

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

ShowBiz Cinemas (Waxahachie)

**in
Waxahachie, Texas**

prepared October 2008

**by
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Appendix

TPDES General Permit (NO. TXR150000)

BMPs from NCTCOG's iSWM Design Manual for Construction

Notice of Intent (NOI)

Notice of Termination (NOT)

Construction Site Notice (CSN)

Proof of Submittal to MS4

Operator Certification & Subcontractor Certification

Duly Authorized Representative

Soil Data, Reportable Quantities, & Release Detail Sheet

Operator Form & Actions Taken Form—complete and retain with SWPPP

Location Map & Site Map

*post the signed NOI and CSNs 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 conditions for this construction site to discharge storm water to surface water in the state. It is the responsibility of TWTCC to acquire property rights as may be necessary to use the discharge route.

The goal is to prevent 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 and to prevent 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 the State, cities, towns, counties, districts, associations, states, other public bodies, or the United States. Waters of the United States include interstate wetlands, 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. Tributaries of waters identified above and wetlands adjacent to waters above are also considered Waters of the U.S.

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 federal, 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 TWTCC receives written notice.

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.

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.

Discharges eligible for authorization include discharges of storm water runoff from small and large construction activities, discharges of storm water associated with dedicated construction support activities located within one (1) mile from the boundary of the permitted site, various non-storm water discharges described in TXR150000, and concrete truck wash out.

The TCEQ is the Permitting Authority for this discharge, as the site is not located on Indian Country lands and the construction activity is not associated with oil and gas exploration, development, production, or transportation by pipeline.

Operators of new and ongoing construction on large and small sites will be authorized provided they develop a SWPPP, implement that plan prior to commencing construction activities, and provide a copy of the signed Notice of Intent (NOI) and/or appropriate Site Notice to the TCEQ and/or MS4 receiving the discharge and to any operator that has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications. Proof of submittals must be retained in the SWPPP.

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 TXR150000 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.

Operators of large and small sites must post the appropriate notices located where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction, and maintain the notice in that location until completion of the construction activity.

TXR150000 and the authorization to discharge storm water shall expire at midnight, March 05, 2013. If the TCEQ publishes a notice of its intent to renew or amend TXR150000 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. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit.

III. Site Description

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared for construction activities associated with ShowBiz Cinemas (Waxahachie) in Waxahachie, Texas. All construction activities are being managed by TWTCC.

Nature of the construction activity: Construction of a commercial movie theatre and related site improvements is the nature of the construction activity. A turn lane and right-of-way improvements will also be built along US Highway 287.

Potential pollutants: sediment, trash, paint, fertilizers, hydrocarbons, lime, 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 activities that will disturb soils for the site (per site): installation of erosion control, grading, excavation, utility installation, and backfilling activities.

The **total number of acres** (to the nearest acre) **of the entire property** is 19 acres. The **total number of acres** (to the nearest acre) **where construction activities will occur** is 21 acres.

Location and description of asphalt plants, concrete plants, and other support activities: There will be no dedicated asphalt or concrete batch plant. See Site Map for location and description of other support activities.

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

This SWPPP will serve as the SWPPP for the site as shown on the Site Maps.

There will be no offsite material storage 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/BMPs

Appropriate control measures and best management practices (BMPs) will be used 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.

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, and construction debris, and construction materials. Sediment controls will remove eroded soils from storm water runoff. Location and installation of controls should be determined by a commonsense approach through a collective effort on the part of the following key personnel:

TWTCC,
City of Waxahachie,
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.

TWTCC 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 TWTCC prior to any construction activities. These areas will be continuously monitored and evaluated throughout construction to minimize off-site tracking. US Highway 287, Broadhead Road, and Vivian Drive should be monitored daily and will be cleaned as needed.

Phase 1 silt fence should be installed prior to any earth disturbing activities. Phase 2 silt fence should be installed after the drainage channel along US Highway 287 is on final grade. For new inlets, install inlet protection prior to the inlets becoming operational. Monitor daily to prevent ponding at inlets. Install sandbags in the curblines when the street is cut on Vivian Drive. Install sandbags in the curblines when the street is cut on Vivian Drive. See Site Map for the location of these controls.

Future monitoring and site inspections will determine the necessity of additional controls; additional controls will be added by TWTCC if necessary. Silt fence will be maintained by TWTCC until construction is complete, all concrete/paving is finished, and permanent stabilization (70% native vegetation) has been established at remaining disturbed areas by TWTCC. Silt fence, inlet protection, and sandbags will be removed by TWTCC.

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 erosion control and stabilization measures are not required 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 or is precluded by arid conditions, stabilization measures must be initiated as soon as practicable.

The following is a list of **interim stabilization practices** and a **schedule for implementation**: first protection of existing vegetation where possible, then geotextiles (silt fence),

...then, **permanent stabilization practices** and a **schedule for implementation (per site)**, first concrete placement for the slab/firelane/parking/sidewalk, then permanent vegetation will be established by sod installation and/or hydromulch.

The Site Map shows locations of disturbed areas to be stabilized.

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.

Final Stabilization

Final stabilization must be achieved prior to termination of permit coverage. 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 | 4.0 |
| | Western Wheat Grass | 5.0 |
| | Wheat (Red, Winter) | 30.0 |
| May 1 - Aug 31 | Foxtail Millet | 30.0 |
| Feb 15 – May 31 Sep 1 – Dec 31 | Annual Rye | 20.0 |

Sediment Basins

A sedimentation basin is required where feasible for a common drainage location that serves an area with ten (10) or more acres disturbed at one time, and may also be used to control solids in storm water runoff for drainage locations serving less than ten (10) acres. A sedimentation basin may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. 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.

Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing at least 3,600 cubic feet of storage per acre drained may be provided.

If a sedimentation basin is not feasible, then TWTCC shall provide equivalent control measures, where attainable, until final stabilization of the site. In determining whether installing a sediment basin is feasible, TWTCC may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. For sites with drainage areas of ten or more acres, TWTCC shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.

At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

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

See approved plans for drainage/capacity calculations of sediment basins.

Structural Practices

The following is a description of 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.

1. silt fence
2. inlet protection
3. sandbags
4. detention ponds

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.

Construction entrances, stabilization of soil (including temporary and permanent vegetation), and water trucks (as needed) will minimize off-site tracking of soils and the generation of dust.

Velocity dissipation devices (riprap) will be placed by TWTCC along the length of any outfall channel (see Site Map) 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.

Controls must be developed to limit the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site. Pump only discharges composed entirely of storm water.

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.

Concrete Washout

TXR150000 authorizes the wash out of concrete trucks at regulated construction sites, provided the following requirements are met:

Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit. Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measure to prevent runoff from the construction site. Wash out of concrete trucks during rainfall events should be minimized. The discharge of wash out water shall not cause or contribute to groundwater contamination. The SWPPP shall include concrete wash out areas on the associated map.

Guidelines for constructing 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.

Non-storm Water Discharges

The following non-storm water discharges are authorized by TXR150000. The items at this site which are expected to combine with construction storm water discharges are in bold.

1. discharges from fire fighting activities
2. **uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water)**
3. **water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, 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), where pressure washing is not conducted, and where the purpose is to remove mud, dirt, or dust**
4. **uncontaminated water used to control dust; potable water sources including waterline flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life); uncontaminated air conditioning condensate**
5. uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents
6. **lawn watering and similar irrigation drainage**

The existing controls and measures mentioned in this SWPPP and shown on the Site Map should be adequate to minimize pollutant discharges; however, the SWPPP inspector should be immediately notified if a fire occurs. Additional controls will be added if necessary.

V. Construction and Waste Materials

The following construction materials will be used and/or staged on site at various times during construction:

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

This list should be updated 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 sawcutting 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].

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, TWTCC is required to do 2 things:

- (1) The permittee should call each of the following to report the spill:

National Response Center.....800.424.8802
TCEQ Hotline.....800.832.8224
City of Waxahachie Fire Department
(Attn: David Hudgins)214.948.4407

- (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.

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

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.

If inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then TWTCC must replace or modify the control as soon as practicable after making the 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 permittee 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, discharge locations, 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

TWTCC shall retain a copy of the SWPPP, all reports and actions required by this permit, and all data used to complete the NOI for a period of at least three 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 of the following conditions is met: (1) final stabilization has been achieved on all portions of the site that is the responsibility of the permittee; or (2) another permitted operator has assumed control of areas of the site that have not been 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 of Large Construction sites must post the NOI and the site notice provided in Attachment 3 of TXR150000 near the main entrance of the construction site. Operators of Small Construction sites must post the site notice provided in Attachment 1 or 2 in order to obtain authorization. If the construction project is a linear construction project (e.g. pipeline or highway), 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.

TWTCC 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 TXR150000. Additionally, TWTCC must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of TXR150000.

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).

IX. Procedural Requirements

TWTCC must comply with the following requirements of the General Permit TXR150000:

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

B. If a large site, submit the NOI, including appropriate Fees, using a form provided by the executive director, to the TCEQ and MS4. If a small site, submit the appropriate Site Notice to the MS4. Proof of submittals must be retained in the SWPPP.

C. post a copy of the signed NOI and/or 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

D. 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.

E. If TWTCC 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 Notice of Change (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. Proof of submittals must be retained in the SWPPP.

F. NOI Forms, Notice of Termination (NOT) Forms, NOC letters, and Construction Site Notices must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

G. 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).

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

I. The SWPPP must be updated as necessary to reflect 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 SWPPP. The SWPPP must also be updated whenever site conditions change based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs.

