3,4	U115	A	10 (4.54)
Oxiranecarboxyaldehyde	765344	Glycidylaldehyde	1*	4	U126	A	10 (4.54)
Oxirane, (chloromethyl)-	106898	1-Chloro-2,3-epoxypropane	1000	1,3,4	U041	B	100 (45.4)
		Epichlorohydrin					
Paraformaldehyde	30525894		1000	1		C	1000 (454)
Paraldehyde	123637	1,3,5-Trioxane, 2,4,6-trimethyl-	1*	4	U182	C	1000 (454)
Parathion	56382	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.	1	1,3,4	P089	A	10 (4.54)
PCBs	1336363	Aroclors	10	1,2,3		X	1 (0.454)
		POLYCHLORINATED BIPHENYLS					

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Aroclor 1016	12674112		10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282		10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165		10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219		10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296		10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691		10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825		10	1,2,3		X	1 (0.454)
PCNB	82688	Benzene, pentachloronitro- Pentachloronitrobenzene Quintobenzene	1*	3,4	U185	B	100 (45.4)
Pentachlorobenzene	608935	Benzene, pentachloro-	1*	4	U183	A	10 (4.54)
Pentachloroethane	76017	Ethane, pentachloro-	1*	4	U184	A	10 (4.54)
Pentachloronitrobenzene	82688	Benzene, pentachloronitro- PCNB Quintobenzene	1*	3,4	U185	B	100 (45.4)
Pentachlorophenol	87865	Phenol, pentachloro-	10	1,2,3,4	U242	A	10 (4.54)
1,3-Pentadiene	504609	1-Methylbutadiene	1*	4	U186	B	100 (45.4)
Perchloroethylene	127184	Ethene, tetrachloro- Tetrachloroethene Tetrachloroethylene	1*	2,3,4	U210	B	100 (45.4)
Phenacetin	62442	Acetamide, N-(4-ethoxyphenyl)-	1*	4	U187	B	100 (45.4)
Phenanthrene	85018		1*	2		D	5000 (2270)
Phenol	108952	Benzene, hydroxy-	1000	1,2,3,4	U188	C	1000 (454)
Phenol, 2-chloro-	95578	o-Chlorophenol 2-Chlorophenol	1*	2,4	U048	B	100 (45.4)
Phenol, 4-chloro-3-methyl-	59507	p-Chloro-m-cresol 4-Chloro-m-cresol	1*	2,4	U039	D	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	131895	2-Cyclohexyl-4,6-dinitrophenol	1*	4	P034	B	100 (45.4)
Phenol, 2,4-dichloro-	120832	2,4-Dichlorophenol	1*	2,4	U081	B	100 (45.4)
Phenol, 2,6-dichloro-	87650	2,6-Dichlorophenol	1*	4	U082	B	100 (45.4)
Phenol, 4,4′-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	56531	Diethylstilbestrol	1*	4	U089	X	1 (0.454)
Phenol, 2,4-dimethyl-	105679	2,4-Dimethylphenol	1*	2,4	U101	B	100(45.4)
Phenol, 2,4-dinitro-	51285	2,4-Dinitrophenol	1000	1,2,3,4	P048	A	10 (4.54)
Phenol, methyl-	1319773	Cresols (isomers and mixture) Cresylic acid (isomers and mixture)	1000	1,3,4	U052	B	100 (45.4)
Phenol, 2-methyl-4,6-dinitro-, & salts	534521	4,6-Dinitro-o-cresol, and salts	1*	2,3,4	P047	A	10 (4.54)
Phenol, 2,2′-methylenebis[3,4,6-trichloro-	70304	Hexachlorophene	1*	4	U132	B	100 (45.4)
Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate).	64006		1*	4	P202		##
Phenol, 2-(1-methylpropyl)-4,6-dinitro	88857	Dinoseb	1*	4	P020	C	1000 (454)
Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb)	2631370		1*	4	P201		##

Phenol, 4-nitro-	100027	p-Nitrophenol 4-Nitrophenol	1000	1,2,3,4	U170	B	100 (45.4)
Phenol, pentachloro	87865	Pentachlorophenol	10	1,2,3,4	U242	A	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	58902	2,3,4,6-Tetrachlorophenol	1*	4	U212	A	10 (4.54)
Phenol, 2,4,5-trichloro-	95954	2-4,5-Trichlorophenol	10	1,3,4	U230	A	10 (4.54)
Phenol, 2,4,6-trichloro-	88062	2,4,6-Trichlorophenol	10	1,2,3,4	U231	A	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	131748	Ammonium picrate	1*	4	P009	A	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl) amino]-	148823	Melphalan	1*	4	U150	X	1 (0.454)
p-Phenylenediamine	106503		1*	3		D	5000 (2270)
1,10-(1,2-Phenylene)pyrene	193395	Indeno(1,2,3-cd)pyrene	1*	2,4	U137	B	100 (45.4)
Phenylmercury acetate	62384	Mercury, (acetato-O)phenyl-	1*	4	P092	B	100 (45.4)
Phenylthiourea	103855	Thiourea, phenyl-	1*	4	P093	B	100 (45.4)
Phorate	298022	Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester.	1*	4	P094	A	10 (4.54)
Phosgene	75445	Carbonic dichloride	5000	1,3,4	P095	A	10 (4.54)
Phosphine	7803512	Hydrogen phosphide	1*	3,4	P096	B	100 (45.4)
Phosphoric acid	7664382		5000	1		D	5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	311455	Diethyl-p-nitrophenyl phosphate	1*	4	P041	B	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	7446277	Lead phosphate	1*	4	U145	A	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	298044	Disulfoton	1	1,4	P039	X	1 (0.454)
Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester	298022	Phorate	1*	4	P094	A	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288582	O,O-Diethyl S-methyl dithiophosphate	1*	4	U087	D	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester	60515	Dimethoate	1*	4	P044	A	10 (4.54)
Phosphorofluoridic acid, bis(1-methylethyl) ester	55914	Diisopropylfluorophosphate	1*	4	P043	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56382	Parathion	1	1,3,4	P089	A	10 (4.54)
Phosphorothioic acid, O,[4-[(dimethylamino) sulfonyl]phenyl]O,O-dimethyl ester	52857	Famphur	1*	4	P097	C	1000 (454)
Phosphorothioic acid, O,O-dimethyl O-(4- nitrophenyl) ester	298000	Methyl parathion	100	1,4	P071	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297972	O,O-Diethyl O-pyrazinyl phosphorothioate	1*	4	P040	B	100 (45.4)
Phosphorus	7723140		1	1,3		X	1 (0.454)
Phosphrous oxycloride	10025873		5000	1		C	1000 (454)
Phosphorus pentasulfide	1314803	Phosphorus sulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus sulfide	1314803	Phosphorus pentasulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus trichloride	7719122		5000	1		C	1000 (454)
PHTHALATE ESTERS	N.A.		1*	2			**
Phthalic anhydride	85449	1,3-Isobenzofurandione	1*	3,4	U190	D	5000 (2270)
2-Picoline	109068	Pyridine, 2-methyl-	1*	4	U191	D	5000 (2270)
Piperidine, 1-nitroso-	100754	N-Nitrosopiperidine	1*	4	U179	A	10 (4.54)
Plumbane, tetraethyl-	78002	Tetraethyl lead	100	1,4	P110	A	10 (4.54)
POLYCHLORINATED BIPHENYLS	1336363	Aroclors PCBs	10	1,2,3		X	1 (0.454)
Aroclor 1016	12674112		10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282		10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165		10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219		10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296		10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691		10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825		10	1,2,3		X	1 (0.454)
Polycyclic Organic Matter[c]	N.A.		1*	3			**

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
POLYNUCLEAR AROMATIC HYDROCARBONS	N.A.		1*	2			**
Potassium arsenate	7784410		1000	1		X	1 (0.454)
Potassium arsenite	10124502		1000	1		X	1 (0.454)
Potassium bichromate	7778509		1000	1		A	10 (4.54)
Potassium chromate	7789006		1000	1		A	10 (4.54)
Potassium cyanide	151508	Potassium cyanide K (CN)	10	1,4	P098	A	10 (4.54)
Potassium cyanide K(CN)	151508	Potassium cyanide	10	1,4	P098	A	10 (4.54)
Potassium hydroxide	1310583		1000	1		C	1000 (454)
Potassium permanganate	7722647		100	1		B	100 (45.4)
Potassium silver cyanide	506616	Argentate (1-), bis(cyano-C)-, potassium	1*	4	P099	X	1 (0.454)
Pronamide	23950585	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-.	1*	4	U192	D	5000 (2270)
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116063	Aldicarb	1*	4	P070	X	1 (0.454)
1-Propanamine	107108	n-Propylamine	1*	4	U194	D	5000 (2270)
1-Propanamine, N-propyl-	142847	Dipropylamine	1*	4	U110	D	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	621647	Di-n-propylnitrosamine	1*	2,4	U111	A	10 (4.54)
Propane, 2-nitro	79469	2-Nitropropane	1*	3,4	U171	A	10 (4.54)
1,3-Propane sultone	1120714	1,2-Oxathiolane, 2,2-dioxide	1*	3,4	U193	A	10 (4.54)
Propane, 1,2-dibromo-3-chloro	96128	1,2-Dibromo-3-chloropropane	1*	3,4	U066	X	1 (0.454)
Propane, 1,2-dichloro-	78875	1,2-Dichloropropane Propylene dichloride	5000	1,2,3,4	U083	C	1000 (454)
Propanedinitrile	109773	Malononitrile	1*	4	U149	C	1000 (454)
Propanenitrile	107120	Ethyl cyanide	1*	4	P101	A	10 (4.54)
Propanenitrile, 3-chloro-	542767	3-Chloropropionitrile	1*	4	P027	C	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	75865	Acetone cyanohydrin 2-Methyllactonitrile	10	1,4	P069	A	10 (4.54)
Propane, 2,2′-oxybis[2-chloro-	108601	Dichloroisopropyl ether	1*	2,4	U027	C	1000 (454)
1,2,3-Propanetriol, trinitrate-	55630	Nitroglycerine	1*	4	P081	A	10 (4.54)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	126727	Tris(2,3-dibromopropyl) phosphate	1*	4	U235	A	10 (4.54)
1-Propanol, 2-methyl-	78831	Isobutyl alcohol	1*	4	U140	D	5000 (2270)
Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone).	1646884		1*	4	P203		##
2-Propanone	67641	Acetone	1*	4	U002	D	5000 (2270)
2-Propanone, 1-bromo-	598312	Bromoacetone	1*	4	P017	C	1000 (454)
Propargite	2312358		10	1		A	10 (4.54)
Propargyl alcohol	107197	2-Propyn-1-ol	1*	4	P102	C	1000 (454)
2-Propenal	107028	Acrolein	1	1,2,3,4	P003	X	1 (0.454)
2-Propenamide	79061	Acrylamide	1*	3,4	U007	D	5000 (2270)
1-Propene, 1,1,2,3,3,3-hexachloro-	1888717	Hexachloropropene	1*	4	U243	C	1000 (454)
1-Propene, 1,3-dichloro-	542756	1,3-Dichloropropene	5000	1,2,3,4	U084	B	100 (45.4)
2-Propenenitrile	107131	Acrylonitrile	100	1,2,3,4	U009	B	100 (45.4)

2-Propenenitrile, 2-methyl-	126987	Methacrylonitrile	1*	4	U152	C	1000 (454)
2-Propenoic acid	79107	Acrylic acid	1*	3,4	U008	D	5000 (2270)
2-Propenoic acid, ethyl ester	140885	Ethyl acrylate	1*	3,4	U113	C	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	97632	Ethyl methacrylate	1*	4	U118	C	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	80626	Methyl methacrylate	5000	1,3,4	U162	C	1000 (454)
2-Propen-1-ol	107186	Allyl alcohol	100	1,4	P005	B	100 (45.4)
beta-Propiolactone	57578		1*	3		A	10 (4.54)
Propionaldehyde	123386		1*	3		C	1000 (454)
Propionic acid	79094		5000	1		D	5000 (2270)
Propionic acid, 2-(2,4,5-trichlorophenoxy)-	93721	Silvex (2,4,5-TP)	100	1,4	U233	B	100 (45.4)
		2,4,5-TP acid					
Propionic anhydride	123626		5000	1		D	5000 (2270)
Propoxur (Baygon)	114261		1*	3		B	100 (45.4)
n-Propylamine	107108	1-Propanamine	1*	4	U194	D	5000 (2270)
Propylene dichloride	78875	1,2-Dichloropropane	5000	1,2,3,4	U083	C	1000 (454)
		Propane, 1,2-dichloro-					
Propylene oxide	75569		5000	1,3		B	100 (45.4)
1,2-Propylenimine	75558	Aziridine, 2-methyl-	1*	3,4	P067	X	1 (0.454)
		2-Methyl aziridine					
2-Propyn-1-ol	107197	Propargyl alcohol	1*	4	P102	C	1000 (454)
Pyrene	129000		1*	2		D	5000 (2270)
Pyrethrins	121299		1000	1		X	1 (0.545)
	121211						
	8003347						
3,6-Pyridazinedione, 1,2-dihydro-	123331	Maleic hydrazide	1*	4	U148	D	5000 (2270)
4-Pyridinamine	504245	4-Aminopyridine	1*	4	P008	C	1000 (454)
Pyridine	110861		1*	4	U196	C	1000 (454)
Pyridine, 2-methyl-	109068	2-Picoline	1*	4	U191	D	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	54115	Nicotine, & salts	1*	4	P075	B	100 (45.4)
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66751	Uracil mustard	1*	4	U237	A	10 (4.54)
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56042	Methylthiouracil	1*	4	U164	A	10 (4.54)
Pyrrolidine, 1-nitroso-	930552	N-Nitrosopyrrolidine	1*	4	U180	X	1 (0.454)
Pyrrolo[2,3-b] indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-(Physostigmine.	57476		1*	4	P204		##
Quinoline	91225		1000	1,3		D	5000 (2270)
Quinone	106514	p-Benzoquinone	1*	3,4	U197	A	10 (4.54)
		2,5-Cyclohexadiene-1,4-dione					
Quintobenzene	82688	Benzene, pentachloronitro	1*	3,4	U185	B	100(45.4)
		PCNB					
		Pentachloronitro-benzene					
RADIONUCLIDES	N.A.		1*	3			§
Radionuclides (including radon)	N.A.		1*	3			§
Reserpine	50555	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)-	1*	4	U200	D	5000 (2270)
Resorcinol	108463	1,3-Benzenediol	1000	1,4	U201	D	5000 (2270)
Saccharin and salts	81072	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	1*	4	U202	B	100 (45.4)
Safrole	94597	1,3-Benzodioxole, 5-(2-propenyl)-	1*	4	U203	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Selenious acid	7783008		1*	4	U204	A	10 (4.54)
Selenious acid, dithallium (1+) salt	12039520	Thallium selenite	1*	4	P114	C	1000 (454)
Selenium††	7782492		1*	2		B	100 (45.4)
SELENIUM AND COMPOUNDS	N.A.	Selenium Compounds	1*	2,3			**
Selenium Compounds	N.A.	SELENIUM COMPOUNDS	1*	2,3			**
Selenium dioxide	7446084	Selenium oxide	1000	1,4	U204	A	10 (4.54)
Selenium oxide	7446084	Selenium dioxide	1000	1,4	U204	A	10 (4.54)
Selenium sulfide	7488564	Selenium sulfide SeS_2	1*	4	U205	A	10 (4.54)
Selenium sulfide SeS_2	7488564	Selenium sulfide	1*	4	U205	A	10 (4.54)
Selenourea	630104		1*	4	P103	C	1000 (454)
L-Serine, diazoacetate (ester)	115026	Azaserine	1*	4	U015	X	1 (0.454)
Silver††	7440224		1*	2		C	1000 (454)
SILVER AND COMPOUNDS	N.A.		1*	2			**
Silver cyanide	506649	Silver cyanide Ag (CN)	1*	4	P104	X	1 (0.454)
Silver cyanide Ag (CN)	506649	Silver cyanide	1*	4	P104	X	1 (0.454)
Silver nitrate	7761888		1	1		X	1 (0.454)
Silvex (2,4,5-TP)	93721	Propionic acid, 2-(2,4,5-trichlorophenoxy)-2,4,5-TP acid	100	1,4	U233	B	100 (45.4)
Sodium	7440235		1000	1		A	10 (4.54)
Sodium arsenate	7631892		1000	1		X	1 (0.454)
Sodium arsenite	7784465		1000	1		X	1 (0.454)
Sodium azide	26628228		1*	4	P105	C	1000 (454)
Sodium bichromate	10588019		1000	1		A	10 (4.54)
Sodium bifluoride	1333831		5000	1		B	100 (45.4)
Sodium bisulfite	7631905		5000	1		D	5000 (2270)
Sodium chromate	7775113		1000	1		A	10 (4.54)
Sodium cyanide	143339	Sodium cyanide Na(CN)	10	1,4	P106	A	10 (4.54)
Sodium cyanide Na(CN)	143339	Sodium cyanide	10	1,4	P106	A	10 (4.54)
Sodium dodecylbenzenesulfonate	25155300		1000	1		C	1000 (454)
Sodium fluoride	7681494		5000	1		C	1000 (454)
Sodium hydrosulfide	16721805		5000	1		D	5000 (2270)
Sodium hydroxide	1310732		1000	1		C	1000 (454)
Sodium hypochlorite	7681529 10022705		100	1		B	100 (45.4)
Sodium methylate	124414		1000	1		C	1000 (454)
Sodium nitrite	7632000		100	1		B	100 (45.4)
Sodium phosphate, dibasic	7558794 10039324 10140655		5000	1		D	5000 (2270)

Sodium phosphate, tribasic	7601549	5000	1	D	5000 (2270)	
	7758294					
	7785844					
	10101890					
	10124568					
	10361894					
Sodium selenite	10102188	1000	1	B	100 (45.4)	
	7782823					
Streptozotocin	18883664	1*	4 U206	X	1 (0.454)	
		D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-.				
		2-deoxy-2-(3-methyl-3-Glucopyranose, nitrosoureido)-				
Strontium chromate	7789062	1000	1	A	10 (4.54)	
Strychnidin-10-one	57249	10	1,4 P108	A	10 (4.54)	
Strychnidin-10-one, 2,3-dimethoxy-	357573	1*	4 P018	B	100 (45.4)	
Strychnine, & salts	57249	10	1,4 P108	A	10 (4.54)	
Styrene	100425	1000	1,3	C	1000(454)	
Styrene oxide	96093	1*	3	B	100 (45.4)	
Sulfur monochloride	12771083	1000	1	C	1000 (454)	
Sulfur phosphide	1314803	100	1,4 U189	B	100 (45.4)	
		Phosphorus pentasulfide				
		Phosphorus sulfide				
Sulfuric acid	7664939	1000	1	C	1000 (454)	
	8014957					
Sulfuric acid, dithallium (1+) salt	7446186	1000	1,4 P115	B	100 (45.4)	
	10031591					
Sulfuric acid, dimethyl ester	77781	1*	3,4 U103	B	100(45.4)	
2,4,5-T acid	93765	100	1,4 U232	C	1000 (454)	
		2,4,5-T				
2,4,5-T amines	2008460	100	1	D	5000 (2270)	
	1319728					
	3813147					
	6369966					
	6369977					
2,4,5-T esters	93798	100	1	C	1000 (454)	
	1928478					
	2545597					
	25168154					
	61792072					
2,4,5-T salts	13560991	100	1	C	1000 (454)	
2,4,5-T	93765	100	1,4 U232	C	1000 (454)	
		2,4,5-T acid				
TCDD	1746016	2,3,7,8,-Tetrachlorodibenzo-p-dioxin 1*	2,3	X	1(0.454)	
TDE	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- DDD 4,4' DDD. 1	1,2,4 U060	X	1 (0.454)	
1,2,4,5-Tetrachlorobenzene	95943	Benzene, 1,2,4,5-tetrachloro- 1*	4 U207	D	5000 (2270)	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	TCDD 1*	2,3	X	1(0.454)	
1,1,1,2-Tetrachloroethane	630206	Ethane, 1,1,1,2-tetrachloro- 1*	4 U208	B	100 (45.4)	
1,1,2,2,-Tetrachloroethane	79345	Ethane, 1,1,2,2,-tetrachloro- 1*	2,3,4 U209	B	100(45.4)	

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Tetrachloroethene	127184	Ethene, tetrachloro- Perchloroethylene Tetrachloroethylene	1*	2,3,4	U210	B	100(45.4)
Tetrachloroethylene	127184	Ethene, tetrachloro Perchloroethylene Tetrachloroethene	1*	2,3,4	U210	B	100(45.4)
2,3,4,6-Tetrachlorophenol	58902	Phenol, 2,3,4,6-tetrachloro-	1*	4	U212	A	10 (4.54)
Tetraethyl lead	78002	Plumbane, tetraethyl-	100	1,4	P110	A	10 (4.54)
Tetraethyl pyrophosphate	107493	Diphosphoric acid, tetraethyl ester	100	1,4	P111	A	10 (4.54)
Tetraethyldithiopyrophosphate	3689245	Thiodiphosphoric acid, tetraethyl ester	1*	4	P109	B	100 (45.4)
Tetrahydrofuran	109999	Furan, tetrahydro-	1*	4	U213	C	1000 (454)
Tetranitromethane	509148	Methane, tetranitro-	1*	4	P112	A	10 (4.54)
Tetraphosphoric acid, hexaethyl ester	757584	Hexaethyl tetraphosphoate	1*	4	P062	B	100 (45.4)
Thallic oxide	1314325	Thallium oxide $Tl_2 O_3$	1*	4	P113	B	100 (45.4)
Thallium††	7440280		1*	2		C	1000 (454)
Thallium and compounds	N.A.		1*	2			**
Thallium (I) acetate	563688	Acetic acid, thallium(1+) salt	1*	4	U214	B	100 (45.4)
Thallium (I) carbonate	6533739	Carbonic acid, dithallium(1+) salt	1*	4	U215	B	100 (45.4)
Thallium (I) chloride	7791120	Thallium chloride TlCl	1*	4	U216	B	100 (45.4)
Thallium chloride TlCl	7791120	Thallium(I) chloride	1*	4	U216	B	100 (45.4)
Thallium (I) nitrate	10102451	Nitric acid, thallium (1+) salt	1*	4	U217	B	100 (45.4)
Thallium oxide $Tl_2 O_3$	1314325	Thallic oxide	1*	4	P113	B	100 (45.4)
Thallium selenite	12039520	Selenious acid, dithallium(1+) salt	1*	4	P114	C	1000 (454)
Thallium (I) sulfate	7446186 10031591	Sulfuric acid, dithallium(1+) salt	1000	1,4	P115	B	100 (45.4)
Thioacetamide	62555	Ethanethioamide	1*	4	U218	A	10 (4.54)
Thiodiphosphoric acid, tetraethyl ester	3689245	Tetraethyldithiopyrophosphate	1*	4	P109	B	100 (45.4)
Thiofanox	39196184	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl) oxime.	1*	4	P045	B	100 (45.4)
Thioimidodicarbonic diamide [$(H_2 N)C(S)$] 2NH	541537	Dithiobiuret	1*	4	P049	B	100 (45.4)
Thiomethanol	74931	Methanethiol Methylmercaptan	100	1,4	U153	B	100 (45.4)
Thioperoxydicarbonic diamide [$(H_2 N)C(S)$] $2S_2$, tetramethyl-	137268	Thiram	1*	4	U244	A	10 (4.54)
Thiophenol	108985	Benzenethiol	1*	4	P014	B	100 (45.4)
Thiosemicarbazide	79196	Hydrazinecarbothioamide	1*	4	P116	B	100 (45.4)
Thiourea	62566		1*	4	U219	A	10 (4.54)
Thiourea, (2-chlorophenyl)-	5344821	1-(o-Chlorophenyl)thiourea	1*	4	P026	B	100 (45.4)
Thiourea, 1-naphthalenyl-	86884	alpha-Naphthylthiourea	1*	4	P072	B	100 (45.4)
Thiourea, phenyl-	103855	Phenylthiourea	1*	4	P093	B	100 (45.4)
Thiram	137268	Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-	1*	4	U244	A	10 (4.54)

Titanium tetrachloride	7550450		1*	3	C	1000 (454)
Toluene	108883	Benzene, methyl	1000	1,2,3,4	C	1000(454)
Toluenediamine	95807	Benzenediamine, ar-methyl-	1*	3,4	A	10(4.54)
	496720	2,4-Toluene diamine				
	823405					
	25376458					
2,4-Toluene diamine	95807	Benzenediamine, ar-methyl-	1*	3,4	A	10(4.54)
	496720	Toluenediamine				
	823405					
	25376458					
Toluene diisocyanate	91087	Benzene, 1,3-diisocyanatomethyl-	1*	3,4	B	100 (45.4)
	584849	2,4-Toluene diisocyanate-				
	26471625					
2,4-Toluene diisocyanate	91087	Benzene, 1,3-diisocya-natomethyl-	1*	3,4	B	100 (45.4)
	584849	Toluene diisocyanate				
	26471625					
o-Toluidine	95534	Benzenamine, 2-methyl-	1*	3,4	B	100(45.4)
p-Toluidine	106490	Benzenamine, 4-methyl-	1*	4	B	100 (45.4)
o-Toluidine hydrochloride	636215	Benzenamine, 2-methyl-, hydrochloride	1*	4	B	100 (45.4)
Toxaphene	8001352	Camphene, octachloro-	1*	1,2,3,4	X	1 (0.454)
		Chlorinated camphene				
2,4,5-TP acid	93721	Propionic acid, 2-(2,4,5-trichlorophenoxy)-	100	1,4	B	100 (45.4)
		Silvex (2,4,5-TP)				
2,4,5-TP esters	32534955		100	1	B	100 (45.4)
1H-1,2,4-Triazol-3-amine	61825	Amitrole	1*	4	A	10 (4.54)
2,4,6-tribromophenol	118796		100	4	B	100 (45.4)
Trichlorfon	52686		1000	1	B	100 (45.4)
1,2,4-Trichlorobenzene	120821		1*	2,3	B	100 (45.4)
1,1,1-Trichloroethane	71556	Ethane, 1,1,1-trichloro-	1*	2,3,4	C	1000 (454)
		Methyl chloroform				
1,1,2-Trichloroethane	79005	Ethane, 1,1,2-trichloro	1*	2,3,4	B	100 (45.4)
Trichloroethene	79016	Ethene, trichloro-	1000	1,2,3,4	B	100 (45.4)
		Trichloroethylene				
Trichloroethylene	79016	Ethene, trichloro	1000	1,2,3,4	B	100 (45.4)
		Trichloroethene				
Trichloromethanesulfenyl chloride	594423	Methanesulfenyl chloride, trichloro-	1*	4	B	100 (45.4)
Trichloromonofluoromethane	75694	Methane, trichlorofluoro-	1*	4	D	5000 (2270)
Trichlorophenol	25167822		10	1	A	10 (4.54)
2,3,4-Trichlorophenol	15950660					
2,3,5-Trichlorophenol	933788					
2,3,6-Trichlorophenol	933755					
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10	1,3,4	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10	1,2,3,4	A	10 (4.54)
3,4,5-Trichlorophenol	609198					
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10*	1,4	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10	1,2,4	A	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	27323417		1000	1	C	1000 (454)
Triethylamine	121448		5000	1,3	D	5000 (2270)
Trifluralin	1582098		1*	3	A	10 (4.54)
Trimethylamine	75503		1000	1	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
2,2,4-Trimethylpentane	540841		1*	3		C	1000 (454)
1,3,5-Trinitrobenzene	99354	Benzene, 1,3,5-trinitro-	1*	4	U234	A	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	123637	Paraldehyde	1*	4	U182	C	1000 (454)
Tris(2,3-dibromopropyl) phosphate	126727	1-Propanol, 2,3-dibromo-, phosphate [(3:1)	1*	4	U235	A	10 (4.54)
Trypan blue	72571	2,7-Naphthalenedisulfonic acid, 3,3′-3,3′-dimethyl-(1,1′-biphenyl)-4,4′-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	1*	4	U236	A	10 (4.54)
Unlisted Hazardous Wastes Characteristic of Corrosivity	N.A.		1*	4	D002	B	100 (45.4)
Unlisted Hazardous Wastes Characteristics:	N.A.		1*	4			
Characteristic of Toxicity:							
Arsenic (D004)	N.A.		*1	4	D004	X	1 (0.454)
Barium (D005)	N.A.		*1	4	D005	C	1,000 (454)
Benzene (D018)	N.A.		1000	1, 2, 3, 4	D018	A	10 (4.54)
Cadmium (D006)	N.A.		*1	4	D006	A	10 (4.54)
Carbon tetrachloride (D019)	N.A.		5,000	1, 2, 4	D019	A	10 (4.54)
Chlordane (D020)	N.A.		1	1, 2, 4	D020	X	1 (0.454)
Chlorobenzene (D021)	N.A.		100	1, 2, 4	D021	B	100 (45.4)
Chloroform (D022)	N.A.		5,000	1, 2, 4	D022	A	10 (4.54)
Chromium (D007)	N.A.		*1	4	D007	A	10 (4.54)
o-Cresol (D023)	N.A.		1*	4	D023	B	100 (45.4)
m-Cresol (D024)	N.A.		1*	4	D024	B	100 (45.4)
p-Cresol (D025)	N.A.		1*	4	D025	B	100 (45.4)
Cresol (D026)	N.A.		1*	4	D026	B	100 (45.4)
2,4-D (D016)	N.A.		100	1, 4	D016	B	100 (45.4)
1,4-Dichlorobenzene (D027)	N.A.		100	1, 2, 4	D027	B	100 (45.4)
1,2-Dichloroethane (D028)	N.A.		5,000	1, 2, 4	D028	B	100 (45.4)
1,1-Dichloroethylene (D029)	N.A.		5,000	1, 2, 4	D029	B	100 (45.4)
2,4-Dinitrotoluene (D030)	N.A.		1,000	1, 2, 4	D030	A	10 (4.54)
Endrin (D012)	N.A.		1	1, 4	D012	X	1 (0.454)
Heptachlor (and epoxide) (D031)	N.A.		1	1, 2, 4	D031	X	1 (0.454)
Hexachlorobenzene (D032)	N.A.		*1	2, 4	D032	A	10 (4.54)
Hexachlorobutadiene (D033)	N.A.		*1	2, 4	D033	X	1 (0.454)
Hexachloroethane (D034)	N.A.		*1	2, 4	D034	B	100 (45.4)
Lead (D008)	N.A.		1*	4	D008	A	10 (4.54)
Lindane (D013)	N.A.		1	1, 4	D013	X	1 (0.454)
Mercury (D009)	N.A.		*1	4	D009	X	1 (0.454)
Methoxychlor (D014)	N.A.		1	1, 4	D014	X	1 (0.454)
Methyl ethyl ketone (D035)	N.A.		*1	4	D035	D	5,000 (2270)
Nitrobenzene (D036)	N.A.		1,000	1, 2, 4	D036	C	1,000 (454)

Pentachlorophenol (D037)	N.A.	10	1, 2, 4	D037	A	10 (4.54)
Pyridine (D038)	N.A.	*1	4	D038	C	1,000 (454)
Selenium (D010)	N.A.	*1	4	D010	A	10 (4.54)
Silver (D011)	N.A.	*1	4	D011	X	1 (0.454)
Tetrachloroethylene (D039)	N.A.	*1	2, 4	D039	B	100 (45.4)
Toxaphene (D015)	N.A.	1	1, 4	D015	X	1 (0.454)
Trichloroethylene (D040)	N.A.	1000	1, 2, 4	D040	B	100 (45.4)
2,4,5-Trichlorophenol (D041)	N.A.	10	1, 4	D041	A	10 (4.54)
2,4,6-Trichlorophenol (D042)	N.A.	10	1, 2, 4	D042	A	10 (4.54)
2,4,5-TP (D017)	N.A.	100	1, 4	D017	B	100 (45.4)
Vinyl chloride (D043)	N.A.	*1	2, 3, 4	D043	X	1 (0.454)
Unlisted Hazardous Wastes Characteristic of Ignitability	N.A.	1*	4	D001	B	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Reactivity	N.A.	1*	4	D003	B	100 (45.4)
Uracil mustard	66751	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	1*	4	U237	A	10 (4.54)
Uranyl acetate	541093		5000	1		B	100 (45.4)
Uranyl nitrate	10102064		5000	1		B	100 (45.4)
	36478769						
Urea, N-ethyl-N-nitroso-	759739	N-Nitroso-N-ethylurea	1*	4	U176	X	1 (0.454)
Urea, N-methyl-N-nitroso	684935	N-Nitroso-N-methylurea	1*	3,4	U177	X	1 (0.454)
Urethane	51796	Carbamic acid, ethyl ester	1*	3,4	U238	B	100 (45.4)
		Ethyl carbamate					
Vanadic acid, ammonium salt	7803556	Ammonium vanadate	1*	4	P119	C	1000 (454)
Vanadium oxide $V_2 O_5$	1314621	Vanadium pentoxide	1000	1,4	P120	C	1000 (454)
Vanadium pentoxide	1314621	Vanadium oxide $V_2 O_5$	1000	1,4	P120	C	1000 (454)
Vanadyl sulfate	27774136		1000	1		C	1000 (454)
Vinyl acetate	108054	Vinyl acetate monomer	1000	1,3		D	5000 (2270)
Vinyl acetate monomer	108054	Vinyl acetate	1000	1,3	P084	D	5000 (2270)
Vinylamine, N-methyl-N-nitroso-	4549400	N-Nitrosomethylvinylamine	1*	4		A	10 (4.54)
Vinyl bromide	593602		1*	3		B	100 (45.4)
Vinyl chloride	75014	Ethene, chloro-	1*	2,3,4	U043	X	1 (0.454)
Vinylidene chloride	75354	1,1-Dichloroethylene	5000	1,2,3,4	U078	B	100 (45.4)
		Ethene, 1,1-dichloro-					
Warfarin, & salts, when present at concentrations greater than 0.3%	81812	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%.	1*	4	P001	B	100 (45.4)
Xylene	1330207	Benzene, dimethyl-	1000	1,3,4	U239	B	100 (45.4)
		Xylene (mixed)					
		Xylenes (isomers and mixture)					
m-Xylene	108383	Benzene, m-dimethyl-	1*	3		C	1000 (454)
o-Xylene	95476	Benzene, o-dimethyl-	1*	3		C	1000 (454)
p-Xylene	106423	Benzene, p-dimethyl-	1*	3		B	100 (45.4)
Xylene (mixed)	1330207	Benzene, dimethyl-	1000	1,3,4	U239	B	100 (45.4)
		Xylene					
		Xylenes (isomers and mixture)					
Xylenes (isomers and mixture)	1330207	Benzene, dimethyl-	1000	1,3,4	U239	B	100 (45.4)
		Xylene					
		Xylene (mixed)					
Xylenol	1300716		1000	1		C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta,16beta,17alpha, 18beta, 20alpha)-	50555	Reserpine	1*	4	U200	D	5000 (2270)
Zinc††	7440666		1*	2		C	1000 (454)
ZINC AND COMPOUNDS	N.A.		1*	2			**
Zinc acetate	557346		1000	1		C	1000 (454)
Zinc ammonium chloride	52628258 14639975 14639986		5000	1		C	1000 (454)
Zinc, bis(dimethylcarbomodithioato-S,S')-, (Ziram)	137304		1*	4	P205		##
Zinc borate	1332076		1000	1		C	1000 (454)
Zinc bromide	7699458		5000	1		C	1000 (454)
Zinc carbonate	3486359		1000	1		C	1000 (454)
Zinc chloride	7646857		5000	1		C	1000 (454)
Zinc cyanide	557211	Zinc cyanide Zn(CN)2	10	1,4	P121	A	10 (4.54)
Zinc cyanide Zn(CN)2	557211	Zinc cyanide	10	1,4	P121	A	10 (4.54)
Zinc fluoride	7783495		1000	1		C	1000 (454)
Zinc formate	557415		1000	1		C	1000 (454)
Zinc hydrosulfite	7779864		1000	1		C	1000 (454)
Zinc nitrate	7779886		5000	1		C	1000 (454)
Zinc phenosulfonate	127822		5000	1		D	5000 (2270)
Zinc phosphide	1314847	Zinc phosphide Zn_3 P_2, when present at concentrations greater than 10%.	1000	1,4	P122	B	100 (45.4)
Zinc phosphide Zn_3 P_2, when present at concentrations greater than 10%.	1314847	Zinc phosphide	1000	1,4	P122	B	100 (45.4)
Zinc silicofluoride	16871719		5000	1		D	5000 (2270)
Zinc sulfate	7733020		1000	1		C	1000 (454)
Zirconium nitrate	13746899		5000	1		D	5000 (2270)
Zirconium potassium fluoride	16923958		5000	1		C	1000 (454)
Zirconium sulfate	14644612		5000	1		D	5000 (2270)
Zirconium tetrachloride	10026116		5000	1		D	5000 (2270)
F001			1*	4	F001	A	10 (4.54)
The following spent halogenated solvents used in degreasing; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures							
(a) Tetrachloroethylene	127184		1*	2,4	U210	B	100 (45.4)
(b) Trichloroethylene	79016		1000	1,2,4	U228	B	100 (45.4)
(c) Methylene chloride	75092		1*	2,4	U080	C	1000 (454)

(d) 1,1,1-Trichloroethane	71556	1*	2,4	U226	C	1000 (454)
(e) Carbon tetrachloride	56235	5000	1,2,4	U211	A	10 (4.54)
(f) Chlorinated fluorocarbons	N.A.				D	5000 (2270)
F002		1*	4	F002	A	10 (4.54)
The following spent halogenated solvents; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures						
(a) Tetrachloroethylene	127184	1*	2,4	U210	B	100 (45.4)
(b) Methylene chloride	75092	1*	2,4	U080	C	1000 (454)
(c) Trichloroethylene	79016	1000	1,2,4	U228	B	100 (45.4)
(d) 1,1,1-Trichloroethane	71556	1*	2,4	U226	C	1000 (454)
(e) Chlorobenzene	108907	100	1,2,4	U037	B	100 (45.4)
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	76131				D	5000 (2270)
(g) o-Dischlorobenzene	95501	100	1,2,4	U070	B	100 (45.4)
(h) Trichlorofluoromethane	75694	1*	4	U121	D	5000 (2270)
(i) 1,1,2-Thrichloroethane	79005	1*	2,4	U227	B	100 (45.4)
F003		1*	4	F003	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:						
(a) Xylene	1330207	.....	.....		C	1000 (454)
(b) Acetone	67641	.....	.....		D	5000 (2270)
(c) Ethyl acetate	141786	.....	.....		D	5000 (2270)
(d) Ethylbenzene	100414	.....	.....		C	1000 (454)
(e) Ethyl ether	60297	.....	.....		B	100 (45.4)
(f) Methyl isobutyl ketone	108101	.....	.....		D	5000 (2270)
(g) n-Butyl alcohol	71363	.....	.....		D	5000 (2270)
(h) Cyclohexanone	108941	.....	.....		D	5000 (2270)
(i) Methanol	67561	.....	.....		D	5000 (2270)
F004		1*	4	F004	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:						
(a) Cresols/Cresylic acid	1319773	1000	1,3,4	U052	B	100(45.4)
(b) Nitrobenzene	98953	1000	1,2,4	U169	C	1000 (454)
F005		1*	4	F005	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:						
(a) Toluene	108883	1000	1,2,4	U220	C	1000 (454)
(b) Methyl ethyl ketone	78933	1*	4	U159	D	5000 (2270)
(c) Carbon disulfide	75150	5000	1,4	P022	B	100 (45.4)
(d) Isobutanol	78831	1*	4	U140	D	5000 (2270)
(e) Pyridine	110861	1*	4	U196	C	1000 (454)
F006		1*	4	F006	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.							
F007	.....	.....	1*	4	F007	A	10 (4.54)
Spent cyanide plating bath solutions from electroplating operations.							
F008	.....	.....	1*	4	F008	A	10 (4.54)
Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.							
F009	.....	.....	1*	4	F009	A	10 (4.54)
Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.							
F010	.....	.....	1*	4	F010	A	10 (4.54)
Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.							
F011	.....	.....	1*	4	F011	A	10 (4.54)
Spent cyanide solution from salt bath pot cleaning from metal heat treating operations.							
F012	.....	.....	1*	4	F012	A	10 (4.54)
Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.							
F019	.....	.....	1	4	F019	A	10 (4.54)
Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.							
F020	.....	.....	1*	4	F020	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or-tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.).							
F021	.....	.....	1*	4	F021	X	1 (0.454)

Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.		1*	4	F022	X		1 (0.454)
F022							
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.		1*	4	F023	X		1 (0.454)
F023							
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexa-chlorophene from highly purified 2,4,5-tri-chlorophenol.).		1*	4	F024	X		1 (0.454)
F024							
Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent filters and filter aids, spent dessicants(sic), wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in § 261.32.).		1*	4	F025	X		1 (0.454)
F025							
Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.		1*	4	F026	X		1 (0.454)
F026							
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.		1*	4	F027	X		1 (0.454)
F027							
Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-tri-chlorophenol as the sole component.).		1*	4	F028	X		1 (0.454)
F028							
Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.							