J. Erosion and sediment controls must be designed and inspected to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall. All control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.

K. If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then TWTCC must replace or modify the control as soon as practicable after making the discovery.

L. If sediment escapes the construction site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event if feasible.

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

N. Inspections must be conducted to assure compliance with this SWPPP. Actions taken as a result of inspections must be described within, and retained as a part of the SWPPP.

O. The NOT must be submitted to the TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge, within thirty (30) days, after final stabilization has been achieved on all portions of the site that is the responsibility of TWTCC or all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWPPP, or transferred to a new operator provided that TWTCC has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Record of this notification (or attempt at notification) shall be retained by TWTCC.

P. This SWPPP, inspection reports, actions taken, required proof of submittals, and all other related documentation must be retained for at least three years from the date that this site achieves final stabilization.

Q. 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.



TCEQ Docket No. 2007-1588-WQ
TPDES General Permit No. TXR150000

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

This is a renewal of TPDES
General Permit No. TXR150000,
issued March 5, 2003.

GENERAL PERMIT TO DISCHARGE WASTES

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Construction sites that discharge storm water associated with construction activity

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 on March 5, 2013.

EFFECTIVE DATE: March 5, 2008

ISSUED DATE: **FEB 15 2008**

Buddy Corcix

For the Commission

TPDES GENERAL PERMIT NUMBER TXR150000 RELATING TO STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

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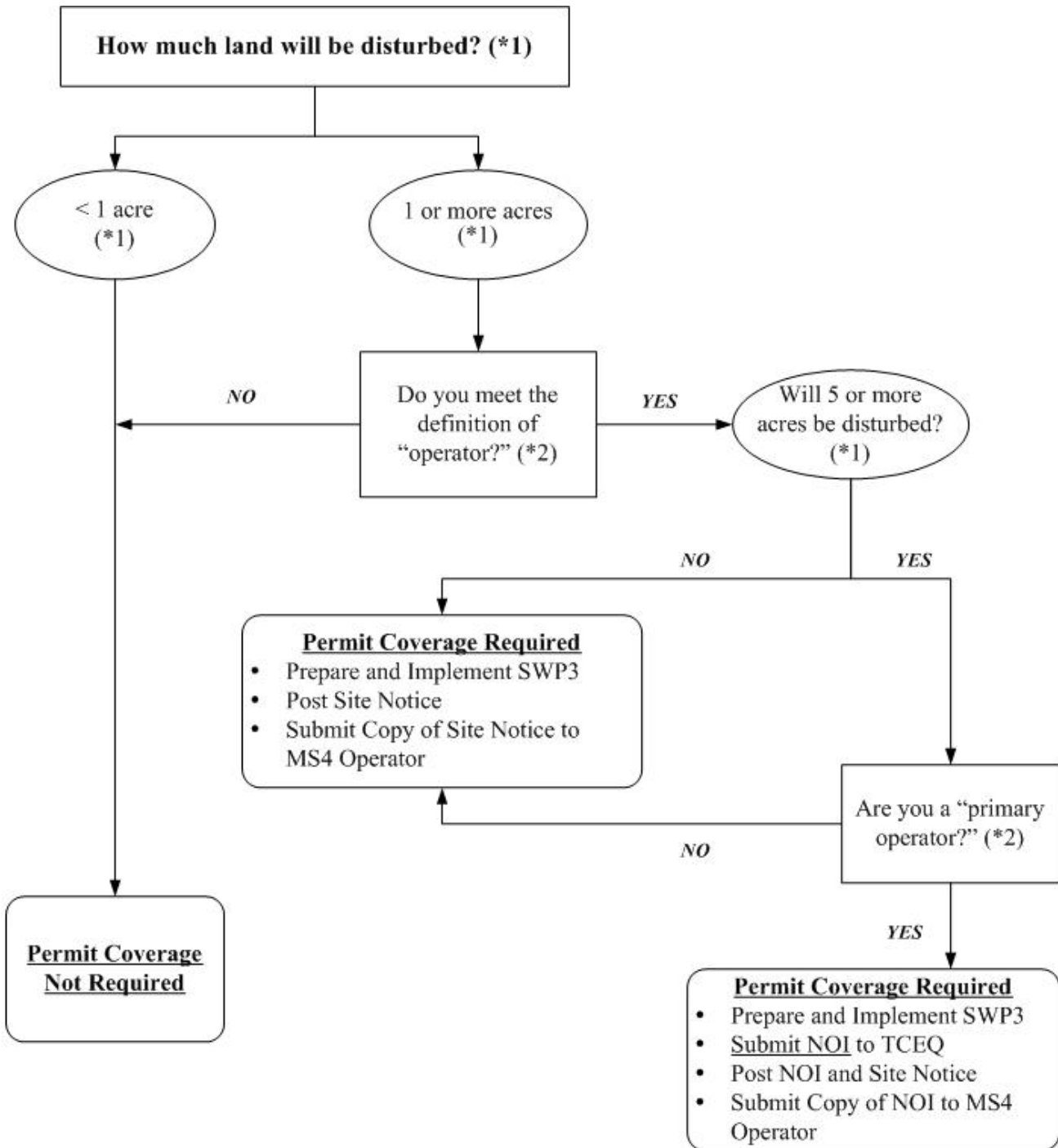
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Part I. Flow Chart and Definitions

Section A. Flow Chart to Determine Whether Coverage is Required



(*1) To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "larger common plan of development or sale").

(*2) Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.

Section B. Definitions

Arid Areas - Areas with an average annual rainfall of 0 to 10 inches.

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 initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., stockpiling of fill material, demolition)

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 (also known as a “common plan of development or sale”) 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. A common plan of development does not necessarily include all construction projects within the jurisdiction of a public entity (e.g., a city or university). Construction of roads or buildings in different parts of the jurisdiction would be considered separate “common plans,” with only the interconnected parts of a project being considered part of a “common plan” (e.g., a building and its associated parking lot and driveways, airport runway and associated taxiways, a building complex, etc.). Where discrete construction projects occur within a larger common plan of development or sale but are located ¼ mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same “common plan” is not included in the area to be disturbed.

Discharge – For the purposes of this permit, the drainage, release, or disposal of pollutants in storm water and certain non-storm water from areas where soil disturbing activities (e.g., clearing, grading, excavation, stockpiling of fill material, and demolition), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), or other industrial storm water directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

Edwards Aquifer - As defined under Texas Administrative Code § 213.3 of this title (relating to the Edwards Aquifer), that portion of an arcuate belt of porous, water-bearing, predominantly carbonate rocks known as the Edwards and Associated Limestones in the Balcones Fault Zone trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak Limestone, McKnight Formation, West Nueces Formation, Devil’s River Limestone, Person Formation, Kainer Formation, Edwards Formation, and Georgetown Formation. The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut Formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

Edwards Aquifer Recharge Zone - Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as that area designated as such on official maps located in the offices of the Texas Commission on Environmental Quality and the

appropriate regional office. The Edwards Aquifer Map Viewer, located at http://www.tceq.state.tx.us/compliance/field_ops/eapp/mapdisclaimer.html, can be used to determine where the recharge zone is located.

Edwards Aquifer Contributing Zone - The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer. The contributing zone is located upstream (upgradient) and generally north and northwest of the recharge zone for the following counties: all areas within Kinney County, except the area within the watershed draining to Segment 2304 of the Rio Grande Basin; all areas within Uvalde, Medina, Bexar, and Comal Counties; all areas within Hays and Travis Counties, except the area within the watersheds draining to the Colorado River above a point 1.3 miles upstream from Tom Miller Dam, Lake Austin at the confluence of Barrow Brook Cove, Segment 1403 of the Colorado River Basin; and all areas within Williamson County, except the area within the watersheds draining to the Lampasas River above the dam at Stillhouse Hollow reservoir, Segment 1216 of the Brazos River Basin. The contributing zone is illustrated on the Edwards Aquifer map viewer at http://www.tceq.state.tx.us/compliance/field_ops/eapp/mapdisclaimer.html.

Facility or Activity – For the purpose of this permit, a construction site or construction support activity that is regulated under this general permit, including all contiguous land and fixtures (e.g., ponds and materials stockpiles), structures, or appurtenances used at a construction site or industrial site described by this general permit.

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

- (a) All soil disturbing activities at the site have been completed and a uniform (i.e., evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 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 geotextiles) 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. If temporary stabilization is not feasible, then the homebuilder may fulfill this requirement by retaining perimeter controls or other best management practices, and informing the homeowner of the need for removal of temporary controls and the establishment 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 surface water and areas that are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

- (d) In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:
- (1) Temporary erosion control measures (e.g., degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and
 - (2) The temporary erosion control measures are selected, designed, and installed to achieve 70 percent vegetative coverage within three years.

Hyperchlorination of Waterlines – Treatment of potable water lines or tanks with chlorine for disinfection purposes, typically following repair or partial replacement of the waterline or tank, and subsequently flushing the contents.

Indian Country Land – (from 40 CFR 122.2) (1) all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (2) all dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Indian Tribe - (from 40 CFR 122.2) any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation.

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, or original purpose of the site (e.g., 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 the United States, 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, that discharges to surface water in the state.

Notice of Change (NOC) – Written notification to the executive director from a discharger authorized under this permit, providing changes to information that was previously provided to the agency in a notice of intent form.

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

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

Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary 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, including the ability to make modifications to those plans and specifications; or
- (b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan (SWP3) 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 SWP3 or comply with other permit conditions).

Secondary Operator – The person whose operational control is limited to the employment of other operators or to the ability to approve or disapprove changes to plans and specifications. A secondary operator is also defined as a primary operator and must comply with the permit requirements for primary operators if there are no other operators at the construction site.