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
F032			1*	4	F032	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with §261.35 of this chapter or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F034			1*	4	F034	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use cresote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F035			1*	4	F035	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F037			1*	4	F037	X	1 (0.454)

Petroleum refinery primary oil/water/solids separation sludge—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in § 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.		1*	4	F038	X	1 (0.454)
F038							
Petroleum refinery secondary (emulsified) oil/water/solids separation sludge—Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from once-through non-contact cooling waters segregated for treatment from other process or oil cooling wastes, sludges and floats generated in aggressive biological treatment units as defined in § 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.						
K001		1*	4	K001	X	1 (0.454)
Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.						
K002		1*	4	K002	A	10 (4.54)
Wastewater treatment sludge from the production of chrome yellow and orange pigments.						
K003		1*	4	K003	A	10 (4.54)
Wastewater treatment sludge from the production of molybdate orange pigments.						
K004		1*	4	K004	A	10 (4.54)
Wastewater treatment sludge from the production of zinc yellow pigments.						
K005		1*	4	K005	A	10 (4.54)
Wastewater treatment sludge from the production of chrome green pigments.						
K006		1*	4	K006	A	10 (4.54)
Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).						

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
K007			1*	4	K007	A	10 (4.54)
Wastewater treatment sludge from the production of iron blue pigments.							
K008			1*	4	K008	A	10 (4.54)
Oven residue from the production of chrome oxide green pigments.							
K009			1*	4	K009	A	10 (4.54)
Distillation bottoms from the production of acetaldehyde from ethylene.							
K010			1*	4	K010	A	10 (4.54)
Distillation side cuts from the production of acetaldehyde from ethylene.							
K011			1*	4	K011	A	10 (4.54)
Bottom stream from the wastewater stripper in the production of acrylonitrile.							
K013			1*	4	K013	A	10 (4.54)
Bottom stream from the acetonitrile column in the production of acrylonitrile.							
K014			1*	4	K014	D	5000 (2270)
Bottoms from the acetonitrile purification column in the production of acrylonitrile.							
K015			1*	4	K015	A	10 (4.54)
Still bottoms from the distillation of benzyl chloride.							
K016			1*	4	K016	X	1 (0.454)
Heavy ends or distillation residues from the production of carbon tetrachloride.							
K017			1*	4	K017	A	10 (4.54)
Heavy ends (still bottoms) from the purification column in the production of epi-chlorohydrin.							
K018			1*	4	K018	X	1 (0.454)
Heavy ends from the fractionation column in ethyl chloride production.							
K019			1*	4	K019	X	1 (0.454)
Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.							
K020			1*	4	K020	X	1 (0.454)
Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.							
K021			1*	4	K021	A	10 (4.54)
Aqueous spent antimony catalyst waste from fluoromethanes production.							
K022			1*	4	K022	X	1 (0.454)

Distillation bottom tars from the production of phenol/acetone from cumene.		1*	4	K023	D	5000 (2270)
K023						
Distillation light ends from the production of phthalic anhydride from naphthalene.						
K024		1*	4	K024	D	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from naphthalene.						
K025		1*	4	K025	A	10 (4.54)
Distillation bottoms from the production of nitrobenzene by the nitration of benzene.						
K026		1*	4	K026	C	1000 (454)
Stripping still tails from the production of methyl ethyl pyridines.						
K027		1*	4	K027	A	10 (4.54)
Centrifuge and distillation residues from toluene diisocyanate production.						
K028		1*	4	K028	X	1 (0.454)
Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.						
K029		1*	4	K029	X	1 (0.454)
Waste from the product steam stripper in the production of 1,1,1-trichloroethane.						
K030		1*	4	K030	X	1 (0.454)
Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.						
K031		1*	4	K031	X	1 (0.454)
By-product salts generated in the production of MSMA and cacodylic acid.						
K032		1*	4	K032	A	10 (4.54)
Wastewater treatment sludge from the production of chlordane.						
K033		1*	4	K033	A	10 (4.54)
Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.						
K034		1*	4	K034	A	10 (4.54)
Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.						
K035		1*	4	K035	X	1 (0.454)
Wastewater treatment sludges generated in the production of creosote.						
K036		1*	4	K036	X	1 (0.454)
Still bottoms from toluene reclamation distillation in the production of disulfoton.						
K037		1*	4	K037	X	1 (0.454)
Wastewater treatment sludges from the production of disulfoton.						
K038		1*	4	K038	A	10 (4.54)
Wastewater from the washing and stripping of phorate production.						
K039		1*	4	K039	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.							
K040			1*	4	K040	A	10 (4.54)
Wastewater treatment sludge from the production of phorate.							
K041			1*	4	K041	X	1 (0.454)
Wastewater treatment sludge from the production of toxaphene.							
K042			1*	4	K042	A	10 (4.54)
Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.							
K043			1*	4	K043	A	10 (4.54)
2,6-Dichlorophenol waste from the production of 2,4-D.							
K044			1*	4	K044	A	10 (4.54)
Wastewater treatment sludges from the manufacturing and processing of explosives.							
K045			1*	4	K045	A	10 (4.54)
Spent carbon from the treatment of wastewater containing explosives.							
K046			1*	4	K046	A	10 (4.54)
Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.							
K047			1*	4	K047	A	10 (4.54)
Pink/red water from TNT operations.							
K048			1*	4	K048	A	10 (4.54)
Dissolved air flotation (DAF) float from the petroleum refining industry.							
K049			1*	4	K049	A	10 (4.54)
Stop oil emulsion solids from the petroleum refining industry.							
K050			1*	4	K050	A	10 (4.54)
Heat exchanger bundle cleaning sludge from the petroleum refining industry.							
K051			1*	4	K051	A	10 (4.54)
API separator sludge from the petroleum refining industry.							
K052			1*	4	K052	A	10 (4.54)
Tank bottoms (leaded) from the petroleum refining industry.							
K060			1*	4	K060	X	1 (0.454)
Ammonia still lime sludge from coking operations.							
K061			1*	4	K061	A	10 (4.54)
Emission control dust/sludge from the primary production of steel in electric furnaces.							

K062 ..... Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).	.....	1*	4	K062	A	10 (4.54)	
K064 ..... Acid plant blowdown slurry/sludge resulting from thickening of blowdown slurry from primary copper production.	.....	1*	4	K064	A	10 (4.54)	
K065 ..... Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	.....	1*	4	K065	A	10 (4.54)	
K066 ..... Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	.....	1*	4	K066	A	10 (4.54)	
K069 ..... Emission control dust/sludge from secondary lead smelting.	.....	1*	4	K069	A	10 (4.54)	
K071 ..... Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	.....	1*	4	K071	X	1 (0.454)	
K073 ..... Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	.....	1*	4	K073	A	10 (4.54)	
K083 ..... Distillation bottoms from aniline extraction.	.....	1*	4	K083	B	100 (45.4)	
K084 ..... Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	.....	1*	4	K084	X	1 (0.454)	
K085 ..... Distillation or fractionation column bottoms from the production of chlorobenzenes.	.....	1*	4	K085	A	10 (4.54)	
K086 ..... Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	.....	1*	4	K086	A	10 (4.54)	
K087 ..... Decanter tank tar sludge from coking operations.	.....	1*	4	K087	B	100 (45.4)	
K088 ..... Spent potliners from primary aluminum reduction.	.....	1*	4	K088	A	10 (4.54)	
K090 ..... Emission control dust or sludge from ferrochromiumsilicon production.	.....	1*	4	K090	A	10 (4.54)	
K091 ..... Emission control dust or sludge from ferrochromium production.	.....	1	4	K091	A	10 (4.54)	
K093 ..... Distillation light ends from the production of phthalic anhydride from ortho-xylene.	.....	1*	4	K093	D	5000 (2270)	
K094	.....	1*	4	K094	D	5000 (2270)	

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Distillation bottoms from the production of phthalic anhydride from ortho-xylene.							
K095	.....	.....	1*	4	K095	B	100 (45.4)
Distillation bottoms from the production of 1,1,1-trichloroethane.							
K096	.....	.....	1*	4	K096	B	100 (45.4)
Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.							
K097	.....	.....	1*	4	K097	X	1 (0.454)
Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.							
K098	.....	.....	1*	4	K098	X	1 (0.454)
Untreated process wastewater from the production of toxaphene.							
K099	.....	.....	1*	4	K099	A	10 (4.54)
Untreated wastewater from the production of 2,4-D.							
K100	.....	.....	1*	4	K100	A	10 (4.54)
Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.							
K101	.....	.....	1*	4	K101	X	1 (0.454)
Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.							
K102	.....	.....	1*	4	K102	X	1 (0.454)
Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.							
K103	.....	.....	1*	4	K103	B	100 (45.4)
Process residues from aniline extraction from the production of aniline.							
K104	.....	.....	1*	4	K104	A	10 (4.54)
Combined wastewater streams generated from nitrobenzene/aniline production.							
K105	.....	.....	1*	4	K105	A	10 (4.54)
Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.							
K106	.....	.....	1*	4	K106	X	1 (0.454)
Wastewater treatment sludge from the mercury cell process in chlorine production.							
K107	.....	.....	10	4	K107	X	10 (4.54)

Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.		10	4	K108	X		10 (4.54)
K108							
Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.							
K109		10	4	K109	X		10 (4.54)
Spent filter cartridges from product purification from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazides.							
K110		10	4	K110	X		10 (4.54)
Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.							
K111		1*	4	K111	A		10 (4.54)
Product washwaters from the production of dinitrotoluene via nitration of toluene.							
K112		1*	4	K112	A		10 (4.54)
Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K113		1*	4	K113	A		10 (4.54)
Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K114		1*	4	K114	A		10 (4.54)
Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K115		1*	4	K115	A		10 (4.54)
Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K116		1*	4	K116	A		10 (4.54)
Organic condensate from the solvent recovery column in the production of toluene disocyanate via phosgenation of toluenediamine.							
K117		1*	4	K117	X		1 (0.454)
Wastewater from the reaction vent gas scrubber in the production of ethylene bromide via bromination of ethene.							
K118		1*	4	K118	X		1 (0.454)
Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide.							
K123		1*	4	K123	A		10 (4.54)
Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.							
K124		1*	4	K124	A		10 (4.54)
Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.							
K125		1*	4	K125	A		10 (4.54)
Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.							
K126		1*	4	K126	A		10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.							
K131	.....	.....	100	4	K131	X	100 (45.4)
Wastewater from the reactor and spent sulfuric acid from the acid dryer in the production of methyl bromide.							
K132	.....	.....	1000	4	K132	X	1000 (454)
Spent absorbent and wastewater solids from the production of methyl bromide.							
K136	.....	.....	1*	4	K136	X	1 (0.454)
Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.							
K140	.....	.....	1*	4	K140	B	## 100 (45.4)
Floor sweepings, off-specification product and spent filter media from the production of 2,4,6-tribromophenol..							
K141	.....	.....	1*	4	K141	X	1 (0.454)
Process related from the recovery of coal tar, including, but not limited to, tar collecting sump residues from the production of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludge from coking operations.).							
K142	.....	.....	1*	4	K142	X	1 (0.454)
Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.							
K143	.....	.....	1*	4	K143	X	1 (0.454)
Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.							
K144	.....	.....	1*	4	K144	X	1 (0.454)
Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.							
K145	.....	.....	1*	4	K145	X	1 (0.454)
Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal.							
K147	.....	.....	1*	4	K147	X	1 (0.454)
Tar storage tank residues from coal tar refining.							
K148	.....	.....	1*	4	K148	X	1 (0.454)

Residues from coal tar distillation, including, but not limited to, still bottoms.						
K149		1*	4	K149	A	10 (4.54)
Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. [This waste does not include still bottoms from the distillation of benzyl chloride.].						
K150		1*	4	K150	A	10 (4.54)
Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.						
K151		1*	4	K151	A	10 (4.54)
Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.						
K156		*1	4	K156		##
Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.).						
K157		*1	4	K157		##
Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.).						
K158		*1	4	K158		##
Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.).						
K159		1*	4	K159		##
Organics from the treatment of thiocarbamate wastes.						
K161		1*	4	K161		##
Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust, and floor sweepings from the production of dithiocarbamate acids and their salts (This listing does not include K125 or K126.).						
K169[f]		1*	4	K169	A	10(4.54)
Crude oil storage tank sediment from petroleum refining operations.						
K170[f]		1*	4	K170	X	1 (0.454)
Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations.						
K171[f]		1*	4	K171	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Spent hydrotreating catalyst from petroleum refining operations. (This listing does not include inert support media.) K172[f] ..... Spent hydrorefining catalyst from petroleum refining operations. (This listing does not include inert support media.)	.....	.....	1*	4	K172	X	1 (0.454)

† Indicates the statutory source as defined by 1, 2, 3, and 4 below.
†† No reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
††† The RQ for asbestos is limited to friable forms only.
1—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 311(b)(4).
2—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 307(a).
3—indicates that the statutory source for designation of this hazardous substance under CERCLA is CAA Section 112.
4—Indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA Section 3001.
1*—indicates that the 1-pound RQ is a CERCLA statutory RQ.
# Indicates that the RQ is subject to change when the assessment of potential carcinogenicity is completed.
The Agency may adjust the statutory RQ for this hazardous substance in a future rulemaking; until then the statutory RQ applies.
§—The adjusted RQs for radionuclides may be found in appendix B to this table.
**—indicates that no RQ is being assigned to the generic or broad class.
[a] Benzene was already a CERCLA hazardous substance prior to the CAA Amendments of 1990 and received an adjusted 10-pound RQ based on potential carcinogenicity in an August 14, 1989, final rule (54 FR 33418). The CAA Amendments specify that "benzene (including benzene from gasoline)" is a hazardous air pollutant and, thus, a CERCLA hazardous substance.
[b] The CAA Amendments of 1990 list DDE (3547–04–4) as a CAA hazardous air pollutant. The CAS number, 3547–04–4, is for the chemical, p,p′-dichlorodiphenylethane. DDE or p,p′-dichlorodiphenyldichloroethylene, CAS number 72–55–9, is already listed in table 302.4 with a final RQ of 1 pound. The substance identified by the CAS number 3547–04–4 has been evaluated and listed as DDE to be consistent with the CAA section 112 listing, as amended.
[c] Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.
[d] Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-$(OCH2CH2)_n$-OR′ where
n=1, 2, or 3
R=alkyl or aryl groups
R′=R, H, or groups which, when removed, yield glycol ethers with the structure: R-$(OCH2CH2)_n$—OH. Polymers are excluded from the glycol category.
[e] Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 °C.
[f] See 40 CFR 302.6(b)(1) for application of the mixture rule to this hazardous waste.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES

CASRN	Hazardous substance
50000	Formaldehyde.
50077	Azirino[2′,3′:3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a, 8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
	Mitomycin C.
50180	Cyclophosphamide.
	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide.
50293	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-chloro-.
	DDT′.
	4,4′DDT.
50328	Benzo[a]pyrene.
	3,4-Benzopyrene.
50555	Reserpine.
	Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3 ,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)- .
51285	Phenol, 2,4-dinitro-.
	2,4-Dinitrophenol.
51434	Epinephrine.
	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino) ethyl]-.
51796	Carbamic acid, ethyl ester.
	Ethyl carbamate.
	Urethane.
52686	Trichlorfon.
52857	Famphur.
	Phosphorothioic acid, O,[4-[(dimethyl- amino) sulfonyl]phenyl]O,O-dimethyl ester.
53703	Dibenz[a,h]anthracene.
	Dibenzo[a,h]anthracene.
	1,2:5,6-Dibenzanthracene.
53963	Acetamide, N-9H-fluoren-2-yl-.
	2-Acetylaminofluorene.
54115	Nicotine, & salts.
	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-.
55185	Ethanamine, N-ethyl-N-nitroso-.
	N-Nitrosodiethylamine.
55630	Nitroglycerine.
	1,2,3-Propanetriol, trinitrate-.
55914	Diisopropylfluorophosphate.
	Phosphoroflu oridic acid, bis(1-methyl- ethyl) ester.
56042	Methylthiouracil.
	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-.
56235	Carbon tetrachloride.
	Methane, tetrachloro-.
56382	Parathion.
	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.
56495	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-.
	3-Methylcholanthrene.
56531	Diethylstilbestrol.
	Phenol, 4,4′-(1,2-diethyl-1,2-ethenediyl)bis-, (E).
56553	Benz[a]anthracene.
	Benzo[a]anthracene.
	1,2-Benzanthracene.
56724	Coumaphos.
57125	Cyanides (soluble salts and complexes) not otherwise specified.
57147	Hydrazine, 1,1-dimethyl-.
	1,1-Dimethylhydrazine.
57249	Strychnidin-10-one.
	Strychnine, & salts.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
57476	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)- (Physostigmine).
57647	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate).
57749	Chlordane.
	Chlordane, alpha & gamma isomers.
	CHLORDANE (TECHNICAL MIXTURE AND METABOLITES).
	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.
57976	1,2-Benzanthracene, 7,12-dimethyl-.
	7,12-Dimethylbenz[a]anthracene.
58899	γ-BHC.
	Cyclohexane, 1,2,3,4,5,6-hexachloro (1α,2α,3β,4α,5α,6β)-.
	Hexachlorocyclohexane (gamma isomer).
	Lindane.
	Lindane (all isomers).
58902	Phenol, 2,3,4,6-tetrachloro-.
	2,3,4,6-Tetrachlorophenol.
59507	p-Chloro-m-cresol.
	Phenol, 4-chloro-3-methyl-.
	4-Chloro-m-cresol.
60004	Ethylenediamine-tetraacetic acid (EDTA).
60117	Benzenamine, N,N-dimethyl-4-(phenylazo-).
	Dimethyl aminoazobenzene.
	p-Dimethylaminoazobenzene.
60297	Ethane, 1,1′-oxybis-.
	Ethyl ether.
60344	Hydrazine, methyl-.
	Methyl hydrazine.
60515	Dimethoate.
	Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.
60571	Dieldrin.
	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2, 2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-.
61825	Amitrole.
	1H-1,2,4-Triazol-3-amine.
62384	Mercury, (acetato-O)phenyl-.
	Phenylmercury acetate.
62442	Acetamide, N-(4-ethoxyphenyl)-.
	Phenacetin.
62500	Ethyl methanesulfonate.
	Methanesulfonic acid, ethyl ester.
62533	Aniline.
	Benzenamine.
62555	Ethanethioamide.
	Thioacetamide.
62566	Thiourea.
62737	Dichlorvos.
62748	Acetic acid, fluoro-, sodium salt.
	Fluoroacetic acid, sodium salt.
62759	Methanamine, N-methyl-N-nitroso-.
	N-Nitrosodimethylamine.
63252	Carbaryl.
64006	Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate).
64186	Formic acid.
64197	Acetic acid.
65850	Benzoic acid.
66751	Uracil mustard.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl) amino]-.
67561	Methanol.
	Methyl alcohol.
67641	Acetone.
	2-Propanone.
67663	Chloroform.
	Methane, trichloro-.
67721	Ethane, hexachloro-.
	Hexachloroethane.
70257	Guanidine, N-methyl-N′-nitro-N-nitroso-.
	MNNG.
70304	Hexachlorophene.
	Phenol, 2,2′-methylenebis[3,4,6-tri- chloro-.
71363	n-Butyl alcohol.
	1-Butanol.
71432	Benzene.
71556	Ethane, 1,1,1-trichloro-.
	Methyl chloroform.
	1,1,1-Trichloroethane.
72208	Endrin.
	Endrin, & metabolites.
	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha, 6abeta,7beta,7aalpha)-.
72435	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-methoxy-.
	Methoxychlor.
72548	Benzene, 1,1′-(2,2-dichloroethylidene)bis[4-chloro-.
	DDD.
	TDE.
	4,4′ DDD.
72559	DDE
	4,4'-DDE.
72571	Trypan blue.
	2,7-Naphthalenedisulfonic acid, 3,3′-[(3,3′-dimethyl-(l,1′-biphenyl)-4,4′-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.
74839	Bromomethane.
	Methane, bromo-.
	Methyl bromide.
74873	Chloromethane.
	Methane, chloro-.
	Methyl chloride.
74884	Iodomethane
	Methane, iodo-.
	Methyl iodide.
74895	Monomethylamine.
74908	Hydrocyanic acid.
	Hydrogen cyanide.
74931	Methanethiol.
	Methylmercaptan.
	Thiomethanol.
74953	Methane, dibromo-.
	Methylene bromide.
75003	Chloroethane.
	Ethyl chloride.
75014	Ethene, chloro-.
	Vinyl chloride.
75047	Monoethylamine.
75058	Acetonitrile.
75070	Acetaldehyde.
	Ethanal.
75092	Dichloromethane.
	Methane, dichloro-.
	Methylene chloride.
75150	Carbon disulfide.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
75207	Calcium carbide.
75218	Ethylene oxide.
	Oxirane.
75252	Bromoform.
	Methane, tribromo-.
75274	Dichlorobromomethane.
75343	Ethane, 1,1-dichloro-.
	Ethylidene dichloride.
	1,1-Dichloroethane.
75354	Ethene, 1,1-dichloro-.
	Vinylidene chloride.
	1,1-Dichloroethylene.
75365	Acetyl chloride.
75445	Carbonic dichloride.
	Phosgene.
75503	Trimethylamine.
75558	Aziridine, 2-methyl-.
	2-Methyl aziridine.
	1,2-Propylenimine.
75569	Propylene oxide.
75605	Arsinic acid, dimethyl-.
	Cacodylic acid.
75649	tert-Butylamine.
75694	Methane, trichlorofluoro-.
	Trichloromonofluoromethane.
75718	Dichlorodifluoromethane.
	Methane, dichlorodifluoro-.
75865	Acetone cyanohydrin.
	Propanenitrile, 2-hydroxy-2-methyl-.
	2-Methyllactonitrile.
75876	Acetaldehyde, trichloro-.
	Chloral.
75990	2,2-Dichloropropionic acid.
76017	Ethane, pentachloro-.
	Pentachloroethane.
76448	Heptachlor.
	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-.
77474	Hexachlorocyclopentadiene.
	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexa- chloro-.
77781	Dimethyl sulfate.
	Sulfuric acid, dimethyl ester.
78002	Plumbane, tetraethyl-.
	Tetraethyl lead.
78591	Isophorone.
78795	Isoprene.
78819	iso-Butylamine.
78831	Isobutyl alcohol.
	1-Propanol, 2-methyl-.
78875	Propane, 1,2-dichloro-.
	Propylene dichloride.
	1,2-Dichloropropane.
78886	2,3-Dichloropropene.
78933	2-Butanone.
	MEK.
	Methyl ethyl ketone.
78999	1,1-Dichloropropane.
79005	Ethane, 1,1,2-trichloro-.
	1,1,2-Trichloroethane.
79016	Ethene, trichloro-.
	Trichloroethene.
	Trichloroethylene-.
79061	Acrylamide.
	2-Propenamide.
79094	Propionic acid.
79107	Acrylic acid.
	2-Propenoic acid.
79196	Hydrazinecarbothioamide.
	Thiosemicarbazide.
79221	Carbonochloridic acid, methyl ester.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	Methyl chlorocarbonate.
	Methyl chloroformate.
79312	iso-Butyric acid.
79345	Ethane, 1,1,2,2-tetrachloro-.
	1,1,2,2-Tetrachloroethane.
79447	Carbamic chloride, dimethyl-.
	Dimethylcarbamoyl chloride.
79469	Propane, 2-nitro-.
	2-Nitropropane.
80159	alpha,alpha-Dimethylbenzylhydroperoxide.
	Hydroperoxide, 1-methyl-1-phenylethyl-.
80626	Methyl methacrylate.
	2-Propenoic acid, 2-methyl-, methyl ester.
81072	Saccharin and salts.
	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide.
81812	Warfarin, & salts, when present at concentrations greater than 0.3%.
	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl -butyl)-, & salts, when present at concentrations greater than 0.3%.
82688	Benzene, pentachloronitro-.
	PCNB.
	Pentachloronitrobenzene.
	Quintobenzene.
83329	Acenaphthene.
84662	Diethyl phthalate.
	1,2-Benzenedicarboxylic acid, diethyl ester.
84742	Di-n-butyl phthalate.
	Dibutyl phthalate.
	n-Butyl phthalate.
	1,2-Benzenedicarboxylic acid, dibutyl ester.
85007	Diquat.
85018	Phenanthrene.
85449	Phthalic anhydride.
	1,3-Isobenzofurandione.
85687	Butyl benzyl phthalate.
86306	N-Nitrosodiphenylamine.
86500	Guthion.
86737	Fluorene.
86884	alpha-Naphthylthiourea.
	Thiourea, 1-naphthalenyl-.
87650	Phenol, 2,6-dichloro-.
	2,6-Dichlorophenol.
87683	Hexachlorobutadiene.
	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-.
87865	Pentachlorophenol.
	Phenol, pentachloro-.
88062	Phenol, 2,4,6-trichloro-.
	2,4,6-Trichlorophenol.
88722	o-Nitrotoluene.
88755	o-Nitrophenol.
	2-Nitrophenol.
88857	Dinoseb.
	Phenol, 2-(1-methylpropyl)-4,6-dinitro.
91087	Benzene, 1,3-diisocyanatomethyl-.
	Toluene diisocyanate.
	2,4-Toluene diisocyanate.
91203	Naphthalene.
91225	Quinoline.
91587	beta-Chloronaphthalene.
	Naphthalene, 2-chloro-.
	2-Chloronaphthalene.
91598	beta-Naphthylamine.
	2-Naphthalenamine.
91805	Methapyrilene.
	1,2-Ethanediamine, N,N-dimethyl-N′-2-pyridinyl-N′- (2-thienylmethyl)-.
91941	[1,1′-Biphenyl]-4,4′diamine,3,3′dichloro-.
	3,3′-Dichlorobenzidine.
92875	Benzidine.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	[1,1'-Biphenyl]-4,4'diamine.
93721	Propionic acid, 2-(2,4,5-trichlorophenoxy)-.
	Silvex (2,4,5-TP).
	2,4,5-TP acid.
93765	Acetic acid, (2,4,5-trichlorophenoxy).
	2,4,5-T.
	2,4,5-T acid.
93798	2,4,5-T esters.
94111	2,4-D Ester.
94586	Dihydrosafrole.
	1,3-Benzodioxole, 5-propyl-.
94597	Safrole.
	1,3-Benzodioxole, 5-(2-propenyl)-.
94757	Acetic acid (2,4-dichlorophenoxy)-, salts & esters.
	2,4-D Acid.
	2,4-D, salts and esters.
94791	2,4-D Ester.
94804	2,4-D Ester.
95476	o-Benzene, dimethyl.
	o-Xylene.
95487	o-Cresol.
	o-Cresylic acid.
95501	Benzene, 1,2-dichloro-.
	o-Dichlorobenzene.
	1,2-Dichlorobenzene.
95534	Benzenamine, 2-methyl-.
	o-Toluidine.
95578	o-Chlorophenol.
	Phenol, 2-chloro-.
	2-Chlorophenol.
95807	Benzenediamine, ar-methyl-.
	Toluenediamine.
	2,4-Toluene diamine.
95943	Benzene, 1,2,4,5-tetrachloro-.
	1,2,4,5-Tetrachlorobenzene.
95954	Phenol, 2,4,5-trichloro-.
	2,4,5-Trichlorophenol.
96128	Propane, 1,2-dibromo-3-chloro-.
	1,2-Dibromo-3-chloropropane.
96184	1,2,3-Trichloropropane.
96457	Ethylenethiourea.
	2-Imidazolidinethione.
97632	Ethyl methacrylate.
	2-Propenoic acid, 2-methyl-, ethyl ester.
98011	Furfural.
	2-Furancarboxaldehyde.
98077	Benzene, (trichloromethyl)-.
	Benzotrichloride.
98099	Benzenesulfonic acid chloride.
	Benzenesulfonyl chloride.
98828	Benzene, (1-methylethyl)-.
	Cumene.
98862	Acetophenone.
	Ethanone, 1-phenyl-.
98873	Benzal chloride.
	Benzene, dichloromethyl-.
98884	Benzoyl chloride.
98953	Benzene, nitro-.
	Nitrobenzene.
99081	m-Nitrotoluene.
99354	Benzene, 1,3,5-trinitro-.
	1,3,5-Trinitrobenzene.
99558	Benzenamine, 2-methyl-5-nitro-.
	5-Nitro-o-toluidine.
99650	m-Dinitrobenzene.
99990	p-Nitrotoluene.
100016	Benzenamine, 4-nitro-.
	p-Nitroaniline.
100027	p-Nitrophenol.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	Phenol, 4-nitro-.
	4-Nitrophenol.
100254	p-Dinitrobenzene.
100414	Ethylbenzene.
100425	Styrene.
100447	Benzene, chloromethyl-.
	Benzyl chloride.
100470	Benzonitrile.
100754	N-Nitrosopiperidine.
	Piperidine, 1-nitroso-.
101144	Benzenamine, 4,4′-methylenebis(2-chloro-.
	4,4′-Methylenebis(2-chloroaniline).
101279	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban).
101553	Benzene, 1-bromo-4-phenoxy-.
	4-Bromophenyl phenyl ether.
103855	Phenylthiourea.
	Thiourea, phenyl-.
105464	sec-Butyl acetate.
105679	Phenol, 2,4-dimethyl-.
	2,4-Dimethylphenol.
106423	p-Benzene, dimethyl.
	p-Xylene.
106445	p-Cresol.
	p-Cresylic acid.
106467	Benzene, 1,4-dichloro-.
	p-Dichlorobenzene.
	1,4-Dichlorobenzene.
106478	Benzenamine, 4-chloro-.
	p-Chloroaniline.
106490	Benzenamine, 4-methyl-.
	p-Toluidine.
106503	Phenylenediamine (para-isomer).
106514	p-Benzoquinone.
	2,5-Cyclohexadiene-1,4-dione.
	Quinone.
106898	1-Chloro-2,3-epoxypropane.
	Epichlorohydrin.
	Oxirane, (chloromethyl)-.
106934	Dibromoethane.
	Ethane, 1,2-dibromo-.
	Ethylene, dibromide.
107028	Acrolein.
	2-Propenal.
107051	Allyl chloride.
107062	Ethane, 1,2-dichloro-.
	Ethylene dichloride.
	1,2-Dichloroethane.
107108	n-Propylamine.
	1-Propanamine.
107120	Ethyl cyanide.
	Propanenitrile.
107131	Acrylonitrile.
	2-Propenenitrile.
107153	Ethylenediamine.
107186	Allyl alcohol.
	2-Propen-1-ol.
107197	Propargyl alcohol.
	2-Propyn-1-ol.
107200	Acetaldehyde, chloro-.
	Chloroacetaldehyde.
107302	Chloromethyl methyl ether.
	Methane, chloromethoxy-.
107493	Diphosphoric acid, tetraethyl ester.
	Tetraethyl pyrophosphate.
107926	Butyric acid.
108054	Vinyl acetate.
	Vinyl acetate monomer.
108101	Methyl isobutyl ketone.
	4-Methyl-2-pentanone.
108247	Acetic anhydride.
108316	Maleic anhydride.
	2,5-Furandione.
108383	m-Benzene, dimethyl.
	m-Xylene.
108394	m-Cresol.
	m-Cresylic acid.
108463	Resorcinol.
	1,3-Benzenediol.
108601	Dichloroisopropyl ether.
	Propane, 2,2′′-oxybis[2-chloro-.
108883	Benzene, methyl-.
	Toluene.
108907	Benzene, chloro-.
	Chlorobenzene.
108941	Cyclohexanone.
108952	Benzene, hydroxy-.
	Phenol.
108985	Benzenethiol.
	Thiophenol.
109068	Pyridine, 2-methyl-.
	2-Picoline.
109739	Butylamine.
109773	Malononitrile.
	Propanedinitrile.
109897	Diethylamine.
109999	Furan, tetrahydro-.
	Tetrahydrofuran.
110009	Furan.
	Furfuran.
110167	Maleic acid.
110178	Fumaric acid.
110190	iso-Butyl acetate.
110758	Ethene, 2-chloroethoxy-.
	2-Chloroethyl vinyl ether.
110805	Ethanol, 2-ethoxy-.
	Ethylene glycol monoethyl ether.
110827	Benzene, hexahydro-.
	Cyclohexane.
110861	Pyridine.
111444	Bis (2-chloroethyl) ether.
	Dichloroethyl ether.
	Ethane, 1,1′-oxybis[2-chloro-.
111546	Carbamodithioic acid, 1,2-ethanediylbis, salts & esters.
	Ethylenebisdithiocarbamic acid, salts & esters.
111911	Bis(2-chloroethoxy) methane.
	Dichloromethoxy ethane.
	Ethane, 1,1′-[methylenebis(oxy)]bis(2-chloro-.
115026	Azaserine.
	L-Serine, diazoacetate (ester).
115297	Endosulfan.
	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide.
115322	Dicofol.
116063	Aldicarb.
	Propanal, 2-methyl-2-(methylthio)-, 0-[(methylamino)carbonyl]oxime.
117806	Dichlone.
117817	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester.
	Bis(2-ethylhexyl)phthalate.
	DEHP.
	Diethylhexyl phthalate.
117840	Di-n-octyl phthalate.
	1,2-Benzenedicarboxylic acid, dioctyl ester.
118741	Benzene, hexachloro-.
	Hexachlorobenzene.
118796	2,4,6-Tribromophenol