Outfall - For the purpose of this permit, a point source at the point where storm water runoff associated with construction activity discharges to surface water in the state and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other water of the U.S. and are used to convey waters of the U.S.

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 – (from 40 CFR §122.2) 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 - 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. For the purpose of this permit, the term "pollutant" includes sediment.

Pollution - (from Texas Water Code §26.001(14)) 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.

Rainfall Erosivity Factor (R factor) - the total annual erosive potential that is due to climatic effects, and is part of the Revised Universal Soil Loss Equation (RUSLE).

Semiarid Areas - areas with an average annual rainfall of 10 to 20 inches

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, or original purpose of the site (e.g., 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 (or Storm Water Runoff) - Rainfall 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 (MHW) 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 or other structural control to prevent the migration of pollutants. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either permanent stabilization can be achieved or until further construction activities take place.

Waters of the United States - (from 40 CFR, Part 122, Section 2) 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

Examples of construction support activities include, but are not limited to, concrete batch plants, rock crushers, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas. Discharges of storm water runoff from construction support activities may be authorized under this general permit, provided that the following conditions are met:

- (a) the activities are located within one (1)-mile from the boundary of the permitted construction site and directly support the construction activity;
- (b) a 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 construction support activities; and
- (c) the construction support activities either do not operate beyond the completion date of the construction activity or are authorized under separate TPDES authorization. Separate TPDES authorization may include the TPDES Multi Sector General Permit, TXR050000 (related to storm water discharges associated with industrial activity), separate authorization under this general permit if applicable, coverage under an alternative general permit if available, or authorization under an individual water quality permit.

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 (fire fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, and similar activities);
- (b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);
- (c) water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, 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, or dust;
- (d) uncontaminated water used to control dust;

- (e) potable water sources including waterline flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);
 - (f) uncontaminated 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; and
 - (h) lawn watering and similar irrigation drainage.
4. Other Permitted Discharges

Any discharge authorized under a separate NPDES, TPDES, or TCEQ permit may be combined with discharges authorized by this general permit, provided those discharges comply with the associated permit.

Section B. Concrete Truck Wash Out

The washout of concrete trucks associated with off-site production facilities may be conducted at regulated construction sites in accordance with the requirements of Part V of this general permit.

Section C. 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 otherwise provided in Part II.A. of this general permit, only discharges that are composed entirely of storm water associated with construction activity may be authorized under this general permit.

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 Parts II.H.2. and 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.H.2. of this general permit.

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) are not eligible for this permit unless they are consistent with the approved TMDL. 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). **In addition, commencement of construction (i.e., the initial disturbance of soils associated with clearing, grading, or excavating activities, as well as other construction-related activities such as stockpiling of fill material and demolition) at a site regulated under 30 TAC Chapter 213, may not begin until the appropriate Edwards Aquifer Protection Plan has been approved by the TCEQ's Edwards Aquifer Protection Program.**

- (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 located within the Edwards Aquifer Recharge Zone, 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 recharge zone or the Edwards Aquifer contributing zone, applicants must submit a copy of the NOI to the appropriate TCEQ regional office. For discharges from small construction activities located on the Edwards Aquifer recharge zone or the Edwards Aquifer contributing zone, and for discharges from large construction activities by operators not required to submit an NOI under this general permit, applicants must submit a copy of the construction site notice to the appropriate TCEQ regional office where required by the Edwards Aquifer Rules at 30 TAC Chapter 213:

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
2800 South IH 35, Suite 100
Austin, Texas 78704-5712
(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 Texas Local Government Code §401.002.

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. Discharges of storm water runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of confined animal feeding operations, would be point sources regulated under this general permit.

11. Other

Nothing in Part II of the general permit is intended to negate any person's ability to assert the force majeure (act of God, war, strike, riot, or other catastrophe) defenses found in 30 TAC § 70.7.

Section D. 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 effective 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 effective date of this permit, and authorized under TPDES general permit TXR150000 (issued March 5, 2003), must submit an NOI to renew authorization under this general permit within 90 days of the effective 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 previous TPDES permit.

2. Small Construction Activities

- (a) New Construction - Discharges from sites where the commencement of construction occurs on or after the effective 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 the effective date of this general permit, 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 meet the requirements to be authorized, either under this general permit or a separate TPDES permit, within 90 days of the effective 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 previous TPDES permit.

Section E. Obtaining Authorization to Discharge

1. Automatic Authorization for Small Construction Activities With Low Potential for Erosion:

If all of the following conditions are met, then a small construction activity is determined to occur during periods of low potential for erosion, and a site operator may be automatically authorized under this general permit without being required to develop a storm water pollution prevention plan or submit a notice of intent (NOI):

- (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, permanent 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 (MS4) receiving the discharge at least two days prior to commencement of construction activities;
- (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); and
- (h) any non-storm water discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

Part II.G. of this general permit describes how an operator may apply for and obtain a waiver from permitting, for certain small construction activities that occur during a period with a low potential for erosion, where automatic authorization under this section is not available.

2. Automatic Authorization For All Other Small Construction Activities:

Operators of small construction activities not described in Part II.E.1. above may be automatically authorized under this general permit, and operators of these sites shall not be required to submit an NOI, provided that they meet all of the following conditions:

- (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 and certify a completed construction site notice (Attachment 2 of this general permit), post the notice at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities, prior to commencing construction, and maintain the notice in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site 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, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities); and
- (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 days prior to commencement of construction activities.

Operators of small construction activities as defined in Part I of this general permit shall not submit an NOI for coverage unless otherwise required by the executive director.

As described in Part I (Definitions) of this general permit, large construction activities include those that will disturb less than five (5) acres of land, but that are part of a larger common plan of development or sale that will ultimately disturb five (5) or more acres of land, and must meet the requirements of Part II.E.3. below.

3. Authorization for Large Construction Activities:

Operators of large construction activities that qualify for coverage under this general permit must meet all of the following conditions:

- (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) primary operators must submit a Notice of Intent (NOI), using a form provided by the executive director, at least seven (7) days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction activities. If an additional primary operator is added after the initial NOI is submitted, the new primary operator must submit an NOI at least seven (7) days before assuming operational control, or if utilizing electronic NOI submittal, prior to assuming operational control. If the primary operator changes after the initial NOI is submitted, the new primary operator must submit a paper NOI or an electronic NOI at least ten (10) days before assuming operational control;
- (c) all primary operators must also post a copy of the signed NOI 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 must maintain the NOI in that location until completion of the construction activity;

- (d) all operators of large construction activities must post a site notice in accordance with Part III.D.2. of this permit. The site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction, and must be maintained in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site 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, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities); and
 - (e) all primary operators must provide a copy of the signed NOI to the operator of any municipal separate storm sewer system (MS4) receiving the discharge and to any secondary operator, at least seven (7) days prior to commencing construction activities, and must list in the SWP3 the names and addresses of all MS4 operators receiving a copy.
 - (f) All persons meeting the definition of “secondary operator” in Part I of this permit are hereby notified that they are regulated under this general permit, but are not required to submit an NOI, provided that another operator(s) at the site has submitted an NOI, or is required to submit an NOI and the secondary operator has provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may alternatively submit an NOI under this general permit, may seek coverage under an alternative TPDES individual permit, or may seek coverage under an alternative TPDES general permit if available.
4. Waivers for Small Construction Activities:

Part II.G. describes how operators of certain small construction activities may obtain a waiver from coverage.

5. Effective Date of Coverage

- (a) Operators of small construction activities as described in either Part II.E.1. or II.E.2. above are authorized immediately following compliance with the applicable conditions of Part II.E.1. or II.E.2. Secondary operators of large construction activities as described in Part II.E.3. above are authorized immediately following compliance with the applicable conditions in Part II.E.3. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator’s responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.
- (b) Primary operators of large construction activities as described in Part II.E.3. above are provisionally authorized seven (7) days from the date that a completed NOI is

postmarked for delivery to the TCEQ, unless otherwise notified by the executive director. If electronic submission of the NOI is provided, and unless otherwise notified by the executive director, primary operators are authorized immediately 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. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

- (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 was obtained.

6. Notice of Change (NOC)

If relevant information provided in the NOI changes, an NOC must be submitted at least 14 days before the change occurs, if possible. Where 14-day advance notice is not possible, the operator must submit an NOC within 14 days of discovery of the change. 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 an NOC within 14 days after discovery. The NOC shall be submitted on a form provided by the executive director, or by letter if an NOC form is not available. A copy of the NOC must also be provided to the operator of any MS4 receiving the discharge, and a list must be included in the SWP3 that includes the names and addresses of all MS4 operators receiving a copy.

Information that may be included on an NOC includes, but is not limited to, the following: the description of the construction project, an increase in the number of acres disturbed (for increases of one or more acres), or the operator name. A transfer of operational control from one operator to another, including a transfer of the ownership of a company, may not be included in an NOC. A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing number (or charter number) that is on record with the Texas Secretary of State must be changed.

An NOC is not required for notifying TCEQ of a decrease in the number of acres disturbed. This information must be included in the storm water pollution prevention plan (SWP3) and retained on site.