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
119380	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan).
119904	[1,1′-Biphenyl]-4,4′diamine,3,3′dimethoxy-.
	3,3′-Dimethoxybenzidine.
119937	[1,1′Biphenyl]-4,4′-diamine,3,3′-dimethyl-.
	3,3′-Dimethylbenzidine.
120127	Anthracene.
120581	Isosafrole.
	1,3-Benzodioxole, 5-)1-propenyl)-.
120821	1,2,4-Trichlorobenzene.
120832	Phenol, 2,4-dichloro-.
	2,4-Dichlorophenol.
121142	Benzene, 1-methyl-2,4-dinitro-.
	2,4-Dinitrotoluene.
121211	Pyrethrins.
121299	Pyrethrins.
121448	Triethylamine.
121755	Malathion.
122098	alpha,alpha-Dimethylphenethylamine.
	Benzeneethanamine, alpha,alpha-dimethyl-.
122394	Diphenylamine.
122429	Carbamic acid, phenyl-, 1-methylethyl ester (Propham).
122667	Hydrazine, 1,2-diphenyl-.
	1,2-Diphenylhydrazine.
123331	Maleic hydrazide.
	3,6-Pyridazinedione, 1,2-dihydro-.
123626	Propionic anhydride.
123637	Paraldehyde.
	1,3,5-Trioxane, 2,4,6-trimethyl-.
123739	Crotonaldehyde.
	2-Butenal.
123864	Butyl acetate.
123911	1,4-Diethyleneoxide.
	1,4-Diethylenedioxide.
	1,4-Dioxane.
123922	iso-Amyl acetate.
124049	Adipic acid.
124403	Dimethylamine.
	Methanamine, N-methyl-.
124414	Sodium methylate.
124481	Chlorodibromomethane.
126727	Tris(2,3-dibromopropyl) phosphate.
	1-Propanol, 2,3-dibromo-, phosphate (3:1).
126987	Methacrylonitrile.
	2-Propenenitrile, 2-methyl-.
126998	2-Chloro-1,3-butadiene.
127184	Ethene, tetrachloro-.
	Perchloroethylene.
	Tetrachloroethene.
	Tetrachloroethylene.
127822	Zinc phenolsulfonate.
129000	Pyrene.
130154	1,4-Naphthalenedione.
	1,4-Naphthoquinone.
131113	Dimethyl phthalate.
	1,2-Benzenedicarboxylic acid, dimethyl ester.
131748	Ammonium picrate.
	Phenol, 2,4,6-trinitro-, ammonium salt.
131895	Phenol, 2-cyclohexyl-4,6-dinitro-.
	2-Cyclohexyl-4,6-dinitrophenol.
133062	Captan.
134327	alpha-Naphthylamine.
	1-Naphthalenamine.
137268	Thioperoxydicarbonic diamide ([H2N)C(S)]2S2, tetramethyl-.
	Thiram.
137304	Zinc, bis(dimethylcarbamodithioato-S,S')-, (Ziram).
140885	Ethyl acrylate.
	2-Propenoic acid, ethyl ester.
141786	Acetic acid, ethyl ester.
	Ethyl acetate.
142289	1,3-Dichloropropane.
142712	Cupric acetate.
142847	Dipropylamine.
	1-Propanamine, N-propyl-.
143339	Sodium cyanide.
	Sodium cyanide Na(CN).
143500	Kepone.
	1,3,4-Metheno-2H-cyclobutal[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-.
145733	Endothall.
	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid.
148823	L-Phenylalanine, 4-[bis(2-chloroethyl) aminol].
	Melphalan.
151508	Potassium cyanide.
	Potassium cyanide K(CN).
151564	Aziridine.
	Ethyleneimine.
152169	Diphosphoramide, octamethyl-.
	Octamethylpyrophosphoramide.
156605	Ethene, 1,2-dichloro- (E).
	1,2-Dichloroethylene.
189559	Benzo [rst]pentaphene.
	Dibenz[a,i]pyrene.
191242	Benzo[ghi]perylene.
193395	Indeno(1,2,3-cd)pyrene.
	1,10-(1,2-Phenylene)pyrene.
205992	Benzo[b]fluoranthene.
206440	Benzo[j,k]fluorene.
	Fluoranthene.
207089	Benzo(k)fluoranthene.
208968	Acenaphthylene.
218019	Chrysene.
	1,2-Benzphenanthrene.
225514	Benz[c]acridine.
297972	O,O-Diethyl O-pyrazinyl phosphorothioate.
	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.
298000	Methyl parathion.
	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.
298022	Phorate.
	Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester.
298044	Disulfoton.
	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester.
300765	Naled.
301042	Acetic acid, lead(2+) salt.
	Lead acetate.
302012	Hydrazine.
303344	Lasiocarpine.
	2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-.
305033	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-.
	Chlorambucil.
309002	Aldrin.
	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1, 4,4a,5,8,8a-hexahydro-(1alpha,4 alpha,4abeta,5alpha,8alpha,8abeta)-.
311455	Diethyl-p-nitrophenyl phosphate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	Phosphoric acid, diethyl 4-nitrophenyl ester.
315184	Mexacarbate.
319846	alpha—BHC.
319857	beta—BHC.
319868	delta—BHC.
329715	2,5-Dinitrophenol.
330541	Diuron.
333415	Diazinon.
353504	Carbon oxyfluoride.
	Carbonic difluoride.
357573	Brucine.
	Strychnidin-10-one, 2,3-dimethoxy-.
460195	Cyanogen.
	Ethanedinitrile.
465736	Isodrin.
	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro (1alpha, 4alpha,4abeta,5beta,8beta,8abeta)-.
492808	Auramine.
	Benzenamine, 4,4′-carbonimidoylbis (N,N-dimethyl(N,N-D,methyl-)-.
494031	Chlornaphazine.
	Naphthalenamine, N,N′-bis(2-chloro-ethyl)-.
496720	Benzenediamine, ar-methyl-.
	Toluenediamine.
	2,4-Toluene diamine.
504245	4-Aminopyridine.
	4-Pyridinamine.
504609	1-Methylbutadiene.
	1,3-Pentadiene.
506616	Argentate(1-), bis(cyano-C)- ,potassium.
	Potassium silver cyanide.
506649	Silver cyanide.
	Silver cyanide Ag(CN).
506683	Cyanogen bromide.
	Cyanogen bromide (CN)Br.
506774	Cyanogen chloride.
	Cyanogen chloride (CN)Cl.
506876	Ammonium carbonate.
506967	Acetyl bromide.
509148	Methane, tetranitro-.
	Tetranitromethane.
510156	Benzeneacetic acid, 4-chloro-α- (4-chlorophenyl)-α-hydroxy-, ethyl ester.
	Chlorobenzilate.
513495	sec-Butylamine.
528290	o-Dinitrobenzene.
534521	4,6-Dinitro-o-cresol, and salts.
	Phenol, 2-methyl-4,6-dinitro-, & salts.
540738	Hydrazine, 1,2-dimethyl-.
	1,2-Dimethylhydrazine.
540885	tert-Butyl acetate.
541093	Uranyl acetate.
541537	Dithiobiuret.
	Thioimidodicarbonic diamide [(H2N)C(S)]2NH.
541731	Benzene, 1,3-dichloro-.
	m-Dichlorobenzene.
	1,3-Dichlorobenzene.
542621	Barium cyanide.
542756	1-Propene, 1,3-dichloro-.
	1,3-Dichloropropene.
542767	Propanenitrile, 3-chloro-.
	3-Chloropropionitrile.
542881	Bis(chloromethyl)ether.
	Dichloromethyl ether.
	Methane, oxybis(chloro)-.
543908	Cadmium acetate.
544183	Cobaltous formate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
544923	Copper cyanide CuCN.
	Copper cyanide.
554847	m-Nitrophenol.
557197	Nickel cyanide.
	Nickel cyanide Ni(CN)2.
557211	Zinc cyanide.
	Zinc cyanide Zn(CN)2.
557346	Zinc acetate.
557415	Zinc formate.
563122	Ethion.
563688	Acetic acid, thallium(1+) salt.
	Thallium(I) acetate.
573568	2,6-Dinitrophenol.
584849	Benzene, 1,3-diisocyanatomethyl-.
	Toluene diisocyanate.
	2,4-Toluene diisocyanate.
591082	Acetamide, N-(aminothioxomethyl)-.
	1-Acetyl-2-thiourea.
592018	Calcium cyanide.
	Calcium cyanide Ca(CN)2.
592041	Mercuric cyanide.
592858	Mercuric thiocyanate.
592870	Lead thiocyanate.
594423	Methanesulfenyl chloride, trichloro-.
	Trichloromethanesulfenyl chloride.
598312	Bromoacetone.
	2-Propanone, 1-bromo-.
606202	Benzene, 1-methyl-1,3-dinitro-.
	2,6-Dinitrotoluene.
608731	HEXACHLOROCYCLOHEXANE (all isomers).
608935	Benzene, pentachloro-.
	Pentachlorobenzene.
609198	3,4,5-Trichlorophenol.
610399	3,4-Dinitrotoluene.
615532	Carbamic acid, methylnitroso-, ethyl ester.
	N-Nitroso-N-methylurethane.
616239	n-,2,3 Dichloropropanol.
621647	Di-n-propylnitrosamine.
	1-Propanamine, N-nitroso-N-propyl-.
624839	Methane, isocyanato-.
	Methyl isocyanate.
625161	tert-Amyl acetate.
626380	sec-Amyl acetate.
628637	Amyl acetate.
628864	Fulminic acid, mercury(2+)salt.
	Mercury fulminate.
630104	Selenourea.
630206	Ethane, 1,1,1,2-tetrachloro-.
	1,1,1,2-Tetrachloroethane.
631618	Ammonium acetate.
636215	Benzenamine, 2-methyl-, hydrochloride.
	o-Toluidine hydrochloride.
640197	Acetamide, 2-fluoro-.
	Fluoroacetamide.
644644	Carbamic acid, dimethyl-,1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan).
684935	N-Nitroso-N-methylurea.
	Urea, N-methyl-N-nitroso.
692422	Arsine, diethyl-.
	Diethylarsine.
696286	Arsonous dichloride, phenyl-.
	Dichlorophenylarsine.
757584	Hexaethyl tetraphosphate.
	Tetraphosphoric acid, hexaethyl ester.
759739	N-Nitroso-N-ethylurea.
	Urea, N-ethyl-N-nitroso-.
764410	1,4-Dichloro-2-butene.
	2-Butene, 1,4-dichloro-.
765344	Glycidylaldehyde.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	Oxiranecarboxyaldehyde.
815827	Cupric tartrate.
823405	Benzenediamine, ar-methyl-.
	Toluenediamine.
	2,4-Toluene diamine.
924163	N-Nitrosodi-n-butylamine.
	1-Butanamine, N-butyl-N-nitroso-.
930552	N-Nitrosopyrrolidine.
	Pyrrolidine, 1-nitroso-.
933755	2,3,6-Trichlorophenol.
933788	2,3,5-Trichlorophenol.
959988	alpha-Endosulfan.
1024573	Heptachlor epoxide.
1031078	Endosulfan sulfate.
1066304	Chromic acetate.
1066337	Ammonium bicarbonate.
1072351	Lead stearate.
1111780	Ammonium carbamate.
1116547	Ethanol, 2,2′-(nitrosoimino)bis-.
	N-Nitrosodiethanolamine.
1120714	1,2-Oxathiolane, 2,2-dioxide.
	1,3-Propane sultone.
1129415	Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb).
1185575	Ferric ammonium citrate.
1194656	Dichlobenil.
1300716	Xylenol.
1303282	Arsenic oxide As2O5.
	Arsenic pentoxide.
1303328	Arsenic disulfide.
1303339	Arsenic trisulfide.
1309644	Antimony trioxide.
1310583	Potassium hydroxide.
1310732	Sodium hydroxide.
1314325	Thallic oxide.
	Thallium oxide Tl2O3.
1314621	Vanadium oxide V2O5.
	Vanadium pentoxide.
1314803	Phosphorus pentasulfide.
	Phosphorus sulfide.
	Sulfur phosphide.
1314847	Zinc phosphide.
	Zinc phosphide Zn3P2, when present at concentrations greater than 10%.
1314870	Lead sulfide.
1319728	2,4,5-T amines.
1319773	Cresol(s).
	Cresylic acid.
	Phenol, methyl-.
1320189	2,4-D Ester.
1321126	Nitrotoluene.
1327522	Arsenic acid.
	Arsenic acid H3AsO4.
1327533	Arsenic oxide As2O3.
	Arsenic trioxide.
1330207	Benzene, dimethyl.
	Xylene (mixed).
1332076	Zinc borate.
1332214	Asbestos.
1333831	Sodium bifluoride.
1335326	Lead subacetate.
	Lead, bis(acetato-O)tetrahydroxytri.
1336216	Ammonium hydroxide.
1336363	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
1338234	Methyl ethyl ketone peroxide.
	2-Butanone peroxide.
1338245	Naphthenic acid.
1341497	Ammonium bifluoride.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
1464535	1,2:3,4-Diepoxybutane.
	2,2′-Bioxirane.
1563388	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl- (Carbofuran phenol).
1563662	Carbofuran.
1615801	Hydrazine, 1,2-diethyl-.
	N,N′-Diethylhydrazine.
1646884	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone).
1746016	TCDD.
	2,3,7,8-Tetrachlorodibenzo-p-dioxin.
1762954	Ammonium thiocyanate.
1863634	Ammonium benzoate.
1888717	Hexachloropropene.
	1-Propene, 1,1,2,3,3,3-hexachloro-.
1918009	Dicamba.
1928387	2,4-D Ester.
1928478	2,4,5-T esters.
1928616	2,4-D Ester.
1929733	2,4-D Ester.
2008460	2,4,5-T amines.
2032657	Mercaptodimethur.
2303164	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester.
	Diallate.
2303175	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate).
2312358	Propargite.
2545597	2,4,5-T esters.
2631370	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb).
2763964	Muscimol.
	3(2H)-Isoxazolone, 5-(aminomethyl)-.
	5-(Aminomethyl)-3-isoxazolol.
2764729	Diquat
2921882	Chlorpyrifos.
2944674	Ferric ammonium oxalate.
2971382	2,4-D Ester.
3012655	Ammonium citrate, dibasic.
3164292	Ammonium tartrate.
3165933	Benzenamine, 4-chloro-2-methyl-, hydrochloride.
	4-Chloro-o-toluidine, hydrochloride.
3251238	Cupric nitrate.
3288582	O,O-Diethyl S-methyl dithiophosphate.
	Phosphorodithioic acid, O,O-diethyl S-methyl ester.
3486359	Zinc carbonate.
3689245	Tetraethyldithiopyrophosphate.
	Thiodiphosphoric acid, tetraethyl ester.
3813147	2,4,5-T amines.
4170303	Crotonaldehyde.
	2-Butenal.
4549400	N-Nitrosomethylvinylamine.
	Vinylamine, N-methyl-N-nitroso-.
5344821	Thiourea, (2-chlorophenyl)-.
	1-(o-Chlorophenyl)thiourea.
5893663	Cupric oxalate.
5952261	Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate).
5972736	Ammonium oxalate.
6009707	Ammonium oxalate.
6369966	2,4,5-T amines.
6369977	2,4,5-T amines.
6533739	Carbonic acid, dithallium(1+) salt.
	Thallium(I) carbonate.
7005723	4-Chlorophenyl phenyl ether.
7421934	Endrin aldehyde.
7428480	Lead stearate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
7439921	Lead.
7439976	Mercury.
7440020	Nickel.
7440224	Silver.
7440235	Sodium.
7440280	Thallium.
7440360	Antimony.
7440382	Arsenic.
7440417	Beryllium powder.
7440439	Cadmium.
7440473	Chromium.
7440508	Copper.
7440666	Zinc.
7446084	Selenium dioxide.
	Selenium oxide.
7446142	Lead sulfate.
7446186	Sulfuric acid, dithallium(1+) salt.
	Thallium(I) sulfate.
7446277	Lead phosphate.
	Phosphoric acid, lead(2+) salt (2:3).
7447394	Cupric chloride.
7488564	Selenium sulfide.
	Selenium sulfide SeS2.
7558794	Sodium phosphate, dibasic.
7601549	Sodium phosphate, tribasic.
7631892	Sodium arsenate.
7631905	Sodium bisulfite.
7632000	Sodium nitrite.
7645252	Lead arsenate.
7646857	Zinc chloride.
7647010	Hydrochloric acid.
	Hydrogen chloride.
7647189	Antimony pentachloride.
7664382	Phosphoric acid.
7664393	Hydrofluoric acid.
	Hydrogen fluoride.
7664417	Ammonia.
7664939	Sulfuric acid.
7681494	Sodium fluoride.
7681529	Sodium hypochlorite.
7697372	Nitric acid.
7699458	Zinc bromide.
7705080	Ferric chloride.
7718549	Nickel chloride.
7719122	Phosphorus trichloride.
7720787	Ferrous sulfate.
7722647	Potassium permanganate.
7723140	Phosphorus.
7733020	Zinc sulfate.
7738945	Chromic acid.
7758294	Sodium phosphate, tribasic.
7758943	Ferrous chloride.
7758954	Lead chloride.
7758987	Cupric sulfate.
7761888	Silver nitrate.
7773060	Ammonium sulfamate.
7775113	Sodium chromate.
7778394	Arsenic acid.
	Arsenic acid H3As04.
7778441	Calcium arsenate.
7778509	Potassium bichromate.
7778543	Calcium hypochlorite.
7779864	Zinc hydrosulfite.
7779886	Zinc nitrate.
7782414	Fluorine.
7782492	Selenium.
7782505	Chlorine.
7782630	Ferrous sulfate.
7782823	Sodium selenite.
7782867	Mercurous nitrate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
7783008	Selenious acid.
7783064	Hydrogen sulfide.
	Hydrogen sulfide H2S.
7783359	Mercuric sulfate.
7783462	Lead fluoride.
7783495	Zinc fluoride.
7783508	Ferric fluoride.
7783564	Antimony trifluoride.
7784341	Arsenic trichloride.
7784409	Lead arsenate.
7784410	Potassium arsenate.
7784465	Sodium arsenite.
7785844	Sodium phosphate, tribasic.
7786347	Mevinphos.
7786814	Nickel sulfate.
7787475	Beryllium chloride.
7787497	Beryllium fluoride.
7787555	Beryllium nitrate.
7788989	Ammonium chromate.
7789006	Potassium chromate.
7789062	Strontium chromate.
7789095	Ammonium bichromate.
7789426	Cadmium bromide.
7789437	Cobaltous bromide.
7789619	Antimony tribromide.
7790945	Chlorosulfonic acid.
7791120	Thallium chloride TlCl.
	Thallium(I) chloride.
7803512	Hydrogen phosphide.
	Phosphine.
7803556	Ammonium vanadate.
	Vanadic acid, ammonium salt.
8001352	Camphene, octachloro-.
	Chlorinated camphene.
	Toxaphene.
8001589	Creosote.
8003198	Dichloropropane—Dichloropropene (mixture).
8003347	Pyrethrins.
8014957	Sulfuric acid.
10022705	Sodium hypochlorite.
10025873	Phosphorus oxychloride.
10025919	Antimony trichloride.
10026116	Zirconium tetrachloride.
10028225	Ferric sulfate.
10031591	Sulfuric acid, dithallium(1+) salt.
	Thallium(I) sulfate.
10039324	Sodium phosphate, dibasic.
10043013	Aluminum sulfate.
10045893	Ferrous ammonium sulfate.
10045940	Mercuric nitrate.
10049055	Chromous chloride.
10099748	Lead nitrate.
10101538	Chromic sulfate.
10101630	Lead iodide.
10101890	Sodium phosphate, tribasic.
10102064	Uranyl nitrate.
10102188	Sodium selenite.
10102439	Nitric oxide.
	Nitrogen oxide NO.
10102440	Nitrogen dioxide.
	Nitrogen oxide NO2.
10102451	Nitric acid, thallium(1+) salt.
	Thallium(I) nitrate.
10102484	Lead arsenate.
10108642	Cadmium chloride.
10124502	Potassium arsenite.
10124568	Sodium phosphate, tribasic.
10140655	Sodium phosphate, dibasic.
10192300	Ammonium bisulfite.
10196040	Ammonium sulfite.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
10361894	Sodium phosphate, tribasic.
10380297	Cupric sulfate, ammoniated.
10415755	Mercurous nitrate.
10421484	Ferric nitrate.
10544726	Nitrogen dioxide.
	Nitrogen oxide NO2.
10588019	Sodium bichromate.
10605217	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim).
11096825	Aroclor 1260.
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
11097691	Aroclor 1254.
	Aroclors.
	PCBs
	POLYCHLORINATED BIPHENYLS.
11104282	Aroclor 1221.
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
11115745	Chromic acid.
11141165	Aroclor 1232.
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
12002038	Cupric acetoarsenite.
12039520	Selenious acid, dithallium(1+) salt.
	Thallium selenite.
12054487	Nickel hydroxide.
12125018	Ammonium fluoride.
12125029	Ammonium chloride.
12135761	Ammonium sulfide.
12672296	Aroclor 1248.
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
12674112	Aroclor 1016.
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
12771083	Sulfur monochloride.
13463393	Nickel carbonyl.
	Nickel carbonyl Ni(CO)4, (T-4)-.
13560991	2,4,5-T salts.
13597994	Beryllium nitrate.
13746899	Zirconium nitrate.
13765190	Calcium chromate.
	Chromic acid H2CrO4, calcium salt.
13814965	Lead fluoborate.
13826830	Ammonium fluoborate.
13952846	sec-Butylamine.
14017415	Cobaltous sulfamate.
14216752	Nickel nitrate.
14258492	Ammonium oxalate.
14307358	Lithium chromate.
14307438	Ammonium tartrate.
14639975	Zinc ammonium chloride.
14639986	Zinc ammonium chloride.
14644612	Zirconium sulfate.
15339363	Manganese, bis(dimethylcarbamodithioato-S,S')-(Manganese dimethyldithiocarbamate).
15699180	Nickel ammonium sulfate.
15739807	Lead sulfate.
15950660	2,3,4-Trichlorophenol.
16721805	Sodium hydrosulfide.
16752775	Ethanimidothioic acid, N-[[(methylamino)carbonyl] oxy]-, methyl ester.
	Methomyl.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
16871719	Zinc silicofluoride.
16919190	Ammonium silicofluoride.
16923958	Zirconium potassium fluoride.
17702577	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-(Formparanate).
17804352	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl, methyl ester (Benomyl).
18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-.
	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-.
	Streptozotocin.
20816120	Osmium oxide OsO4 (T-4)-.
	Osmium tetroxide.
20830813	Daunomycin.
	5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-,(8S-cis)-.
20859738	Aluminum phosphide.
22781233	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb).
22961826	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol).
23135220	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl).
23422539	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)carbonyl]oxy]phenyl]-, monohydrochloride (Formetanate hydrochloride).
23564058	Carbamic acid, [1,2-phenylenebis(iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl).
23950585	Benzamide, 3,5-dichloro-N-(1,1- dimethyl-2-propynyl)-.
	Pronamide.
25154545	Dinitrobenzene (mixed).
25154556	Nitrophenol (mixed).
25155300	Sodium dodecylbenzenesulfonate.
25167822	Trichlorophenol.
25168154	2,4,5-T esters.
25168267	2,4-D Ester.
25321146	Dinitrotoluene.
25321226	Dichlorobenzene.
25376458	Benzenediamine, ar-methyl-.
	Toluenediamine.
	2,4-Toluene diamine.
25550587	Dinitrophenol.
26264062	Calcium dodecylbenzenesulfonate.
26419738	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)carbonyl]oxime (Tirpate).
26471625	Benzene, 1,3-diisocyanatomethyl-.
	Toluene diisocyanate.
	2,4-Toluene diisocyanate.
26628228	Sodium azide.
26638197	Dichloropropane.
26952238	Dichloropropene.
27176870	Dodecylbenzenesulfonic acid.
27323417	Triethanolamine dodecylbenzene sulfonate.
27774136	Vanadyl sulfate.
28300745	Antimony potassium tartrate.
30525894	Paraformaldehyde.
30558431	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester (A2213).
32534955	2,4,5-TP esters.
33213659	beta - Endosulfan.
36478769	Uranyl nitrate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
37211055	Nickel chloride.
39196184	Thiofanox
	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime.
42504461	Isopropanolamine dodecylbenzenesulfonate.
52628258	Zinc ammonium chloride.
52652592	Lead stearate.
52740166	Calcium arsenite.
52888809	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb).
53467111	2,4-D Ester.
53469219	Aroclor 1242
	Aroclors.
	PCBs.
	POLYCHLORINATED BIPHENYLS.
55285148	Carbamic acid, [(dibutylamino)thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan).
55488874	Ferric ammonium oxalate.
56189094	Lead stearate.
59669260	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester (Thiodicarb).
61792072	2,4,5-T esters.