7. 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 that require a signature must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

8. Contents of the NOI

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

- (a) the TPDES CGP authorization number for existing authorizations under this general permit, where the operator submits an NOI to renew coverage within 90 days of the effective date of this general permit;
- (b) the name, address, and telephone number of the operator filing the NOI for permit coverage;
- (c) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;
- (d) the number of acres that will be disturbed by the applicant;
- (e) confirmation that the project or site will not be located on Indian Country lands;
- (f) confirmation that a SWP3 has been developed, that it will be implemented prior to construction, and that it is compliant with any applicable local sediment and erosion control plans;
- (g) name of the receiving water(s);
- (h) the classified segment number for each classified segment that receives discharges from the regulated construction activity (if the discharge is not directly to a classified segment, then the classified segment number of the first classified segment that those discharges reach); and
- (i) the name of all surface waters receiving discharges from the regulated construction activity that are on the latest EPA-approved CWA § 303(d) list of impaired waters.

Section F. Terminating Coverage

1. Notice of Termination (NOT) Required

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 general 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.

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge (with a list in the SWP3 of the names and addresses of all MS4 operators receiving a copy), within 30 days after any of the following conditions are met:

- (a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;
- (b) a transfer of operational control has occurred (See Section II.F.4. below); or
- (c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

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 an NOI, the permittee's site-specific TPDES authorization 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 have been 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.

3. Termination of Coverage for Small Construction Sites and for Secondary Operators at Large Construction Sites

Each operator that has obtained automatic authorization and has not been required to submit an NOI must remove the site notice upon meeting any of the conditions listed below, complete the applicable portion of the site notice related to removal of the site notice, and submit a copy of the completed site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator, with documentation of such notification included in the SWP3), within 30 days of meeting any of the following conditions:

- (a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;
- (b) a transfer of operational control has occurred (See Section II.F.4. below); or

- (c) the operator has obtained alternative authorization under an individual or general TPDES permit.

Authorization to discharge under this general permit terminates immediately upon removal of the applicable site notice. Compliance with the conditions and requirements of this permit is required until the site notice is removed.

4. Transfer of Operational Control

Coverage under this general permit is not transferable. A transfer of operational control includes changes to the structure of a company, such as changing from a partnership to a corporation, or changing to a different corporation type such that a different filing (or charter) number is established with the Texas Secretary of State.

When the primary operator of a large construction activity changes or operational control is transferred, the original operator must submit a Notice of Termination (NOT) within ten (10) days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least ten (10) days prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the NOT must be provided to the operator of any MS4 receiving the discharge in accordance with Section II.F.1. above.

Operators of regulated construction activities who are not required to submit an NOI must remove the original site notice, and the new operator must post the required site notice prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the completed site notice must be provided to the operator of any MS4 receiving the discharge, in accordance with Section II.F.3. above.

A transfer of operational control occurs when either of the following criteria is met:

- (a) Another operator has assumed control over all areas of the site that have not been finally stabilized; and 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, provided that the permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Record of this notification (or attempt at notification) shall be retained by the operator in accordance with Part VI of this permit. 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.
- (b) A homebuilder has purchased one or more lots from an operator who obtained coverage under this general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the requirements listed above, including the development of a SWP3 if necessary. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to lot(s) it has operational control over, and the original operator remains responsible for common controls or discharges, and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

Section G. 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 all of the following conditions are met. This waiver from coverage does not apply to non-storm water discharges. The operator must insure that any non-storm water discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

- (a) the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5);
- (b) the operator submits to the TCEQ 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 postmarked for delivery to the TCEQ at least two (2) days before construction activity begins.

2. Steps to Obtaining a Waiver

The construction site operator may calculate the R factor to request a waiver using the following steps:

- (a) Estimate the construction start date and the construction end date. The construction end date is the date that final stabilization will be achieved.
- (b) Find the appropriate Erosivity Index (EI) zone in Appendix B of this permit.
- (c) Find the EI percentage for the project period by adding the results for each period of the project using the table provided in Appendix D of this permit, in EPA Fact Sheet 2.1, or in USDA Handbook 703, by subtracting the start value from the end value to find the percent EI for the site.
- (d) Refer to the Isoerodent Map (Appendix C of this permit) and interpolate the annual isoerodent value for the proposed construction location.
- (e) Multiply the percent value obtained in Step (c) above by the annual isoerodent value obtained in Step (d). This is the R factor for the proposed project. If the value is less than 5, then a waiver may be obtained. If the value is five (5) or more, then a waiver may not be obtained, and the operator must obtain coverage under Part II.E.2. of this permit.

Alternatively, the operator may calculate a site-specific R factor utilizing the following online calculator: <http://ei.tamu.edu/index.html>, or using another available resource.

The waiver certification form is not required to be posted at the small construction site.

3. 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.

4. 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 (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.E.2. or Part II.E.3. at least two (2) days before the end of the approved waiver period.

Section H. 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 deny an NOI in accordance with the procedures set forth in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges), 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 in the following circumstances:

- (a) the conditions of an approved total maximum daily load (TMDL) limitation or TMDL implementation plan on the receiving stream;

- (b) the activity being determined to cause a violation of water quality standards or being found to cause, or contribute to, the loss of a designated use of surface water in the state: and
- (c) any other consideration defined in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) including 30 TAC §205.4(c)(3)(D), which allows the commission 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.”

Additionally, the executive director may cancel, revoke, or suspend authorization to discharge under this general permit based on a finding of historical and significant noncompliance with the provisions of this general permit, relating to 30 TAC §60.3 (Use of Compliance History). Denial of authorization to discharge under this general permit or suspension of a permittee’s authorization under this general permit shall be done according to commission rules in 30 TAC, Chapter 205 (relating to General Permits for Waste Discharges).

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

Section I. Permit Expiration

- 1. This general permit is issued for a term not to exceed five (5) years. All active discharge authorizations expire on the date provided on page one (1) of this permit. 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.
- 2. If the executive director publishes a notice of the 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.
- 3. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit. If the application for an individual permit is submitted before the expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual permit. No new NOIs will be accepted nor new authorizations honored under the general permit after the expiration date.

Part III. Storm Water Pollution Prevention Plans (SWP3)

Storm water pollution prevention plans must be prepared to address discharges authorized under Parts II.E.2. and II.E.3. that will reach Waters of the United States, including discharges to MS4s 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 the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in storm water associated with construction activity and non-storm water discharges described in Part II.A.3., in 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 compliance with the terms and conditions of this general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

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 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 operator participating 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. Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

All secondary operators and primary operators with control over construction plans and specifications must:

- (a) ensure the project specifications allow or provide that adequate BMPs are 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 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 so that those operators may modify their best management practices as 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 site-specific TPDES authorization numbers for permittees with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If the party with day-to-day operational control has not been authorized or has abandoned the site, the person with control over project specifications is considered to be the responsible party until the authority is transferred to another party and the SWP3 is updated.
2. Primary Operators with Day-to-Day Operational Control

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

- (a) meets the requirements of this general permit for those portions of the project where they are operators;
- (b) identifies the parties responsible for implementation of best management practices (BMPs) described in the SWP3;
- (c) indicates areas of the project where they have operational control over day-to-day activities; and
- (d) includes, for areas where they have operational control over day-to-day activities, the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications.

Section C. Deadlines for SWP3 Preparation, Implementation, and Compliance

The SWP3 must be prepared prior to obtaining authorization under this general permit, and implemented prior to commencing construction activities that result in soil disturbance. The SWP3 must be 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. In addition to the requirement to post the NOI, a primary operator of a large construction activity must post the site notice provided in Attachment 4 of this permit near the main entrance of the construction site. An operator of a small construction activity seeking authorization under this general permit and a secondary operator of a large construction activity must post the site notice required in Part II.E.1., 2., or 3. of this permit in order to obtain authorization (see Attachments 1, 2, and 3). If the construction project is a linear construction project (e.g. pipeline or highway), the notices must be placed in a publicly accessible location near where construction is actively underway. Notices for these linear sites may be relocated, as necessary, along the length of the project. The notices must be readily available for viewing by the general public; local, state, and federal authorities; and contain the following information:
 - (a) the site-specific TPDES authorization number for the project if assigned;
 - (b) the operator name, contact name, and contact phone number;
 - (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. Revisions and Updates to SWP3s

The permittee must revise or update the SWP3 whenever the following occurs:

1. 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;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. 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 or project description, which includes the following information:
 - (a) a description of the nature of the construction activity;
 - (b) a list of potential pollutants and their sources;

- (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site;
- (d) 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 that are authorized under the permittee's NOI;
- (e) data describing the soil or the quality of any discharge from the site;
- (f) a map showing the general location of the site (e.g. a portion of a city or county map);
- (g) 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 temporary or permanent stabilization practices are expected to be used;
 - (v) locations of construction support activities, including off-site activities, that are authorized under the permittee's NOI, including material, waste, borrow, fill, or equipment storage areas;
 - (vi) surface waters (including wetlands) either at, adjacent, or in close proximity to the site;
 - (vii) locations where storm water discharges from the site directly to a surface water body or a municipal separate storm sewer system; and
 - (viii) vehicle wash areas.

Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.

- (h) the location and description of support activities authorized under the permittee's NOI, including asphalt plants, concrete plants, and other activities providing support to the construction site that is authorized under this general permit;
- (i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;

- (j) a copy of this TPDES general permit, and
 - (k) the notice of intent (NOI) and acknowledgement certificate for primary operators of large construction sites, and the site notice for small construction sites and for secondary operators of large construction sites.
2. A description of the best management practices (BMPs) 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) General Requirements

- (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.
- (ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.
- (iii) Controls must be developed to minimize the offsite transport of litter, construction debris, and construction materials.

(b) Erosion Control and Stabilization Practices

The SWP3 must include a description of temporary and permanent erosion control and 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) Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, 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 listed 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) Erosion control and stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily ceased. Stabilization measures that provide a protective cover must be initiated as soon as practicable in portions of the site where construction activities have permanently ceased. Except as provided in (A) through (D) below, these measures must be initiated no more than 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 has temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary erosion control and stabilization measures are not required on that portion of site.
 - (C) In arid areas, semiarid areas, and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased or is precluded by arid conditions, erosion control and stabilization measures must be initiated as soon as practicable. Where vegetative controls are not feasible due to arid conditions, the operator shall install non-vegetative erosion controls. If non-vegetative controls are not feasible, the operator shall install temporary sediment controls as required in Paragraph (D) below.
 - (D) In areas where temporary stabilization measures are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible, and must demonstrate that the perimeter controls will retain sediment on site to the extent practicable. The operator must continue to inspect the BMPs at the frequency established in Section III.F.7.(a) for unstabilized sites.
 - (iv) Final stabilization must be achieved prior to termination of permit coverage.
- (c) Sediment Control Practices

The SWP3 must include a description of any sediment control practices used to remove eroded soils from storm water runoff, including the general timing or sequence for implementation of controls.

- (i) Sites With Drainage Areas of Ten or More Acres
 - (A) Sedimentation Basin(s)

- (1) A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. A sedimentation basin may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. 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 permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin. Capacity calculations shall be included in the SWP3.
 - (2) Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.
 - (3) If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.
- (B) Perimeter Controls: At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.
- (ii) Controls for Sites With Drainage Areas Less than Ten Acres:
- (A) Sediment traps and sediment basins may 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 of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.
 - (B) 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 may be utilized. 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. If a calculation is performed, then the calculation shall be included in the SWP3.

3. A Description of 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 may 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.

4. Other Required Controls and BMPs

- (a) Permittees shall minimize, to the extent practicable, the off-site vehicle tracking of sediments and the generation of dust. The SWP3 shall include a description of controls utilized to accomplish this requirement.
- (b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials.
- (c) The SWP3 must include a description of potential pollutant sources from areas other than construction (such as storm water discharges from dedicated asphalt plants and dedicated concrete batch plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.
- (d) Permittees shall place velocity dissipation devices at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) 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.
- (e) Permittees shall design and utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

5. Documentation of Compliance with Approved State and Local Plans

- (a) Permittees must ensure that 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.

- (c) If the permittee is required to prepare a separate management plan, including but not limited to a Water Pollution Abatement Plan or Contributing Zone Plan in accordance with 30 TAC Chapter 213 (related to the Edwards Aquifer), then a copy of that plan must be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee shall maintain a copy of the approval letter for the plan in its SWP3.

6. Maintenance Requirements

- (a) All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of storm water controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and 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.
- (b) If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator must replace or modify the control as soon as practicable after making the discovery.
- (c) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
- (d) If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must work with the owner or operator of the property to remove the sediment.

7. Inspections of Controls

- (a) Personnel provided by the permittee 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, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site. 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 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid or semi-arid areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 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, then 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 inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).

- (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 14 calendar days and within 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 portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile portion to either the end of the next 0.25 mile inspected portion, or to the end of the project, whichever occurs first.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 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. The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).

- (c) 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.
- (d) 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.
- (e) A report summarizing the scope of the inspection, the date(s) 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).

The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

- 8. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-storm water components of the discharge, as listed in Part II.A.3. of this permit.
- 9. The SWP3 must include the information required in Part III.B. of this general permit.

Part IV. Storm Water Runoff from Concrete Batch Plants

Discharges of storm water runoff from concrete batch plants at regulated construction sites may be authorized under the provisions of this general permit provided that the following requirements are met for concrete batch plant(s) authorized under this permit. If discharges of storm water runoff from concrete batch plants are not covered under this general permit, then discharges must be authorized under an alternative general permit or individual permit. This permit does not authorize the discharge or land disposal of any wastewater from concrete batch plants at regulated construction sites. Authorization for these wastes must be obtained under an individual permit or an alternative general permit.

Section A. Benchmark Sampling Requirements

- 1. Operators of concrete batch plants authorized under this general permit must sample the storm water runoff from the concrete batch plants according to the requirements of this

section of this general permit, and must conduct evaluations on the effectiveness of the SWP3 based on the following benchmark monitoring values:

| Benchmark Parameter | Benchmark Value | Sampling Frequency | Sample Type |
|----------------------------|-----------------------------|---------------------------|--------------------|
| Oil and Grease | 15 mg/L | 1/quarter (*1)(*2) | Grab (*3) |
| Total Suspended Solids | 100 mg/L | 1/quarter (*1)(*2) | Grab (*3) |
| pH | 6.0 - 9.0 Standard Units | 1/quarter (*1)(*2) | Grab (*3) |
| Total Iron | 1.3 mg/L | 1/quarter(*1)(*2) | Grab (*3) |

(*1) When discharge occurs. Sampling is required within the first 30 minutes of discharge. If it is not practicable to take the sample, or to complete the sampling, within the first 30 minutes, sampling must be completed within the first hour of discharge. If sampling is not completed within the first 30 minutes of discharge, the reason must be documented and attached to all required reports and records of the sampling activity.

(*2) Sampling must be conducted at least once during each of the following periods. The first sample must be collected during the first full quarter that a storm water discharge occurs from a concrete batch plant authorized under this general permit.

- January through March
- April through June
- July through September
- October through December

For projects lasting less than one full quarter, a minimum of one sample shall be collected, provided that a storm water discharge occurred at least once following submission of the NOI or following the date that automatic authorization was obtained under Section II.E.2., and prior to terminating coverage.

(*3) A grab sample shall be collected from the storm water discharge resulting from a storm event that is at least 0.1 inches of measured precipitation that occurs at least 72 hours from the previously measurable storm event. The sample shall be collected downstream of the concrete batch plant, and where the discharge exits any BMPs utilized to handle the runoff from the batch plant, prior to commingling with any other water authorized under this general permit.

2. The permittee must compare the results of sample analyses to the benchmark values above, and must include this comparison in the overall assessment of the SWP3’s effectiveness. Analytical results that exceed a benchmark value are not a violation of this permit, as these values are not numeric effluent limitations. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. The operator must investigate the cause for each exceedance and must document the results of this investigation in the SWP3 by the end of the quarter following the sampling event.

The operator's investigation must identify the following:

- (a) any additional potential sources of pollution, such as spills that might have occurred,
- (b) necessary revisions to good housekeeping measures that are part of the SWP3,
- (c) additional BMPs, including a schedule to install or implement the BMPs, and
- (d) other parts of the SWP3 that may require revisions in order to meet the goal of the benchmark values.

Background concentrations of specific pollutants may also be considered during the investigation. If the operator is able to relate the cause of the exceedance to background concentrations, then subsequent exceedances of benchmark values for that pollutant may be resolved by referencing earlier findings in the SWP3. Background concentrations may be identified by laboratory analyses of samples of storm water runoff to the permitted facility, by laboratory analyses of samples of storm water run-off from adjacent non-industrial areas, or by identifying the pollutant is a naturally occurring material in soils at the site.

Section B. Best Management Practices (BMPs) and SWP3 Requirements

Minimum Storm Water Pollution Prevention Plan (SWP3) Requirements – The following are required in addition to other SWP3 requirements listed in this general permit (including, but not limited to Part III.F.7. of this permit):

1. Description of Potential Pollutant Sources - The SWP3 must provide a description of potential sources (activities and materials) that may reasonably be expected to affect the quality of storm water discharges associated with concrete batch plants authorized under this permit. The SWP3 must describe practices that that will be used to reduce the pollutants in these discharges to assure compliance with this general permit, including the protection of water quality, and must ensure the implementation of these practices.

The following must be developed, at a minimum, in support of developing this description:

- (a) Drainage – The site map must include the following information:
 - (1) the location of all outfalls for storm water discharges associated with concrete batch plants that are authorized under this permit;
 - (2) a depiction of the drainage area and the direction of flow to the outfall(s);
 - (3) structural controls used within the drainage area(s);
 - (4) the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activities (including fueling, repair, and storage areas for vehicles and equipment scheduled for maintenance); areas used for the treatment, storage, or disposal

of wastes; liquid storage tanks; material processing and storage areas; and loading and unloading areas; and

- (5) the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater (including the areas that drain to the treatment device); areas with significant materials; and areas where major spills or leaks have occurred.
 - (b) Inventory of Exposed Materials – A list of materials handled at the concrete batch plant that may be exposed to storm water and that have a potential to affect the quality of storm water discharges associated with concrete batch plants that are authorized under this general permit.
 - (c) Spills and Leaks - A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to storm water and that drain to storm water outfalls associated with concrete batch plants authorized under this general permit must be developed, maintained, and updated.
 - (d) Sampling Data - A summary of existing storm water discharge sampling data must be maintained, if available.
2. Measures and Controls - The SWP3 must include a description of management controls to regulate pollutants identified in the SWP3's "Description of Potential Pollutant Sources" from Part IV.B.1.(a) of this permit, and a schedule for implementation of the measures and controls. This must include, at a minimum:
- (a) Good Housekeeping - Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.
 - (1) Operators must prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), settled dust, or other significant materials from paved portions of the site that are exposed to storm water. Measures used to minimize the presence of these materials may include regular sweeping or other equivalent practices. These practices must be conducted at a frequency that is determined based on consideration of the amount of industrial activity occurring in the area and frequency of precipitation, and shall occur at least once per week when cement or aggregate is being handled or otherwise processed in the area.
 - (2) Operators must prevent the exposure of fine granular solids, such as cement, to storm water. Where practicable, these materials must be stored in enclosed silos, hoppers or buildings, in covered areas, or under covering.
 - (b) Spill Prevention and Response Procedures - Areas where potential spills that can contribute pollutants to storm water runoff, and the drainage areas from these locations, must be identified in the SWP3. Where appropriate, the SWP3 must specify material handling procedures, storage requirements, and use of equipment.