APPENDIX B TO § 302.4—RADIONUCLIDES

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Radionuclides@	.....	1& (3.7E 10)
Actinium-224	89	100 (3.7E 12)
Actinium-225	89	1 (3.7E 10)
Actinium-226	89	10 (3.7E 11)
Actinium-227	89	0.001 (3.7E 7)
Actinium-228	89	10 (3.7E 11)
Aluminum-26	13	10 (3.7E 11)
Americium-237	95	1000 (3.7E 13)
Americium-238	95	100 (3.7E 12)
Americium-239	95	100 (3.7E 12)
Americium-240	95	10 (3.7E 11)
Americium-241	95	0.01 (3.7E 8)
Americium-242m	95	0.01 (3.7E 8)
Americium-242	95	100 (3.7E 12)
Americium-243	95	0.01 (3.7E 8)
Americium-244m	95	1000 (3.7E 13)
Americium-244	95	10 (3.7E 11)
Americium-245	95	1000 (3.7E 13)
Americium-246m	95	1000 (3.7E 13)
Americium-246	95	1000 (3.7E 13)
Antimony-115	51	1000 (3.7E 13)
Antimony-116m	51	100 (3.7E 12)
Antimony-116	51	1000 (3.7E 13)
Antimony-117	51	1000 (3.7E 13)
Antimony-118m	51	10 (3.7E 11)
Antimony-119	51	1000 (3.7E 13)
Antimony-120 (16 min)	51	1000 (3.7E 13)
Antimony-120 (5.76 day)	51	10 (3.7E 11)
Antimony-122	51	10 (3.7E 11)
Antimony-124m	51	1000 (3.7E 13)
Antimony-124	51	10 (3.7E 11)
Antimony-125	51	10 (3.7E 11)
Antimony-126m	51	1000 (3.7E 13)
Antimony-126	51	10 (3.7E 11)
Antimony-127	51	10 (3.7E 11)
Antimony-128 (10.4 min)	51	1000 (3.7E 13)
Antimony-128 (9.01 hr)	51	10 (3.7E 11)
Antimony-129	51	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Antimony-130	51	100 (3.7E 12)
Antimony-131	51	1000 (3.7E 13)
Argon-39	18	1000 (3.7E 13)
Argon-41	18	10 (3.7E 11)
Arsenic-69	33	1000 (3.7E 13)
Arsenic-70	33	100 (3.7E 12)
Arsenic-71	33	100 (3.7E 12)
Arsenic-72	33	10 (3.7E 11)
Arsenic-73	33	100 (3.7E 12)
Arsenic-74	33	10 (3.7E 11)
Arsenic-76	33	100 (3.7E 12)
Arsenic-77	33	1000 (3.7E 13)
Arsenic-78	33	100 (3.7E 12)
Astatine-207	85	100 (3.7E 12)
Astatine-211	85	100 (3.7E 12)
Barium-126	56	1000 (3.7E 13)
Barium-128	56	10 (3.7E 11)
Barium-131m	56	1000 (3.7E 13)
Barium-131	56	10 (3.7E 11)
Barium-133m	56	100 (3.7E 12)
Barium-133	56	10 (3.7E 11)
Barium-135m	56	1000 (3.7E 13)
Barium-139	56	1000 (3.7E 13)
Barium-140	56	10 (3.7E 11)
Barium-141	56	1000 (3.7E 13)
Barium-142	56	1000 (3.7E 13)
Berkelium-245	97	100 (3.7E 12)
Berkelium-246	97	10 (3.7E 11)
Berkelium-247	97	0.01 (3.7E 8)
Berkelium-249	97	1 (3.7E 10)
Berkelium-250	97	100 (3.7E 12)
Beryllium-7	4	100 (3.7E 12)
Beryllium-10	4	1 (3.7E 10)
Bismuth-200	83	100 (3.7E 12)
Bismuth-201	83	100 (3.7E 12)
Bismuth-202	83	1000 (3.7E 13)
Bismuth-203	83	10 (3.7E 11)
Bismuth-205	83	10 (3.7E 11)
Bismuth-206	83	10 (3.7E 11)
Bismuth-207	83	10 (3.7E 11)
Bismuth-210m	83	0.1 (3.7E 9)
Bismuth-210	83	10 (3.7E 11)
Bismuth-212	83	100 (3.7E 12)
Bismuth-213	83	100 (3.7E 12)
Bismuth-214	83	100 (3.7E 12)
Bromine-74m	35	100 (3.7E 12)
Bromine-74	35	100 (3.7E 12)
Bromine-75	35	100 (3.7E 12)
Bromine-76	35	10 (3.7E 11)
Bromine-77	35	100 (3.7E 12)
Bromine-80m	35	1000 (3.7E 13)
Bromine-80	35	1000 (3.7E 13)
Bromine-82	35	10 (3.7E 11)
Bromine-83	35	1000 (3.7E 13)
Bromine-84	35	100 (3.7E 12)
Cadmium-104	48	1000 (3.7E 13)
Cadmium-107	48	1000 (3.7E 13)
Cadmium-109	48	1 (3.7E 10)
Cadmium-113m	48	0.1 (3.7E 9)
Cadmium-113	48	0.1 (3.7E 9)
Cadmium-115m	48	10 (3.7E 11)
Cadmium-115	48	100 (3.7E 12)
Cadmium-117m	48	10 (3.7E 11)
Cadmium-117	48	100 (3.7E 12)
Calcium-41	20	10 (3.7E 11)
Calcium-45	20	10 (3.7E 11)
Calcium-47	20	10 (3.7E 11)
Californium-244	98	1000 (3.7E 13)
Californium-246	98	10 (3.7E 11)
Californium-248	98	0.1 (3.7E 9)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Californium-249	98	0.01 (3.7E 8)
Californium-250	98	0.01 (3.7E 8)
Californium-251	98	0.01 (3.7E 8)
Californium-252	98	0.1 (3.7E 9)
Californium-253	98	10 (3.7E 11)
Californium-254	98	0.1 (3.7E 9)
Carbon-11	6	1000 (3.7E 13)
Carbon-14	6	10 (3.7E 11)
Cerium-134	58	10 (3.7E 11)
Cerium-135	58	10 (3.7E 11)
Cerium-137m	58	100 (3.7E 12)
Cerium-137	58	1000 (3.7E 13)
Cerium-139	58	100 (3.7E 12)
Cerium-141	58	10 (3.7E 11)
Cerium-143	58	100 (3.7E 12)
Cerium-144	58	1 (3.7E 10)
Cesium-125	55	1000 (3.7E 13)
Cesium-127	55	100 (3.7E 12)
Cesium-129	55	100 (3.7E 12)
Cesium-130	55	1000 (3.7E 13)
Cesium-131	55	1000 (3.7E 13)
Cesium-132	55	10 (3.7E 11)
Cesium-134m	55	1000 (3.7E 13)
Cesium-134	55	1 (3.7E 10)
Cesium-135m	55	100 (3.7E 12)
Cesium-135	55	10 (3.7E 11)
Cesium-136	55	10 (3.7E 11)
Cesium-137	55	1 (3.7E 10)
Cesium-138	55	100 (3.7E 12)
Chlorine-36	17	10 (3.7E 11)
Chlorine-38	17	100 (3.7E 12)
Chlorine-39	17	100 (3.7E 12)
Chromium-48	24	100 (3.7E 12)
Chromium-49	24	1000 (3.7E 13)
Chromium-51	24	1000 (3.7E 13)
Cobalt-55	27	10 (3.7E 11)
Cobalt-56	27	10 (3.7E 11)
Cobalt-57	27	100 (3.7E 12)
Cobalt-58m	27	1000 (3.7E 13)
Cobalt-58	27	10 (3.7E 11)
Cobalt-60m	27	1000 (3.7E 13)
Cobalt-60	27	10 (3.7E 11)
Cobalt-61	27	1000 (3.7E 13)
Cobalt-62m	27	1000 (3.7E 13)
Copper-60	29	100 (3.7E 12)
Copper-61	29	100 (3.7E 12)
Copper-64	29	1000 (3.7E 13)
Copper-67	29	100 (3.7E 12)
Curium-238	96	1000 (3.7E 13)
Curium-240	96	1 (3.7E 10)
Curium-241	96	10 (3.7E 11)
Curium-242	96	1 (3.7E 10)
Curium-243	96	0.01 (3.7E 8)
Curium-244	96	0.01 (3.7E 8)
Curium-245	96	0.01 (3.7E 8)
Curium-246	96	0.01 (3.7E 8)
Curium-247	96	0.01 (3.7E 8)
Curium-248	96	0.001 (3.7E 7)
Curium-249	96	1000 (3.7E 13)
Dysprosium-155	66	100 (3.7E 12)
Dysprosium-157	66	100 (3.7E 12)
Dysprosium-159	66	100 (3.7E 12)
Dysprosium-165	66	1000 (3.7E 13)
Dysprosium-166	66	10 (3.7E 11)
Einsteinium-250	99	10 (3.7E 11)
Einsteinium-251	99	1000 (3.7E 13)
Einsteinium-253	99	10 (3.7E 11)
Einsteinium-254m	99	1 (3.7E 10)
Einsteinium-254	99	0.1 (3.7E 9)
Erbium-161	68	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Erbium-165	68	1000 (3.7E 13)
Erbium-169	68	100 (3.7E 12)
Erbium-171	68	100 (3.7E 12)
Erbium-172	68	10 (3.7E 11)
Europium-145	63	10 (3.7E 11)
Europium-146	63	10 (3.7E 11)
Europium-147	63	10 (3.7E 11)
Europium-148	63	10 (3.7E 11)
Europium-149	63	100 (3.7E 12)
Europium-150 (12.6 hr)	63	1000 (3.7E 13)
Europium-150 (34.2 yr)	63	10 (3.7E 11)
Europium-152m	63	100 (3.7E 12)
Europium-152	63	10 (3.7E 11)
Europium-154	63	10 (3.7E 11)
Europium-155	63	10 (3.7E 11)
Europium-156	63	10 (3.7E 11)
Europium-157	63	10 (3.7E 11)
Europium-158	63	1000 (3.7E 13)
Fermium-252	100	10 (3.7E 11)
Fermium-253	100	10 (3.7E 11)
Fermium-254	100	100 (3.7E 12)
Fermium-255	100	100 (3.7E 12)
Fermium-257	100	1 (3.7E 10)
Fluorine-18	9	1000 (3.7E 13)
Francium-222	87	100 (3.7E 12)
Francium-223	87	100 (3.7E 12)
Gadolinium-145	64	100 (3.7E 12)
Gadolinium-146	64	10 (3.7E 11)
Gadolinium-147	64	10 (3.7E 11)
Gadolinium-148	64	0.001 (3.7E7)
Gadolinium-149	64	100 (3.7E 12)
Gadolinium-151	64	100 (3.7E 12)
Gadolinium-152	64	0.001 (3.7E 7)
Gadolinium-153	64	10 (3.7E 11)
Gadolinium-159	64	1000 (3.7E 13)
Gallium-65	31	1000 (3.7E 13)
Gallium-66	31	10 (3.7E 11)
Gallium-67	31	100 (3.7E 12)
Gallium-68	31	1000 (3.7E 13)
Gallium-70	31	1000 (3.7E 13)
Gallium-72	31	10 (3.7E 11)
Gallium-73	31	100 (3.7E 12)
Germanium-66	32	100 (3.7E 12)
Germanium-67	32	1000 (3.7E 13)
Germanium-68	32	10 (3.7E 11)
Germanium-69	32	10 (3.7E 11)
Germanium-71	32	1000 (3.7E 13)
Germanium-75	32	1000 (3.7E 13)
Germanium-77	32	10 (3.7E 11)
Germanium-78	32	1000 (3.7E 13)
Gold-193	79	100 (3.7E 12)
Gold-194	79	10 (3.7E 11)
Gold-195	79	100 (3.7E 12)
Gold-198m	79	10 (3.7E 11)
Gold-198	79	100 (3.7E 12)
Gold-199	79	100 (3.7E 12)
Gold-200m	79	10 (3.7E 11)
Gold-200	79	1000 (3.7E 13)
Gold-201	79	1000 (3.7E 13)
Hafnium-170	72	100 (3.7E 12)
Hafnium-172	72	1 (3.7E 10)
Hafnium-173	72	100 (3.7E 12)
Hafnium-175	72	100 (3.7E 12)
Hafnium-177m	72	1000 (3.7E 13)
Hafnium-178m	72	0.1 (3.7E 9)
Hafnium-179m	72	100 (3.7E 12)
Hafnium-180m	72	100 (3.7E 12)
Hafnium-181	72	10 (3.7E 11)
Hafnium-182m	72	100 (3.7E 12)
Hafnium-182	72	0.1 (3.7E 9)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Hafnium-183	72	100 (3.7E 12)
Hafnium-184	72	100 (3.7E 12)
Holmium-155	67	1000 (3.7E 13)
Holmium-157	67	1000 (3.7E 13)
Holmium-159	67	1000 (3.7E 13)
Holmium-161	67	1000 (3.7E 13)
Holmium-162m	67	1000 (3.7E 13)
Holmium-162	67	1000 (3.7E 13)
Holmium-164m	67	1000 (3.7E 13)
Holmium-164	67	1000 (3.7E 13)
Holmium-166m	67	1 (3.7E 10)
Holmium-166	67	100 (3.7E 12)
Holmium-167	67	100 (3.7E 12)
Hydrogen-3	1	100 (3.7E 12)
Indium-109	49	100 (3.7E 12)
Indium-110 (69.1 min)	49	100 (3.7E 12)
Indium-110 (4.9 hr)	49	10 (3.7E 11)
Indium-111	49	100 (3.7E 12)
Indium-112	49	1000 (3.7E 13)
Indium-113m	49	1000 (3.7E 13)
Indium-114m	49	10 (3.7E 11)
Indium-115m	49	100 (3.7E 12)
Indium-115	49	0.1 (3.7E 9)
Indium-116m	49	100 (3.7E 12)
Indium-117m	49	100 (3.7E 12)
Indium-117	49	1000 (3.7E 13)
Indium-119m	49	1000 (3.7E 13)
Iodine-120m	53	100 (3.7E 12)
Iodine-120	53	10 (3.7E 11)
Iodine-121	53	100 (3.7E 12)
Iodine-123	53	10 (3.7E 11)
Iodine-124	53	0.1 (3.7E 9)
Iodine-125	53	0.01 (3.7E 8)
Iodine-126	53	0.01 (3.7E 8)
Iodine-128	53	1000 (3.7E 13)
Iodine-129	53	0.001 (3.7E 7)
Iodine-130	53	1 (3.7E 10)
Iodine-131	53	0.01 (3.7E 8)
Iodine-132m	53	10 (3.7E 11)
Iodine-132	53	10 (3.7E 11)
Iodine-133	53	0.1 (3.7E 9)
Iodine-134	53	100 (3.7E 12)
Iodine-135	53	10 (3.7E 11)
Iridium-182	77	1000 (3.7E 13)
Iridium-184	77	100 (3.7E 12)
Iridium-185	77	100 (3.7E 12)
Iridium-186	77	10 (3.7E 11)
Iridium-187	77	100 (3.7E 12)
Iridium-188	77	10 (3.7E 11)
Iridium-189	77	100 (3.7E 12)
Iridium-190m	77	1000 (3.7E 13)
Iridium-190	77	10 (3.7E 11)
Iridium-192m	77	100 (3.7E 12)
Iridium-192	77	10 (3.7E 11)
Iridium-194m	77	10 (3.7E 11)
Iridium-194	77	100 (3.7E 12)
Iridium-195m	77	100 (3.7E 12)
Iridium-195	77	1000 (3.7E 13)
Iron-52	26	100 (3.7E 12)
Iron-55	26	100 (3.7E 12)
Iron-59	26	10 (3.7E 11)
Iron-60	26	0.1 (3.7E 9)
Krypton-74	36	10 (3.7E 11)
Krypton-76	36	10 (3.7E 11)
Krypton-77	36	10 (3.7E 11)
Krypton-79	36	100 (3.7E 12)
Krypton-81	36	1000 (3.7E 13)
Krypton-83m	36	1000 (3.7E 13)
Krypton-85m	36	100 (3.7E 12)
Krypton-85	36	1000 (3.7E 13)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Krypton-87	36	10 (3.7E 11)
Krypton-88	36	10 (3.7E 11)
Lanthanum-131	57	1000 (3.7E 13)
Lanthanum-132	57	100 (3.7E 12)
Lanthanum-135	57	1000 (3.7E 13)
Lanthanum-137	57	10 (3.7E 11)
Lanthanum-138	57	1 (3.7E 10)
Lanthanum-140	57	10 (3.7E 11)
Lanthanum-141	57	1000 (3.7E 13)
Lanthanum-142	57	100 (3.7E 12)
Lanthanum-143	57	1000 (3.7E 13)
Lead-195m	82	1000 (3.7E 13)
Lead-198	82	100 (3.7E 12)
Lead-199	82	100 (3.7E 12)
Lead-200	82	100 (3.7E 12)
Lead-201	82	100 (3.7E 12)
Lead-202m	82	10 (3.7E 11)
Lead-202	82	1 (3.7E 10)
Lead-203	82	100 (3.7E 12)
Lead-205	82	100 (3.7E 12)
Lead-209	82	1000 (3.7E 13)
Lead-210	82	0.01 (3.7E 8)
Lead-211	82	100 (3.7E 12)
Lead-212	82	10 (3.7E 11)
Lead-214	82	100 (3.7E 12)
Lutetium-169	71	10 (3.7E 11)
Lutetium-170	71	10 (3.7E 11)
Lutetium-171	71	10 (3.7E 11)
Lutetium-172	71	10 (3.7E 11)
Lutetium-173	71	100 (3.7E 12)
Lutetium-174m	71	10 (3.7E 11)
Lutetium-174	71	10 (3.7E 11)
Lutetium-176m	71	1000 (3.7E 13)
Lutetium-176	71	1 (3.7E 10)
Lutetium-177m	71	10 (3.7E 11)
Lutetium-177	71	100 (3.7E 12)
Lutetium-178m	71	1000 (3.7E 13)
Lutetium-178	71	1000 (3.7E 13)
Lutetium-179	71	1000 (3.7E 13)
Magnesium-28	12	10 (3.7E 11)
Manganese-51	25	1000 (3.7E 13)
Manganese-52m	25	1000 (3.7E 13)
Manganese-52	25	10 (3.7E 11)
Manganese-53	25	1000 (3.7E 13)
Manganese-54	25	10 (3.7E 11)
Manganese-56	25	100 (3.7E 12)
Mendelevium-257	101	100 (3.7E 12)
Mendelevium-258	101	1 (3.7E 10)
Mercury-193m	80	10 (3.7E 11)
Mercury-193	80	100 (3.7E 12)
Mercury-194	80	0.1 (3.7E 9)
Mercury-195m	80	100 (3.7E 12)
Mercury-195	80	100 (3.7E 12)
Mercury-197m	80	1000 (3.7E 13)
Mercury-197	80	1000 (3.7E 13)
Mercury-199m	80	1000 (3.7E 13)
Mercury-203	80	10 (3.7E 11)
Molybdenum-90	42	100 (3.7E 12)
Molybdenum-93m	42	10 (3.7E 11)
Molybdenum-93	42	100 (3.7E 12)
Molybdenum-99	42	100 (3.7E 12)
Molybdenum-101	42	1000 (3.7E 13)
Neodymium-136	60	1000 (3.7E 13)
Neodymium-138	60	1000 (3.7E 13)
Neodymium-139m	60	100 (3.7E 12)
Neodymium-139	60	1000 (3.7E 13)
Neodymium-141	60	1000 (3.7E 13)
Neodymium-147	60	10 (3.7E 11)
Neodymium-149	60	100 (3.7E 12)
Neodymium-151	60	1000 (3.7E 13)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Neptunium-232	93	1000 (3.7E 13)
Neptunium-233	93	1000 (3.7E 13)
Neptunium-234	93	10 (3.7E 11)
Neptunium-235	93	1000 (3.7E 13)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (3.7E 9)
Neptunium-236 (22.5 hr)	93	100 (3.7E 12)
Neptunium-237	93	0.01 (3.7E 8)
Neptunium-238	93	10 (3.7E 11)
Neptunium-239	93	100 (3.7E 12)
Neptunium-240	93	100 (3.7E 12)
Nickel-56	28	10 (3.7E 11)
Nickel-57	28	10 (3.7E 11)
Nickel-59	28	100 (3.7E 12)
Nickel-63	28	100 (3.7E 12)
Nickel-65	28	100 (3.7E 12)
Nickel-66	28	10 (3.7E 11)
Niobium-88	41	100 (3.7E 12)
Niobium-89 (66 min)	41	100 (3.7E 12)
Niobium-89 (122 min)	41	100 (3.7E 12)
Niobium-90	41	10 (3.7E 11)
Niobium-93m	41	100 (3.7E 12)
Niobium-94	41	10 (3.7E 11)
Niobium-95m	41	100 (3.7E 12)
Niobium-95	41	10 (3.7E 11)
Niobium-96	41	10 (3.7E 11)
Niobium-97	41	100 (3.7E 12)
Niobium-98	41	1000 (3.7E 13)
Osmium-180	76	1000 (3.7E 13)
Osmium-181	76	100 (3.7E 12)
Osmium-182	76	100 (3.7E 12)
Osmium-185	76	10 (3.7E 11)
Osmium-189m	76	1000 (3.7E 13)
Osmium-191m	76	1000 (3.7E 13)
Osmium-191	76	100 (3.7E 12)
Osmium-193	76	100 (3.7E 12)
Osmium-194	76	1 (3.7E 10)
Palladium-100	46	100 (3.7E 12)
Palladium-101	46	100 (3.7E 12)
Palladium-103	46	100 (3.7E 12)
Palladium-107	46	100 (3.7E 12)
Palladium-109	46	1000 (3.7E 13)
Phosphorus-32	15	0.1 (3.7E 9)
Phosphorus-33	15	1 (3.7E 10)
Platinum-186	78	100 (3.7E 12)
Platinum-188	78	100 (3.7E 12)
Platinum-189	78	100 (3.7E 12)
Platinum-191	78	100 (3.7E 12)
Platinum-193m	78	100 (3.7E 12)
Platinum-193	78	1000 (3.7E 13)
Platinum-195m	78	100 (3.7E 12)
Platinum-197m	78	1000 (3.7E 13)
Platinum-197	78	1000 (3.7E 13)
Platinum-199	78	1000 (3.7E 13)
Platinum-200	78	100 (3.7E 12)
Plutonium-234	94	1000 (3.7E 13)
Plutonium-235	94	1000 (3.7E 13)
Plutonium-236	94	0.1 (3.7E 9)
Plutonium-237	94	1000 (3.7E 13)
Plutonium-238	94	0.01 (3.7E 8)
Plutonium-239	94	0.01 (3.7E 8)
Plutonium-240	94	0.01 (3.7E 8)
Plutonium-241	94	1 (3.7E 10)
Plutonium-242	94	0.01 (3.7E 8)
Plutonium-243	94	1000 (3.7E 13)
Plutonium-244	94	0.01 (3.7E 8)
Plutonium-245	94	100 (3.7E 12)
Polonium-203	84	100 (3.7E 12)
Polonium-205	84	100 (3.7E 12)
Polonium-207	84	10 (3.7E 11)
Polonium-210	84	0.01 (3.7E 8)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Potassium-40	19	1 (3.7E 10)
Potassium-42	19	100 (3.7E 12)
Potassium-43	19	10 (3.7E 11)
Potassium-44	19	100 (3.7E 12)
Potassium-45	19	1000 (3.7E 13)
Praseodymium-136	59	1000 (3.7E 13)
Praseodymium-137	59	1000 (3.7E 13)
Praseodymium-138m	59	100 (3.7E 12)
Praseodymium-139	59	1000 (3.7E 13)
Praseodymium-142m	59	1000 (3.7E 13)
Praseodymium-142	59	100 (3.7E 12)
Praseodymium-143	59	10 (3.7E 11)
Praseodymium-144	59	1000 (3.7E 13)
Praseodymium-145	59	1000 (3.7E 13)
Praseodymium-147	59	1000 (3.7E 13)
Promethium-141	61	1000 (3.7E 13)
Promethium-143	61	100 (3.7E 12)
Promethium-144	61	10 (3.7E 11)
Promethium-145	61	100 (3.7E 12)
Promethium-146	61	10 (3.7E 11)
Promethium-147	61	10 (3.7E 11)
Promethium-148m	61	10 (3.7E 11)
Promethium-148	61	10 (3.7E 11)
Promethium-149	61	100 (3.7E 12)
Promethium-150	61	100 (3.7E 12)
Promethium-151	61	100 (3.7E 12)
Protactinium-227	91	100 (3.7E 12)
Protactinium-228	91	10 (3.7E 11)
Protactinium-230	91	10 (3.7E 11)
Protactinium-231	91	0.01 (3.7E 8)
Protactinium-232	91	10 (3.7E 11)
Protactinium-233	91	100 (3.7E 12)
Protactinium-234	91	10 (3.7E 11)
Radium-223	88	1 (3.7E 10)
Radium-224	88	10 (3.7E 11)
Radium-225	88	1 (3.7E 10)
Radium-226Φ	88	0.1 (3.7E 9)
Radium-227	88	1000 (3.7E 13)
Radium-228	88	0.1 (3.7E 9)
Radon-220	86	0.1 (3.7E 9)
Radon-222	86	0.1 (3.7E 9)
Rhenium-177	75	1000 (3.7E 13)
Rhenium-178	75	1000 (3.7E 13)
Rhenium-181	75	100 (3.7E 12)
Rhenium-182 (12.7 hr)	75	10 (3.7E 11)
Rhenium-182 (64.0 hr)	75	10 (3.7E 11)
Rhenium-184m	75	10 (3.7E 11)
Rhenium-184	75	10 (3.7E 11)
Rhenium-186m	75	10 (3.7E 11)
Rhenium-186	75	100 (3.7E 12)
Rhenium-187	75	1000 (3.7E 13)
Rhenium-188m	75	1000 (3.7E 13)
Rhenium-188	75	1000 (3.7E 13)
Rhenium-189	75	1000 (3.7E 13)
Rhodium-99m	45	100 (3.7E 12)
Rhodium-99	45	10 (3.7E 11)
Rhodium-100	45	10 (3.7E 11)
Rhodium-101m	45	100 (3.7E 12)
Rhodium-101	45	10 (3.7E 11)
Rhodium-102m	45	10 (3.7E 11)
Rhodium-102	45	10 (3.7E 11)
Rhodium-103m	45	1000 (3.7E 13)
Rhodium-105	45	100 (3.7E 12)
Rhodium-106m	45	10 (3.7E 11)
Rhodium-107	45	1000 (3.7E 13)
Rubidium-79	37	1000 (3.7E 13)
Rubidium-81m	37	1000 (3.7E 13)
Rubidium-81	37	100 (3.7E 12)
Rubidium-82m	37	10 (3.7E 11)
Rubidium-83	37	10 (3.7E 11)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Rubidium-84	37	10 (3.7E 11)
Rubidium-86	37	10 (3.7E 11)
Rubidium-88	37	1000 (3.7E 13)
Rubidium-89	37	1000 (3.7E 13)
Rubidium-87	37	10 (3.7E 11)
Ruthenium-94	44	1000 (3.7E 13)
Ruthenium-97	44	100 (3.7E 12)
Ruthenium-103	44	10 (3.7E 11)
Ruthenium-105	44	100 (3.7E 12)
Ruthenium-106	44	1 (3.7E 10)
Samarium-141m	62	1000 (3.7E 13)
Samarium-141	62	1000 (3.7E 13)
Samarium-142	62	1000 (3.7E 13)
Samarium-145	62	100 (3.7E 12)
Samarium-146	62	0.01 (3.7E 8)
Samarium-147	62	0.01 (3.7E 8)
Samarium-151	62	10 (3.7E 11)
Samarium-153	62	100 (3.7E 12)
Samarium-155	62	1000 (3.7E 13)
Samarium-156	62	100 (3.7E 12)
Scandium-43	21	1000 (3.7E 13)
Scandium-44m	21	10 (3.7E 11)
Scandium-44	21	100 (3.7E 12)
Scandium-46	21	10 (3.7E 11)
Scandium-47	21	100 (3.7E 12)
Scandium-48	21	10 (3.7E 11)
Scandium-49	21	1000 (3.7E 13)
Selenium-70	34	1000 (3.7E 13)
Selenium-73m	34	100 (3.7E 12)
Selenium-73	34	10 (3.7E 11)
Selenium-75	34	10 (3.7E 11)
Selenium-79	34	10 (3.7E 11)
Selenium-81m	34	1000 (3.7E 13)
Selenium-81	34	1000 (3.7E 13)
Selenium-83	34	1000 (3.7E 13)
Silicon-31	14	1000 (3.7E 13)
Silicon-32	14	1 (3.7E 10)
Silver-102	47	100 (3.7E 12)
Silver-103	47	1000 (3.7E 13)
Silver-104m	47	1000 (3.7E 13)
Silver-104	47	1000 (3.7E 13)
Silver-105	47	10 (3.7E 11)
Silver-106m	47	10 (3.7E 11)
Silver-106	47	1000 (3.7E 13)
Silver-108m	47	10 (3.7E 11)
Silver-110m	47	10 (3.7E 11)
Silver-111	47	10 (3.7E 11)
Silver-112	47	100 (3.7E 12)
Silver-115	47	1000 (3.7E 13)
Sodium-22	11	10 (3.7E 11)
Sodium-24	11	10 (3.7E 11)
Strontium-80	38	100 (3.7E 12)
Strontium-81	38	1000 (3.7E 13)
Strontium-83	38	100 (3.7E 12)
Strontium-85m	38	1000 (3.7E 13)
Strontium-85	38	10 (3.7E 11)
Strontium-87m	38	100 (3.7E 12)
Strontium-89	38	10 (3.7E 11)
Strontium-90	38	0.1 (3.7E 9)
Strontium-91	38	10 (3.7E 11)
Strontium-92	38	100 (3.7E 12)
Sulfur-35	16	1 (3.7E 10)
Tantalum-172	73	100 (3.7E 12)
Tantalum-173	73	100 (3.7E 12)
Tantalum-174	73	100 (3.7E 12)
Tantalum-175	73	100 (3.7E 12)
Tantalum-176	73	10 (3.7E 11)
Tantalum-177	73	1000 (3.7E 13)
Tantalum-178	73	1000 (3.7E 13)
Tantalum-179	73	1000 (3.7E 13)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Tantalum-180m	73	1000 (3.7E 13)
Tantalum-180	73	100 (3.7E 12)
Tantalum-182m	73	1000 (3.7E 13)
Tantalum-182	73	10 (3.7E 11)
Tantalum-183	73	100 (3.7E 12)
Tantalum-184	73	10 (3.7E 11)
Tantalum-185	73	1000 (3.7E 13)
Tantalum-186	73	1000 (3.7E 13)
Technetium-93m	43	1000 (3.7E 13)
Technetium-93	43	100 (3.7E 12)
Technetium-94m	43	100 (3.7E 12)
Technetium-94	43	10 (3.7E 11)
Technetium-96m	43	1000 (3.7E 13)
Technetium-96	43	10 (3.7E 11)
Technetium-97m	43	100 (3.7E 12)
Technetium-97	43	100 (3.7E 12)
Technetium-98	43	10 (3.7E 11)
Technetium-99m	43	100 (3.7E 12)
Technetium-99	43	10 (3.7E 11)
Technetium-101	43	1000 (3.7E 13)
Technetium-104	43	1000 (3.7E 13)
Tellurium-116	52	1000 (3.7E 13)
Tellurium-121m	52	10 (3.7E 11)
Tellurium-121	52	10 (3.7E 11)
Tellurium-123m	52	10 (3.7E 11)
Tellurium-123	52	10 (3.7E 11)
Tellurium-125m	52	10 (3.7E 11)
Tellurium-127m	52	10 (3.7E 11)
Tellurium-127	52	1000 (3.7E 13)
Tellurium-129m	52	10 (3.7E 11)
Tellurium-129	52	1000 (3.7E 13)
Tellurium-131m	52	10 (3.7E 11)
Tellurium-131	52	1000 (3.7E 13)
Tellurium-132	52	10 (3.7E 11)
Tellurium-133m	52	1000 (3.7E 13)
Tellurium-133	52	1000 (3.7E 13)
Tellurium-134	52	1000 (3.7E 13)
Terbium-147	65	100 (3.7E 12)
Terbium-149	65	100 (3.7E 12)
Terbium-150	65	100 (3.7E 12)
Terbium-151	65	10 (3.7E 11)
Terbium-153	65	100 (3.7E 12)
Terbium-154	65	10 (3.7E 11)
Terbium-155	65	100 (3.7E 12)
Terbium-156m (5.0 hr)	65	1000 (3.7E 13)
Terbium-156m (24.4 hr)	65	1000 (3.7E 13)
Terbium-156	65	10 (3.7E 11)
Terbium-157	65	100 (3.7E 12)
Terbium-158	65	10 (3.7E 11)
Terbium-160	65	10 (3.7E 11)
Terbium-161	65	100 (3.7E 12)
Thallium-194m	81	100 (3.7E 12)
Thallium-194	81	1000 (3.7E 13)
Thallium-195	81	100 (3.7E 12)
Thallium-197	81	100 (3.7E 12)
Thallium-198m	81	100 (3.7E 12)
Thallium-198	81	10 (3.7E 11)
Thallium-199	81	100 (3.7E 12)
Thallium-200	81	10 (3.7E 11)
Thallium-201	81	1000 (3.7E 13)
Thallium-202	81	10 (3.7E 11)
Thallium-204	81	10 (3.7E 11)
Thorium-226	90	100 (3.7E 12)
Thorium-227	90	1 (3.7E 10)
Thorium-228	90	0.01 (3.7E 8)
Thorium-229	90	0.001 (3.7E 7)
Thorium-230	90	0.01 (3.7E 8)
Thorium-231	90	100 (3.7E 12)
Thorium-232Φ	90	0.001 (3.7E 7)
Thorium-234	90	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Thulium-162	69	1000 (3.7E 13)
Thulium-166	69	10 (3.7E 11)
Thulium-167	69	100 (3.7E 12)
Thulium-170	69	10 (3.7E 11)
Thulium-171	69	100 (3.7E 12)
Thulium-172	69	100 (3.7E 12)
Thulium-173	69	100 (3.7E 12)
Thulium-175	69	1000 (3.7E 13)
Tin-110	50	100 (3.7E 12)
Tin-111	50	1000 (3.7E 13)
Tin-113	50	10 (3.7E 11)
Tin-117m	50	100 (3.7E 12)
Tin-119m	50	10 (3.7E 11)
Tin-121m	50	10 (3.7E 11)
Tin-121	50	1000 (3.7E 13)
Tin-123m	50	1000 (3.7E 13)
Tin-123	50	10 (3.7E 11)
Tin-125	50	10 (3.7E 11)
Tin-126	50	1 (3.7E 10)
Tin-127	50	100 (3.7E 12)
Tin-128	50	1000 (3.7E 13)
Titanium-44	22	1 (3.7E 10)
Titanium-45	22	1000 (3.7E 13)
Tungsten-176	74	1000 (3.7E 13)
Tungsten-177	74	100 (3.7E 12)
Tungsten-178	74	100 (3.7E 12)
Tungsten-179	74	1000 (3.7E 13)
Tungsten-181	74	100 (3.7E 12)
Tungsten-185	74	10 (3.7E 11)
Tungsten-187	74	100 (3.7E 12)
Tungsten-188	74	10 (3.7E 11)
Uranium-230	92	1 (3.7E 10)
Uranium-231	92	1000 (3.7E 13)
Uranium-232	92	0.01 (3.7E 8)
Uranium-233	92	0.1 (3.7E 9)
Uranium-234ϕ	92	0.1 (3.7E 9)
Uranium-235ϕ	92	0.1 (3.7E 9)
Uranium-236	92	0.1 (3.7E 9)
Uranium-237	92	100 (3.7E 12)
Uranium-238ϕ	92	0.1& (3.7E 9)
Uranium-239	92	1000 (3.7E 13)
Uranium-240	92	1000 (3.7E 13)
Vanadium-47	23	1000 (3.7E 13)
Vanadium-48	23	10 (3.7E 11)
Vanadium-49	23	1000 (3.7E 13)
Xenon-120	54	100 (3.7E 12)
Xenon-121	54	10 (3.7E 11)
Xenon-122	54	100 (3.7E 12)
Xenon-123	54	10 (3.7E 11)
Xenon-125	54	100 (3.7E 12)
Xenon-127	54	100 (3.7E 12)
Xenon-129m	54	1000 (3.7E 13)
Xenon-131m	54	1000 (3.7E 13)
Xenon-133m	54	1000 (3.7E 13)
Xenon-133	54	1000 (3.7E 13)
Xenon-135m	54	10 (3.7E 11)
Xenon-135	54	100 (3.7E 12)
Xenon-138	54	10 (3.7E 11)
Ytterbium-162	70	1000 (3.7E 13)
Ytterbium-166	70	10 (3.7E 11)
Ytterbium-167	70	1000 (3.7E 13)
Ytterbium-169	70	10 (3.7E 11)
Ytterbium-175	70	100 (3.7E 12)
Ytterbium-177	70	1000 (3.7E 13)
Ytterbium-178	70	1000 (3.7E 13)
Yttrium-86m	39	1000 (3.7E 13)
Yttrium-86	39	10 (3.7E 11)
Yttrium-87	39	10 (3.7E 11)
Yttrium-88	39	10 (3.7E 11)
Yttrium-90m	39	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Yttrium-90	39	10 (3.7E 11)
Yttrium-91m	39	1000 (3.7E 13)
Yttrium-91	39	10 (3.7E 11)
Yttrium-92	39	100 (3.7E 12)
Yttrium-93	39	100 (3.7E 12)
Yttrium-94	39	1000 (3.7E 13)
Yttrium-95	39	1000 (3.7E 13)
Zinc-62	30	100 (3.7E 12)
Zinc-63	30	1000 (3.7E 13)
Zinc-65	30	10 (3.7E 11)
Zinc-69m	30	100 (3.7E 12)
Zinc-69	30	1000 (3.7E 13)
Zinc-71m	30	100 (3.7E 12)
Zinc-72	30	100 (3.7E 12)
Zirconium-86	40	100 (3.7E 12)
Zirconium-88	40	10 (3.7E 11)
Zirconium-89	40	100 (3.7E 12)
Zirconium-93	40	1 (3.7E 10)
Zirconium-95	40	10 (3.7E 11)
Zirconium-97	40	10 (3.7E 11)