Procedures for cleaning up spills must be identified in the SWP3 and made available to the appropriate personnel.

- (c) Inspections - Qualified facility personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) must be identified to inspect designated equipment and areas of the facility specified in the SWP3. The inspection frequency must be specified in the SWP3 based upon a consideration of the level of concrete production at the facility, but must be a minimum of once per month while the facility is in operation. The inspection must take place while the facility is in operation and must, at a minimum, include all areas that are exposed to storm water at the site, including material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, truck wash down and equipment cleaning areas. Follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections must be maintained and be made readily available for inspection upon request.
 - (d) Employee Training - An employee training program must be developed to educate personnel responsible for implementing any component of the SWP3, or personnel otherwise responsible for storm water pollution prevention, with the provisions of the SWP3. The frequency of training must be documented in the SWP3, and at a minimum, must consist of one training prior to the initiation of operation of the concrete batch plant.
 - (e) Record Keeping and Internal Reporting Procedures - A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of storm water discharges, must be included in the SWP3. Inspection and maintenance activities must be documented and records of those inspection and maintenance activities must be incorporated in the SWP3.
 - (f) Management of Runoff - The SWP3 shall contain a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.
3. Comprehensive Compliance Evaluation – At least once per year, one or more qualified personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) shall conduct a compliance evaluation of the plant. The evaluation must include the following.
- (a) Visual examination of all areas draining storm water associated with regulated concrete batch plants for evidence of, or the potential for, pollutants entering the drainage system. These include but are not limited to: cleaning areas, material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down and equipment cleaning areas. Measures implemented to reduce pollutants in runoff (including structural controls and implementation of management practices) must be evaluated to determine if they are effective and if they are implemented in accordance with the terms of this permit

and with the permittee's SWP3. The operator shall conduct a visual inspection of equipment needed to implement the SWP3, such as spill response equipment.

- (b) Based on the results of the evaluation, the following must be revised as appropriate within two weeks of the evaluation: the description of potential pollutant sources identified in the SWP3 (as required in Part IV.B.1., "Description of Potential Pollutant Sources"); and pollution prevention measures and controls identified in the SWP3 (as required in Part IV.B.2., "Measures and Controls"). The revisions may include a schedule for implementing the necessary changes.
- (c) The permittee shall prepare and include in the SWP3 a report summarizing the scope of the evaluation, the personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the SWP3, and actions taken in response to the findings of the evaluation. The report must identify any incidents of noncompliance. Where the report does not identify incidences of noncompliance, the report must contain a statement that the evaluation did not identify any incidence(s), and the report must be signed according to 30 TAC Section 305.128, relating to Signatories to Reports.
- (d) The Comprehensive Compliance Evaluation may substitute for one of the required inspections delineated in Part IV.B.2.(c) of this general permit.

Section C. Prohibition of Wastewater Discharges

Wastewater discharges associated with concrete production including wastewater disposal by land application are not authorized under this general permit. These wastewater discharges must be authorized under an alternative TCEQ water quality permit or otherwise disposed of in an authorized manner. Discharges of concrete truck washout at construction sites may be authorized if conducted in accordance with the requirements of Part V of this general permit.

Part V. Concrete Truck Wash Out Requirements

This general permit authorizes the wash out of concrete trucks at construction sites regulated under Sections II.E.1., 2., and 3. of this general permit, provided the following requirements are met. Authorization is limited to the land disposal of wash out water from concrete trucks that are associated with off-site production facilities. Wash out water associated with on-site concrete production facilities must be authorized under a separate TCEQ general permit or individual permit.

1. Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit.
2. Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site.
3. Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge

- of concrete truck wash out water is prohibited at all times, and the operator shall insure that its BMPs are sufficient to prevent the discharge of concrete truck washout as the result of rain.
4. The discharge of wash out water shall not cause or contribute to groundwater contamination.
 5. If a SWP3 is required to be implemented, the SWP3 shall include concrete wash out areas on the associated map.

Part VI. 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.E.3. For activities in which an NOT is not required, records shall be retained for a minimum period of three (3) years from the date that the operator terminates coverage under Section II.F.3. of this permit. Records include:

1. A copy of the SWP3;
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; and
4. All records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

Part VII. 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, Texas 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 the federal Clean Water Act (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.

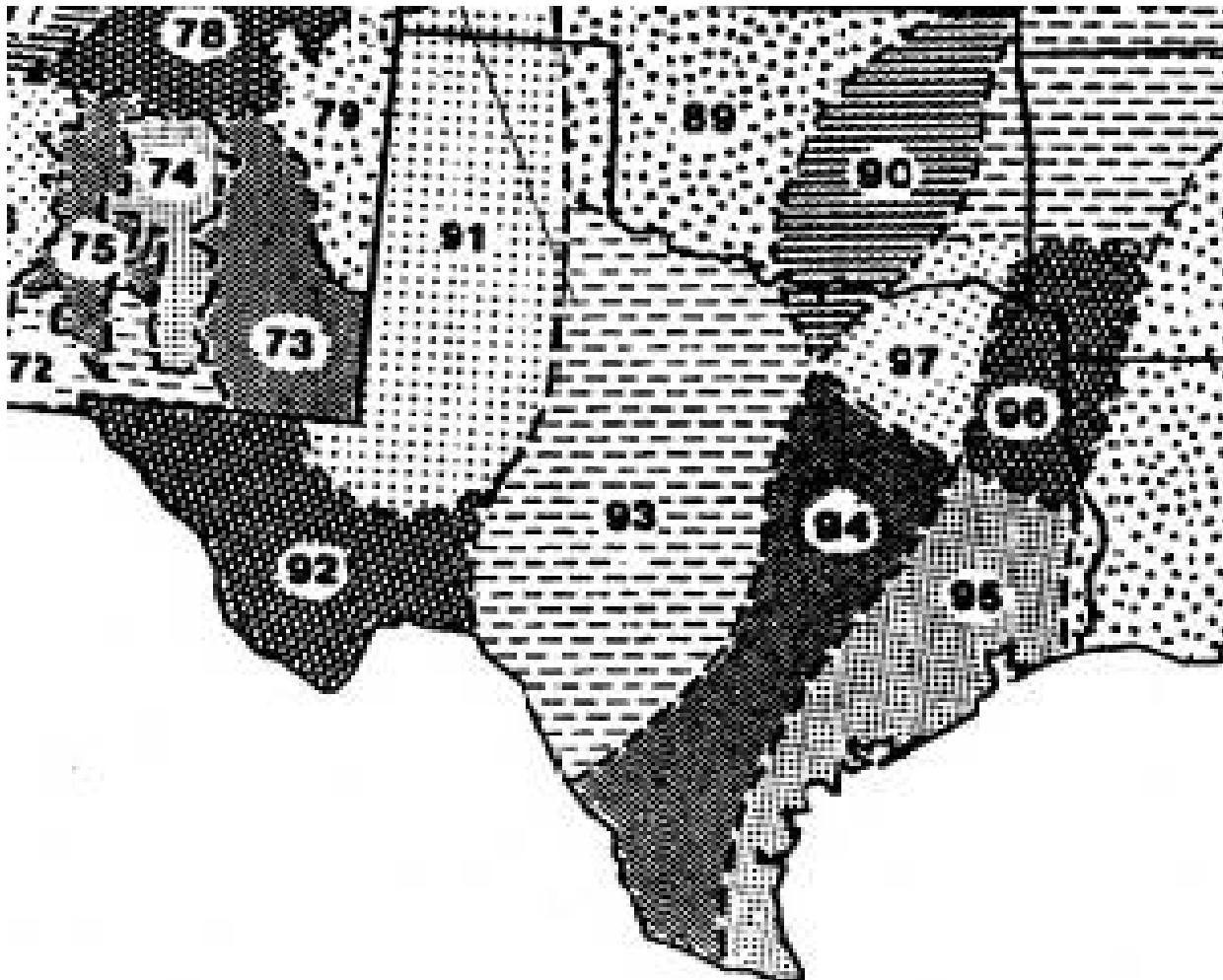
Part VIII. Fees

1. A fee of must be submitted along with the NOI:
 - a. \$325 if submitting a paper NOI, or
 - b. \$225 if submitting a NOI electronically.
2. Fees are due upon submission of the NOI. An NOI will not be declared administratively complete unless the associated fee has been paid in full.
3. No separate annual fees will be assessed. The Water Quality Annual fee has been incorporated into the NOI fees as described above.