Ci—Curie. The curie represents a rate of radioactive decay. One curie is the quantity of any radioactive nuclide which undergoes 3.7E 10 disintegrations per second.

Bq—Becquerel. The becquerel represents a rate of radioactive decay. One becquerel is the quantity of any radioactive nuclide which undergoes one disintegration per second. One curie is equal to 3.7E 10 becquerel.

@—Final RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

&—The adjusted RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in table 302.4 and this appendix to the table are in conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have adjusted RQs shown in table 302.4 of 100 pounds, equivalent to about one-tenth the RQ level for uranium-238 listed in this appendix.

E—Exponent to the base 10. For example, 1.3E 2 is equal to 130 while 1.3E 3 is equal to 1300.

m—Signifies a nuclear isomer which is a radionuclide in a higher energy metastable state relative to the parent isotope.

ϕ—Notification requirements for releases of mixtures or solutions of radionuclides can be found in § 302.6(b) of this rule. Final RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its daughters (0.052 curie); and natural thorium in secular equilibrium with its daughters (0.011 curie).

[54 FR 33449, Aug. 14, 1989]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 302.4, see the List of CFR Sections Affected in the Finding Aids section of this volume.

§ 302.5 Determination of reportable quantities.

(a) *Listed hazardous substances.* The quantity listed in the column ''Final RQ'' for each substance in table 302.4, or in appendix B to table 302.4, is the reportable quantity (RQ) for that substance. The RQs in table 302.4 are in units of pounds based on chemical toxicity, while the RQs in appendix B to table 302.4 are in units of curies based on radiation hazard. Whenever the RQs

in table 302.4 and appendix B to the table are in conflict, the lowest RQ shall apply.

(b) *Unlisted hazardous substances.* Unlisted hazardous substances designated by 40 CFR 302.4(b) have the reportable quantity of 100 pounds, except for those unlisted hazardous wastes which exhibit extraction procedure (EP) toxicity identified in 40 CFR 261.24. Unlisted hazardous wastes which exhibit EP toxicity have the reportable quantities listed in table 302.4 for the contaminant on which the characteristic of EP toxicity is based. The reportable quantity applies to the waste itself, not merely to the toxic contaminant. If an unlisted hazardous waste exhibits EP toxicity on the basis of more than one contaminant, the reportable quantity for that waste shall be the lowest of the reportable quantities listed in table 302.4 for those contaminants. If an unlisted hazardous waste exhibits the characteristic of EP toxicity and one or more of the other characteristics referenced in 40 CFR 302.4(b), the reportable quantity for that waste shall be the lowest of the applicable reportable quantities.

[51 FR 34547, Sept. 29, 1987, as amended at 54 FR 22538, May 24, 1989]

§ 302.6 Notification requirements.

(a) Any person in charge of a vessel or an offshore or an onshore facility shall, as soon as he has knowledge of any release (other than a federally permitted release or application of a pesticide) of a hazardous substance from such vessel or facility in a quantity equal to or exceeding the reportable quantity determined by this part in any 24-hour period, immediately notify the National Response Center ((800) 424–8802; in Washington, DC (202) 426–2675).

(b) Releases of mixtures or solutions (including hazardous waste streams) of

(1) Hazardous substances, except for radionuclides, are subject to the following notification requirements:

(i) If the quantity of all of the hazardous constituent(s) of the mixture or solution is known, notification is required where an RQ or more of any hazardous constituent is released;

(ii) If the quantity of one or more of the hazardous constituent(s) of the mixture or solution is unknown, notification is required where the total amount of the mixture or solution released equals or exceeds the RQ for the hazardous constituent with the lowest RQ; or

(iii) For waste streams K169, K170, K171, and K172, knowledge of the quantity of all of the hazardous constituent(s) may be assumed, based on the following maximum observed constituent concentrations identified by EPA:

Waste	Constituent	Max ppm
K169	Benzene	220.0
K170	Benzene	1.2
	Benzo (a) pyrene	230.0
	Dibenz (a,h) anthracene	49.0
	Benzo (a) anthracene	390.0
	Benzo (b) fluoranthene	110.0
	Benzo (k) fluoranthene	110.0
	3-Methylcholanthrene	27.0
	7,12-Dimethylbenz (a) anthracene	1,200.0
K171	Benzene	500.0
	Arsenic	1,600.0
K172	Benzene	100.0
	Arsenic	730.0

(2) Radionuclides are subject to this section's notification requirements only in the following circumstances:

(i) If the identity and quantity (in curies) of each radionuclide in a released mixture or solution is known, the ratio between the quantity released (in curies) and the RQ for the radionuclide must be determined for each radionuclide. The only such releases subject to this section's notification requirements are those in which the sum of the ratios for the radionuclides in the mixture or solution released is equal to or greater than one.

(ii) If the identity of each radionuclide in a released mixture or solution is known but the quantity released (in curies) of one or more of the radionuclides is unknown, the only such releases subject to this section's notification requirements are those in which the total quantity (in curies) of the mixture or solution released is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution.

(iii) If the identity of one or more radionuclides in a released mixture or solution is unknown (or if the identity of a radionuclide released by itself is

unknown), the only such releases subject to this section's notification requirements are those in which the total quantity (in curies) released is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.

(c) The following categories of releases are exempt from the notification requirements of this section:

(1) Releases of those radionuclides that occur naturally in the soil from land holdings such as parks, golf courses, or other large tracts of land.

(2) Releases of naturally occurring radionuclides from land disturbance activities, including farming, construction, and land disturbance incidental to extraction during mining activities, except that which occurs at uranium, phosphate, tin, zircon, hafnium, vanadium, monazite, and rare earth mines. Land disturbance incidental to extraction includes: land clearing; overburden removal and stockpiling; excavating, handling, transporting, and storing ores and other raw (not beneficiated or processed) materials; and replacing in mined-out areas coal ash, earthen materials from farming or construction, or overburden or other raw materials generated from the exempted mining activities.