Appendix A: Automatic Authorization
Periods of Low Erosion Potential by County – Eligible Date Ranges

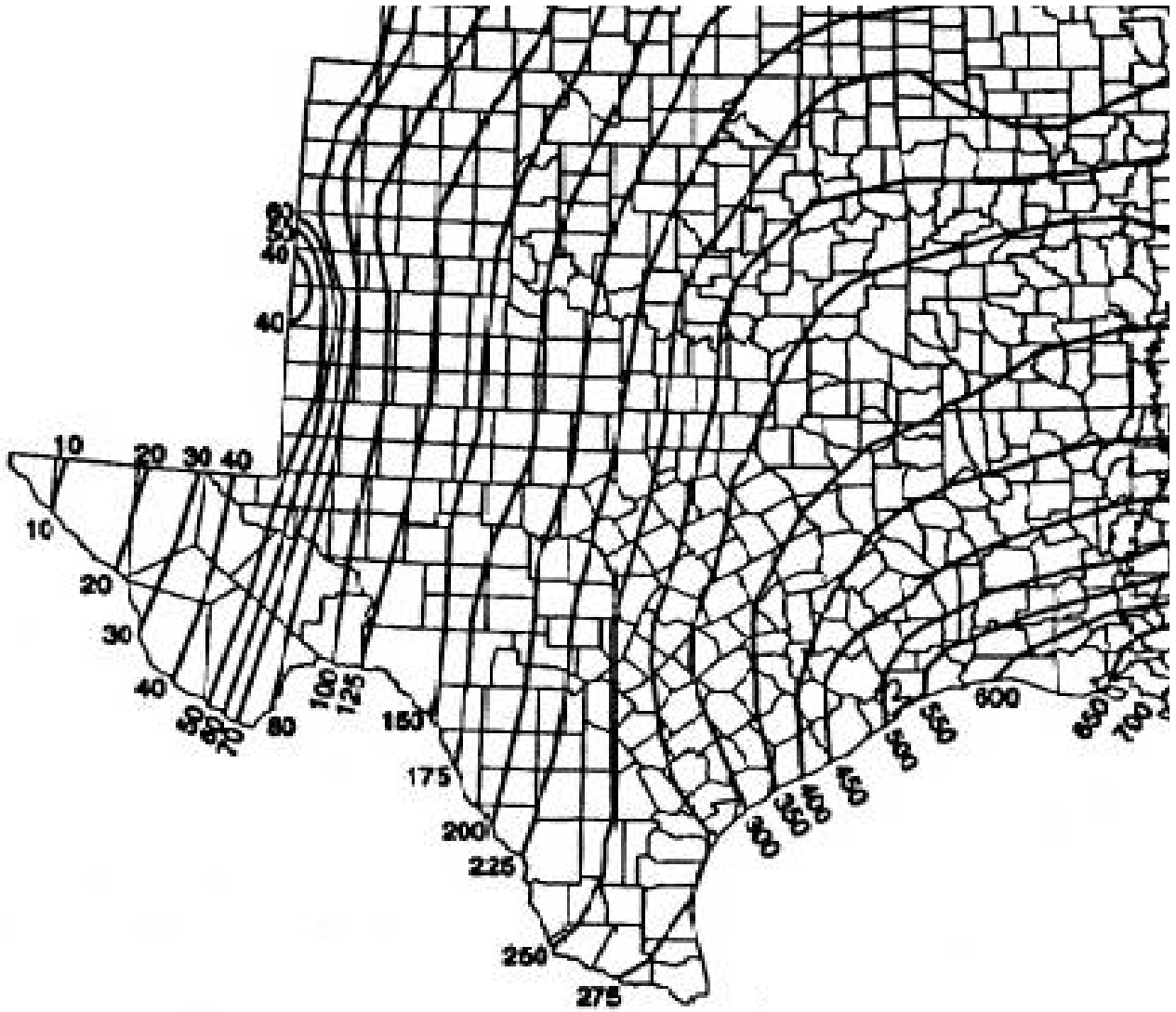
| | |
|---|---|
| Andrews: Nov. 15 - Apr. 30 | Kerr: Dec. 15 - Feb. 14 |
| Archer: Dec. 15 - Feb. 14 | Kimble: Dec. 15 - Feb. 14 |
| Armstrong: Nov. 15 - Apr. 30 | King: Dec. 15 - Feb. 14 |
| Bailey: Nov. 1 - Apr. 30, or Nov. 15 - May 14 | Kinney: Dec. 15 - Feb. 14 |
| Baylor: Dec. 15 - Feb. 14 | Knox: Dec. 15 - Feb. 14 |
| Borden: Nov. 15 - Apr. 30 | Lamb: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30 |
| Brewster: Nov. 15 - Apr. 30 | Loving: Nov. 1 - Apr. 30, or Nov. 15 - May 14 |
| Briscoe: Nov. 15 - Apr. 30 | Lubbock: Nov. 15 - Apr. 30 |
| Brown: Dec. 15 - Feb. 14 | Lynn: Nov. 15 - Apr. 30 |
| Callahan: Dec. 15 - Feb. 14 | Martin: Nov. 15 - Apr. 30 |
| Carson: Nov. 15 - Apr. 30 | Mason: Dec. 15 - Feb. 14 |
| Castro: Nov. 15 - Apr. 30 | Maverick: Dec. 15 - Feb. 14 |
| Childress: Dec. 15 - Feb. 14 | McCulloch: Dec. 15 - Feb. 14 |
| Cochran: Nov. 1 - Apr. 30, or Nov. 15 - May 14 | Menard: Dec. 15 - Feb. 14 |
| Coke: Dec. 15 - Feb. 14 | Midland: Nov. 15 - Apr. 30 |
| Coleman: Dec. 15 - Feb. 14 | Mitchell: Nov. 15 - Apr. 30 |
| Collingsworth: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28 | Moore: Nov. 15 - Apr. 30 |
| Concho: Dec. 15 - Feb. 14 | Motley: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30 |
| Cottle: Dec. 15 - Feb. 14 | Nolan: Dec. 15 - Feb. 14 |
| Crane: Nov. 15 - Apr. 30 | Oldham: Nov. 15 - Apr. 30 |
| Crockett: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30 | Parmer: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30 |
| Crosby: Nov. 15 - Apr. 30 | Pecos: Nov. 15 - Apr. 30 |
| Culberson: Nov. 1 - May 14 | Potter: Nov. 15 - Apr. 30 |
| Dallam: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30 | Presidio: Nov. 1 - Apr. 30, or Nov. 15 - May 14 |
| Dawson: Nov. 15 - Apr. 30 | Randall: Nov. 15 - Apr. 30 |
| Deaf Smith: Nov. 15 - Apr. 30 | Reagan: Nov. 15 - Apr. 30 |
| Dickens: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30 | Real: Dec. 15 - Feb. 14 |
| Dimmit: Dec. 15 - Feb. 14 | Reeves: Nov. 1 - Apr. 30, or Nov. 15 - May 14 |
| Donley: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28 | Runnels: Dec. 15 - Feb. 14 |
| Eastland: Dec. 15 - Feb. 14 | Schleicher: Dec. 15 - Feb. 14 |
| Ector: Nov. 15 - Apr. 30 | Scurry: Nov. 15 - Apr. 30 |
| Edwards: Dec. 15 - Feb. 14 | Shackelford: Dec. 15 - Feb. 14 |
| El Paso: 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 | Sherman: Nov. 15 - Apr. 30 |
| Fisher: Dec. 15 - Feb. 14 | Stephens: Dec. 15 - Feb. 14 |
| Floyd: Nov. 15 - Apr. 30 | Sterling: Nov. 15 - Apr. 30 |
| Foard: Dec. 15 - Feb. 14 | Stonewall: Dec. 15 - Feb. 14 |
| Gaines: Nov. 15 - Apr. 30 | Sutton: Dec. 15 - Feb. 14 |
| Garza: Nov. 15 - Apr. 30 | Swisher: Nov. 15 - Apr. 30 |
| Glasscock: Nov. 15 - Apr. 30 | Taylor: Dec. 15 - Feb. 14 |
| Hale: Nov. 15 - Apr. 30 | Terrell: Nov. 15 - Apr. 30 |
| Hall: Feb. 1 - Mar. 30 | Terry: Nov. 15 - Apr. 30 |
| Hansford: Nov. 15 - Apr. 30 | Throckmorton: Dec. 15 - Feb. 14 |
| Hardeman: Dec. 15 - Feb. 14 | Tom Green: Dec. 15 - Feb. 14 |
| Hartley: Nov. 15 - Apr. 30 | Upton: Nov. 15 - Apr. 30 |
| Haskell: Dec. 15 - Feb. 14 | Uvalde: Dec. 15 - Feb. 14 |
| Hockley: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30 | Val Verde: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30 |
| Howard: Nov. 15 - Apr. 30 | Ward: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30 |
| Hudspeth: Nov. 1 - May 14 | Wichita: Dec. 15 - Feb. 14 |
| Hutchinson: Nov. 15 - Apr. 30 | Wilbarger: Dec. 15 - Feb. 14 |
| Irion: Dec. 15 - Feb. 14 | Winkler: Nov. 1 - Apr. 30, or Nov. 15 - May 14 |
| Jeff Davis: Nov. 1 - Apr. 30 or Nov. 15 - May 14 | Yoakum: Nov. 1 - Apr. 30, or Nov. 15 - May 14 |
| Jones: Dec. 15 - Feb. 14 | Young: Dec. 15 - Feb. 14 |
| Kent: Nov. 15 - Jan. 14 or Feb. 1 - Mar. 30 | Wheeler: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28 |
| | Zavala: Dec. 15 - Feb. 14 |

**Appendix B:
Erosivity Index (EI) Zones in Texas**



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix C: Isoerodent Map



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix D: Erosivity Indices for EI Zones in Texas