(3) Releases of radionuclides from the dumping and transportation of coal and coal ash (including fly ash, bottom ash, and boiler slags), including the dumping and land spreading operations that occur during coal ash uses.

(4) Releases of radionuclides from piles of coal and coal ash, including fly ash, bottom ash, and boiler slags.

(d) Except for releases of radionuclides, notification of the release of an RQ of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is not required if the mean diameter of the particles released is larger than 100 micrometers (0.004 inches).

[50 FR 13474, Apr. 4, 1985, as amended at 54 FR 22538, May 24, 1989; 54 FR 33481, Aug. 14, 1989; 63 FR 13475, Mar. 19, 1998; 63 FR 42189, Aug. 6, 1998; 64 FR 13114, Mar. 17, 1999]

§ 302.7 Penalties.

(a) Any person—

(1) In charge of a vessel from which a hazardous substance is released, other than a federally permitted release, into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone,

(2) In charge of a vessel from which a hazardous substance is released, other than a federally permitted release, which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976), and who is otherwise subject to the jurisdiction of the United States at the time of the release, or

(3) In charge of a facility from which a hazardous substance is released, other than a federally permitted release, in a quantity equal to or greater than that reportable quantity determined under this part who fails to notify immediately the National Response Center as soon as he has knowledge of such release shall be subject to all of the sanctions, including criminal penalties, set forth in section 103 of the Act with respect to such failure to notify.

(b) Notification received pursuant to this section or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except a prosecution for perjury or for giving a false statement.

(c) This section shall not apply to the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act or to the handling and storage of such a pesticide product by an agricultural producer.

§ 302.8 Continuous releases.

(a) Except as provided in paragraph (c) of this section, no notification is required for any release of a hazardous substance that is, pursuant to the definitions in paragraph (b) of this section, continuous and stable in quantity and rate.

(b) *Definitions.* The following definitions apply to notification of continuous releases:

Continuous. A continuous release is a release that occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations or treatment processes.

Normal range. The normal range of a release is all releases (in pounds or kilograms) of a hazardous substance reported or occurring over any 24-hour period under normal operating conditions during the preceding year. Only releases that are both continuous and stable in quantity and rate may be included in the normal range.

Routine. A routine release is a release that occurs during normal operating procedures or processes.

Stable in quantity and rate. A release that is stable in quantity and rate is a release that is predictable and regular in amount and rate of emission.

Statistically significant increase. A statistically significant increase in a release is an increase in the quantity of the hazardous substance released above the upper bound of the reported normal range of the release.

(c) *Notification.* The following notifications shall be given for any release qualifying for reduced reporting under this section:

(1) Initial telephone notification;

(2) Initial written notification within 30 days of the initial telephone notification;

(3) Follow-up notification within 30 days of the first anniversary date of the initial written notification;

(4) Notification of a change in the composition or source(s) of the release or in the other information submitted in the initial written notification of the release under paragraph (c)(2) of this section or the follow-up notification under paragraph (c)(3) of this section; and

(5) Notification at such times as an increase in the quantity of the hazardous substance being released during any 24-hour period represents a statistically significant increase as defined in paragraph (b) of this section.

(d) *Initial telephone notification.* Prior to making an initial telephone notification of a continuous release, the person in charge of a facility or vessel must establish a sound basis for qualifying the release for reporting under CERCLA section 103(f)(2) by:

(1) Using release data, engineering estimates, knowledge of operating procedures, or best professional judgment to establish the continuity and stability of the release;

(2) Reporting the release to the National Response Center for a period sufficient to establish the continuity and stability of the release; or

(3) When a person in charge of the facility or vessel believes that a basis has been established to qualify the release for reduced reporting under this section, initial notification to the National Response Center shall be made by telephone. The person in charge must identify the notification as an initial continuous release notification report and provide the following information:

(i) The name and location of the facility or vessel; and

(ii) The name(s) and identity(ies) of the hazardous substance(s) being released.

(e) *Initial written notification.* Initial written notification of a continuous release shall be made to the appropriate EPA Regional Office for the geographical area where the releasing facility or vessel is located. (Note: In addition to the requirements of this part, releases of CERCLA hazardous substances are also subject to the provisions of SARA title III section 304, and EPA's implementing regulations codified at 40 CFR part 355, which require initial telephone and written notifications of continuous releases to be submitted to the appropriate State emergency response commission and local emergency planning committee.)

(1) Initial written notification to the appropriate EPA Regional Office shall occur within 30 days of the initial telephone notification to the National Response Center, and shall include, for each release for which reduced reporting as a continuous release is claimed, the following information:

(i) The name of the facility or vessel; the location, including the latitude and longitude; the case number assigned by the National Response Center or the Environmental Protection Agency; the

Dun and Bradstreet number of the facility, if available; the port of registration of the vessel; the name and telephone number of the person in charge of the facility or vessel.

(ii) The population density within a one-mile radius of the facility or vessel, described in terms of the following ranges: 0–50 persons, 51–100 persons, 101–500 persons, 501–1,000 persons, more than 1,000 persons.

(iii) The identity and location of sensitive populations and ecosystems within a one-mile radius of the facility or vessel (e.g., elementary schools, hospitals, retirement communities, or wetlands).

(iv) For each hazardous substance release claimed to qualify for reporting under CERCLA section 103(f)(2), the following information must be supplied:

(A) The name/identity of the hazardous substance; the Chemical Abstracts Service Registry Number for the substance (if available); and if the substance being released is a mixture, the components of the mixture and their approximate concentrations and quantities, by weight.

(B) The upper and lower bounds of the normal range of the release (in pounds or kilograms) over the previous year.

(C) The source(s) of the release (e.g., valves, pump seals, storage tank vents, stacks). If the release is from a stack, the stack height (in feet or meters).

(D) The frequency of the release and the fraction of the release from each release source and the specific period over which it occurs.

(E) A brief statement describing the basis for stating that the release is continuous and stable in quantity and rate.

(F) An estimate of the total annual amount that was released in the previous year (in pounds or kilograms).

(G) The environmental medium(a) affected by the release:

(*1*) If surface water, the name of the surface water body;

(*2*) If a stream, the stream order or average flowrate (in cubic feet/second) and designated use;

(*3*) If a lake, the surface area (in acres) and average depth (in feet or meters);

(*4*) If on or under ground, the location of public water supply wells within two miles.

(H) A signed statement that the hazardous substance release(s) described is(are) continuous and stable in quantity and rate under the definitions in paragraph (a) of this section and that all reported information is accurate and current to the best knowledge of the person in charge.

(f) *Follow-up notification.* Within 30 days of the first anniversary date of the initial written notification, the person in charge of the facility or vessel shall evaluate each hazardous substance release reported to verify and update the information submitted in the initial written notification. The follow-up notification shall include the following information:

(1) The name of the facility or vessel; the location, including the latitude and longitude; the case number assigned by the National Response Center or the Environmental Protection Agency; the Dun and Bradstreet number of the facility, if available; the port of registration of the vessel; the name and telephone number of the person in charge of the facility or vessel.

(2) The population density within a one-mile radius of the facility or vessel, described in terms of the following ranges: 0–50 persons, 51–100 persons, 101–500 persons, 501–1,000 persons, more than 1,000 persons.

(3) The identity and location of sensitive populations and ecosystems within a one-mile radius of the facility or vessel (e.g., elementary schools, hospitals, retirement communities, or wetlands).

(4) For each hazardous substance release claimed to qualify for reporting under CERCLA section 103(f)(2), the following information shall be supplied:

(i) The name/identity of the hazardous substance; the Chemical Abstracts Service Registry Number for the substance (if available); and if the substance being released is a mixture, the components of the mixture and their approximate concentrations and quantities, by weight.

(ii) The upper and lower bounds of the normal range of the release (in pounds or kilograms) over the previous year.

(iii) The source(s) of the release (e.g., valves, pump seals, storage tank vents, stacks). If the release is from a stack, the stack height (in feet or meters).

(iv) The frequency of the release and the fraction of the release from each release source and the specific period over which it occurs.

(v) A brief statement describing the basis for stating that the release is continuous and stable in quantity and rate.

(vi) An estimate of the total annual amount that was released in the previous year (in pounds or kilograms).

(vii) The environmental medium(a) affected by the release:

(A) If surface water, the name of the surface water body;

(B) If a stream, the stream order or average flowrate (in cubic feet/second) and designated use;

(C) If a lake, the surface area (in acres) and average depth (in feet or meters);

(D) If on or under ground, the location of public water supply wells within two miles.

(viii) A signed statement that the hazardous substance release(s) is(are) continuous and stable in quantity and rate under the definitions in paragraph (a) of this section and that all reported information is accurate and current to the best knowledge of the person in charge.

(g) *Notification of changes in the release.* If there is a change in the release, notification of the change, not otherwise reported, shall be provided in the following manner:

(1) *Change in source or composition.* If there is any change in the composition or source(s) of the release, the release is a new release and must be qualified for reporting under this section by the submission of initial telephone notification and initial written notification in accordance with paragraphs (c) (1) and (2) of this section as soon as there is a sufficient basis for asserting that the release is continuous and stable in quantity and rate;

(2) *Change in the normal range.* If there is a change in the release such that the quantity of the release exceeds the upper bound of the reported normal range, the release must be reported as a statistically significant increase in the release. If a change will result in a number of releases that exceed the upper bound of the normal range, the person in charge of a facility or vessel may modify the normal range by:

(i) Reporting at least one statistically significant increase report as required under paragraph (c)(7) of this section and, at the same time, informing the National Response Center of the change in the normal range; and

(ii) Submitting, within 30 days of the telephone notification, written notification to the appropriate EPA Regional Office describing the new normal range, the reason for the change, and the basis for stating that the release in the increased amount is continuous and stable in quantity and rate under the definitions in paragraph (b) of this section.

(3) *Changes in other reported information.* If there is a change in any information submitted in the initial written notification or the followup notification other than a change in the source, composition, or quantity of the release, the person in charge of the facility or vessel shall provide written notification of the change to the EPA Region for the geographical area where the facility or vessel is located, within 30 days of determining that the information submitted previously is no longer valid. Notification shall include the reason for the change, and the basis for stating that the release is continuous and stable under the changed conditions.

(4) Notification of changes shall include the case number assigned by the National Response Center or the Environmental Protection Agency and also the signed certification statement required at (c)(2)(xi) of this section.

(h) *Notification of a statistically significant increase in a release.* Notification of a statistically significant increase in a release shall be made to the National Response Center as soon as the person in charge of the facility or vessel has knowledge of the increase. The release must be identified as a statistically significant increase in a continuous release. A determination of whether an increase is a ''statistically significant increase'' shall be made based upon calculations or estimation procedures

that will identify releases that exceed the upper bound of the reported normal range.

(i) *Annual evaluation of releases.* Each hazardous substance release shall be evaluated annually to determine if changes have occurred in the information submitted in the initial written notification, the followup notification, and/or in a previous change notification.

(j) *Use of the SARA Title III section 313 form.* In lieu of an initial written report or a followup report, owners or operators of facilities subject to the requirements of SARA title III section 313 may submit to the appropriate EPA Regional Office for the geographical area where the facility is located, a copy of the Toxic Release Inventory form submitted under SARA Title III section 313 the previous July 1, provided that the following information is added:

(1) The population density within a one-mile radius of the facility or vessel, described in terms of the following ranges: 0–50 persons, 51–100 persons, 101–500 persons, 501–1,000 persons, more than 1,000 persons.

(2) The identity and location of sensitive populations and ecosystems within a one-mile radius of the facility or vessel (e.g., elementary schools, hospitals, retirement communities, or wetlands).

(3) For each hazardous substance release claimed to qualify for reporting under CERCLA section 103(f)(2), the following information must be supplied:

(i) The upper and lower bounds of the normal range of the release (in pounds or kilograms) over the previous year.

(ii) The frequency of the release and the fraction of the release from each release source and the specific period over which it occurs.

(iii) A brief statement describing the basis for stating that the release is continuous and stable in quantity and rate.

(iv) A signed statement that the hazardous substance release(s) is(are) continuous and stable in quantity and rate under the definitions in paragraph (b) of this section and that all reported information is accurate and current to the best knowledge of the person in charge.

(k) *Documentation supporting notification.* Where necessary to satisfy the requirements of this section, the person in charge may rely on recent release data, engineering estimates, the operating history of the facility or vessel, or other relevant information to support notification. All supporting documents, materials, and other information shall be kept on file at the facility, or in the case of a vessel, at an office within the United States in either a port of call, a place of regular berthing, or the headquarters of the business operating the vessel. Supporting materials shall be kept on file for a period of one year and shall substantiate the reported normal range of releases, the basis for stating that the release is continuous and stable in quantity and rate, and the other information in the initial written report, the followup report, and the annual evaluations required under paragraphs (e), (f), and (i), respectively. Such information shall be made available to EPA upon request as necessary to enforce the requirements of this section.

(l) *Multiple concurrent releases.* Multiple concurrent releases of the same substance occurring at various locations with respect to contiguous plants or installations upon contiguous grounds that are under common ownership or control may be considsred separately or added together in determining whether such releases constitute a continuous release or a statistically significant increase under the definitions in paragraph (b) of this section; whichever approach is elected for purposes of determining whether a release is continuous also must be used to determine a statistically significant increase in the release.

(m) *Penalties for failure to comply.* The reduced reporting requirements provided for under this section shall apply only so long as the person in charge complies fully with all requirements of paragraph (c) of this section. Failure to comply with respect to any release from the facility or vessel shall subject the person in charge to all of the reporting requirements of § 302.6 for each such release, to the penalties under § 302.7, and to any other applicable penalties provided for by law.

[55 FR 30185, July 24, 1990]

Release Detail Sheet

When a release exceeds the Reportable Quantity (RQ) level as outlined in EPA regulations 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 the permittee should fill out the following Release Detail Sheet and submit to the City of Frisco within 14 days of release.
(NOTE: in Texas, the RQ for Hydrocarbons is 25 gallons spilled to soil and 1 drop spilled to water)

Date: _____

Description: _____
_____
_____
_____
_____
_____

Type of material: _____

Amount of spill: _____

Why the spill happened: _____
_____
_____
_____
_____
_____

Procedures to prevent future occurrences: _____
_____
_____
_____
_____
_____

Response procedures should a spill occur again: _____
_____
_____
_____
_____
_____

The person in charge of the site at the time of the spill shall call:

National Response Center
800.424.8802
and the
TCEQ Release Hotline
800.832.8224
and the
City of Frisco
Public Works
Attn: Pippa Couvillion
Office: 972.335.5520
Fax: 972.335.5524

OPERATOR FORM

This form should be maintained and attached to the SWPPP.

Stonebriar Legacy Medical Plaza in Frisco, TX

Dates

The dates when major grading activities occur:

_____

_____

	Dates	Portion of the Site
The dates when construction activities temporarily or permanently cease on a portion of the site:	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

	Dates	Stabilization Measures
Dates when stablization measures are initiated:		
	_____	Construction Entrance
(see ACTIONS TAKEN FORM)	_____	Silt Fence
	_____	Erosion Blankets
	_____	Slab Poured
	_____	Paving
	_____	Hydromulch/Seeding/Sod

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

NAME:_____

TITLE:_____

SIIGNATURE:_____

ACTIONS TAKEN FORM

Actions taken as a result of inspection should be maintained and retained as part of the SWPPP. Describe all actions taken as a result of inspections OR retain all invoices pertaining to SWPPP compliance and describe all actions self-performed as a result of inpections.

Date: _____
Actions taken as a result of inspections:
_____

Date: _____
Actions taken as a result of inspections:
_____

Date: _____
Actions taken as a result of inspections:
_____

Date: _____
Actions taken as a result of inspections:
_____

Date: _____
Actions taken as a result of inspections:
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Date: _____
Actions taken as a result of inspections:
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Date: _____
Actions taken as a result of inspections:
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Date: _____
Actions taken as a result of inspections:
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Date: _____
Actions taken as a result of inspections:
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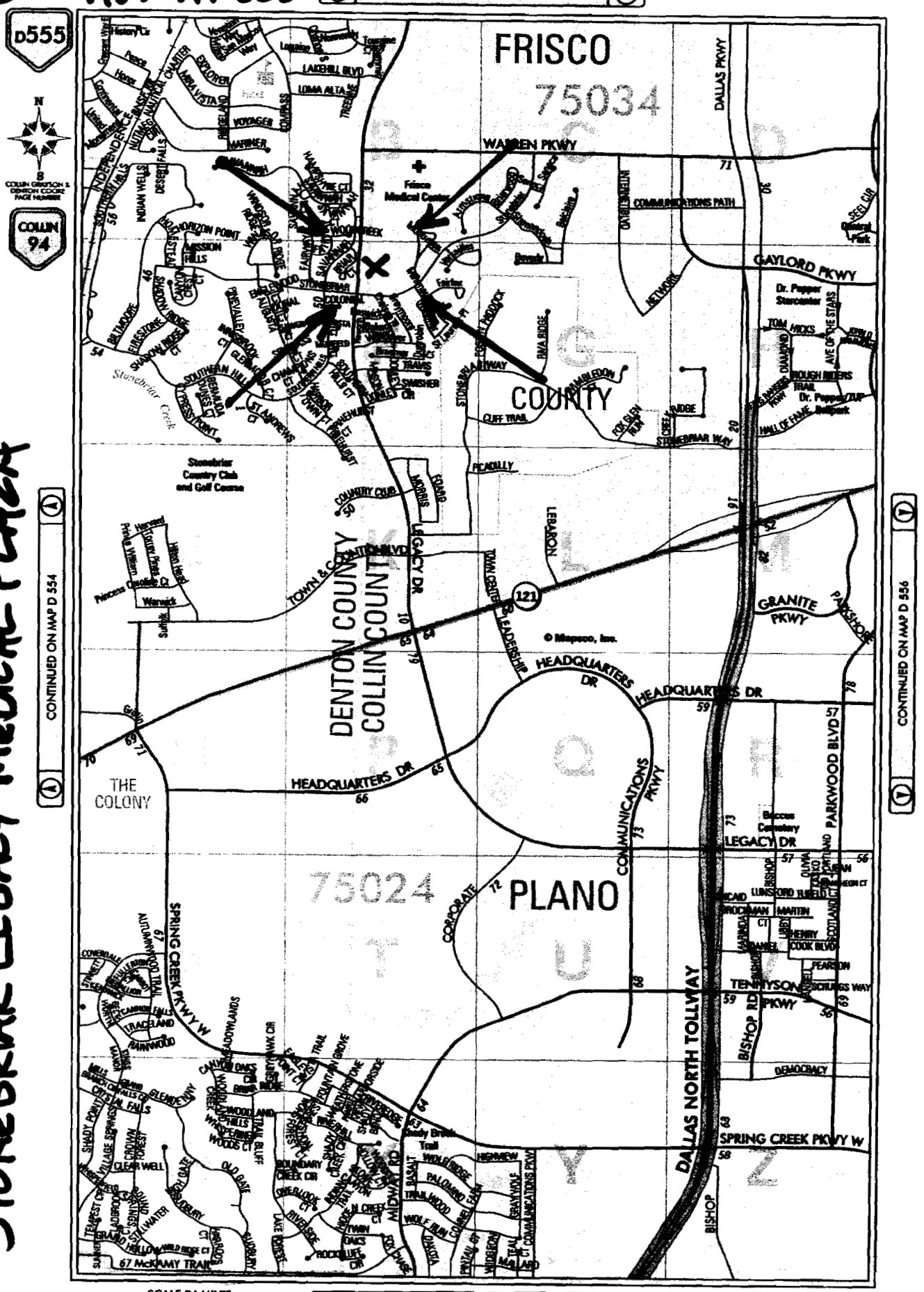
Date: _____
Actions taken as a result of inspections:
_____

Date: _____
Actions taken as a result of inspections:
_____

DALLAS MAPSCO



STONEBRIAR LEGACY MEDICAL PLAZA

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SWPPP
www.swppp.com
OFFICE: 972.530.5307 FAX: 972.530.5309
PO BOX 496987 GARLAND, TX 75049

This Storm Water Pollution Prevention Plan (SWPPP) is complete when combined with the most recent Site Map from SWPPP INSPECTIONS, INC.

(For the most recent Site Map, please see the inspector for SWPPP INSPECTIONS, INC.)

The “Operator Form”, “Actions Taken Form”, and inspection reports must be completed and retained with this SWPPP.