Periods:

| | 1/1 | 1/15 | 2/1 | 2/15 | 3/1 | 3/15 | 4/1 | 4/15 | 5/1 | 5/15 | 6/1 | 6/15 | 7/1 | 7/15 | 8/1 | 8/15 | 9/1 | 9/15 | 10/1 | 10/15 | 11/1 | 11/15 | 12/1 | 12/15 |
|------------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|------|-------|------|-------|------|-------|
| 89 | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 7 | 12 | 18 | 27 | 38 | 48 | 55 | 62 | 69 | 76 | 83 | 90 | 94 | 97 | 98 | 99 | 100 |
| 90 | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 13 | 21 | 29 | 37 | 46 | 54 | 60 | 65 | 69 | 74 | 81 | 87 | 92 | 95 | 97 | 98 | 99 |
| 91 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 6 | 16 | 29 | 39 | 46 | 53 | 60 | 67 | 74 | 81 | 88 | 95 | 99 | 99 | 100 | 100 |
| 92 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 6 | 16 | 29 | 39 | 46 | 53 | 60 | 67 | 74 | 81 | 88 | 95 | 99 | 99 | 100 | 100 |
| 93 | 0 | 1 | 1 | 2 | 3 | 4 | 6 | 8 | 13 | 25 | 40 | 49 | 56 | 62 | 67 | 72 | 76 | 80 | 85 | 91 | 97 | 98 | 99 | 99 |
| 94 | 0 | 1 | 2 | 4 | 6 | 8 | 10 | 15 | 21 | 29 | 38 | 47 | 53 | 57 | 61 | 65 | 70 | 76 | 83 | 88 | 91 | 94 | 96 | 98 |
| 95 | 0 | 1 | 3 | 5 | 7 | 9 | 11 | 14 | 18 | 27 | 35 | 41 | 46 | 51 | 57 | 62 | 68 | 73 | 79 | 84 | 89 | 93 | 96 | 98 |
| 96 | 0 | 2 | 4 | 6 | 9 | 12 | 17 | 23 | 30 | 37 | 43 | 49 | 54 | 58 | 62 | 66 | 70 | 74 | 78 | 82 | 86 | 90 | 94 | 97 |
| 97 | 0 | 1 | 3 | 5 | 7 | 10 | 14 | 20 | 28 | 37 | 48 | 56 | 61 | 64 | 68 | 72 | 77 | 81 | 86 | 89 | 92 | 95 | 98 | 99 |
| 106 | 0 | 3 | 6 | 9 | 13 | 17 | 21 | 27 | 33 | 38 | 44 | 49 | 55 | 61 | 67 | 71 | 75 | 78 | 81 | 84 | 86 | 90 | 94 | 97 |

* Each period begins on the date listed in the table above and lasts until the day before the following period. The final period begins on December 15 and ends on December 31.

Table adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Attachment 1



**SMALL CONSTRUCTION SITE NOTICE:
LOW POTENTIAL FOR EROSION
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.E.1.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from small construction sites automatically authorized based on low rainfall erosivity. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
http://www.tceq.state.tx.us/nav/permits/wq_construction.html

| | |
|--|--|
| Operator Name: | |
| 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 Small Construction Sites Authorized Under Part II.E.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 automatic authorization based on low rainfall erosivity under Part II.E.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 the general permit. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. 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 _____

Date Notice Removed
MS4 operator notified per Part II.F.3.

SMALL 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.E.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from small construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
http://www.tceq.state.tx.us/nav/permits/wq_construction.html

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

For Small Construction Activities Authorized Under Part II.E.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 will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. 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 _____

_____ *Date Notice Removed*
_____ *MS4 operator notified per Part II.F.3.*

Attachment 3



LARGE CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program
TPDES GENERAL PERMIT TXR150000
“SECONDARY OPERATOR” NOTICE

This notice applies to secondary operators of construction sites operating under Part II.E.3. of the TPDES General Permit Number TXR150000 for discharges of storm water runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The information on this notice is required in Part III.E.2. of the general permit. Additional information regarding the TCEQ storm water permit program may be found on the internet at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html

| | |
|---|--|
| Site-Specific TPDES Authorization Number: | |
| Operator Name: | |
| Contact Name and Phone Number: | |
| Project Description: <i>Physical address or description of the site's location, and estimated start date and projected end date, or date that disturbed soils will be stabilized.</i> | |
| Location of Storm Water Pollution Prevention Plan (SWP3): | |

For Large Construction Activities Authorized Under Part II.E.3. (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.E.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 will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. 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 _____

_____ Date Notice Removed
 _____ MS4 operator notified per Part II.F.3.

Attachment 4



LARGE CONSTRUCTION SITE NOTICE

FOR THE
 Texas Commission on Environmental Quality (TCEQ)
 Storm Water Program
TPDES GENERAL PERMIT TXR150000

“PRIMARY OPERATOR” NOTICE

This notice applies to construction sites operating under Part II.E.3. of the TPDES General Permit Number TXR150000 for discharges of storm water runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The information on this notice is required in Part III.E.2. of the general permit. This notice shall be posted along with a copy of the signed Notice of Intent (NOI), as applicable. Additional information regarding the TCEQ storm water permit program may be found on the internet at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html

| | |
|---|--|
| Site-Specific TPDES Authorization Number: | |
| Operator Name: | |
| Contact Name and Phone Number: | |
| Project Description: <i>Physical address or description of the site’s location, and estimated start date and projected end date, or date that disturbed soils will be stabilized.</i> | |
| Location of Storm Water Pollution Prevention Plan: | |

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

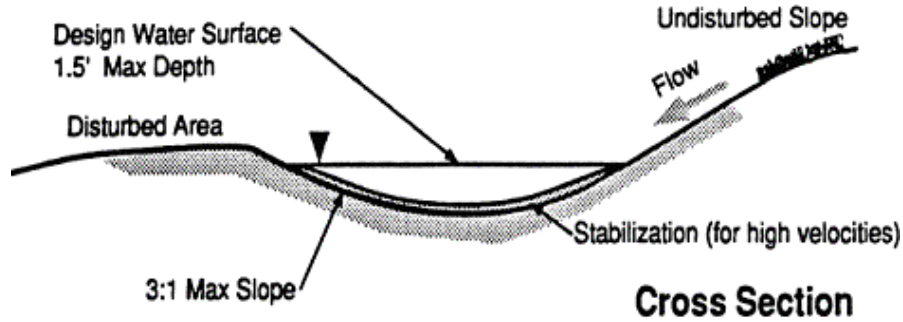
These techniques will be applied on the majority of construction projects due to their general topic of reducing waste from construction activities. They form the basis of general housekeeping procedures that should be followed during construction.

| 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



Applications

Perimeter Control

Slope Protection

Sediment Trapping

Channel Protection

Temporary Stabilization

Permanent Stabilization

Waste Management

Housekeeping Practices

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.

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

E-1



North Central Texas
Council of Governments

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.

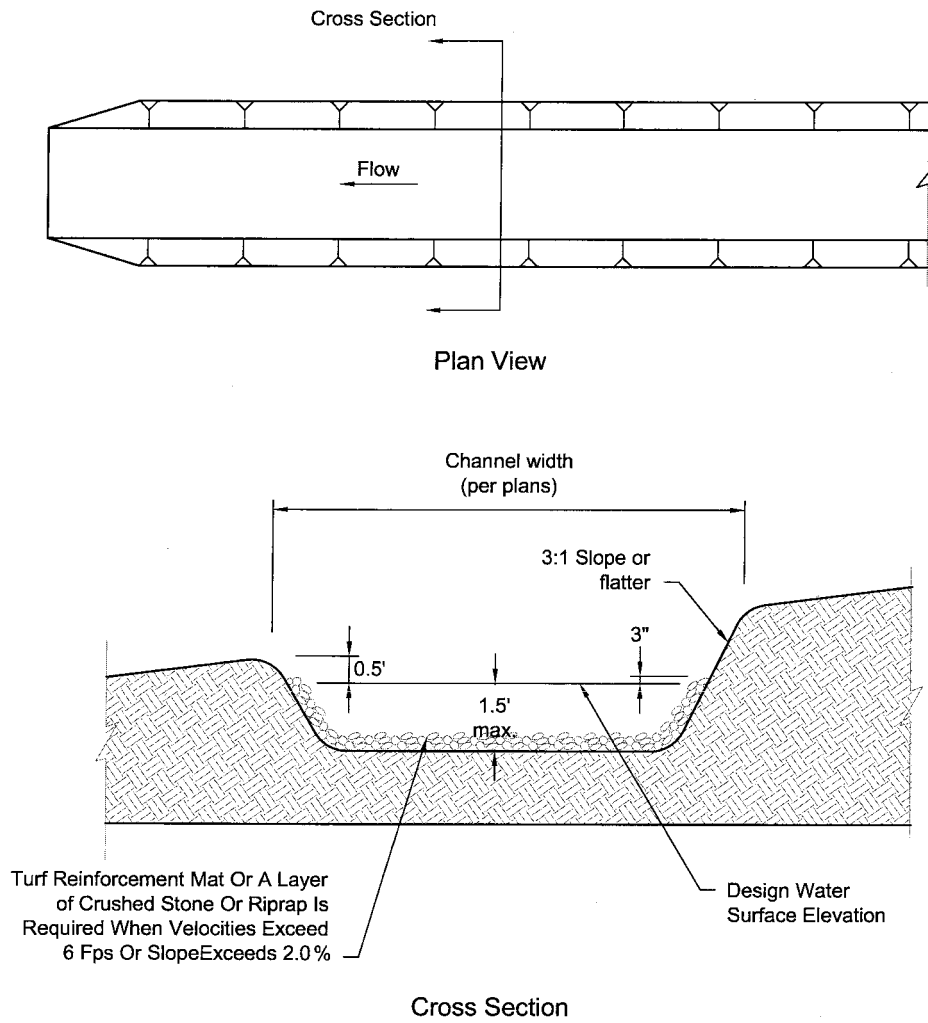
MAINTENANCE REQUIREMENTS

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.

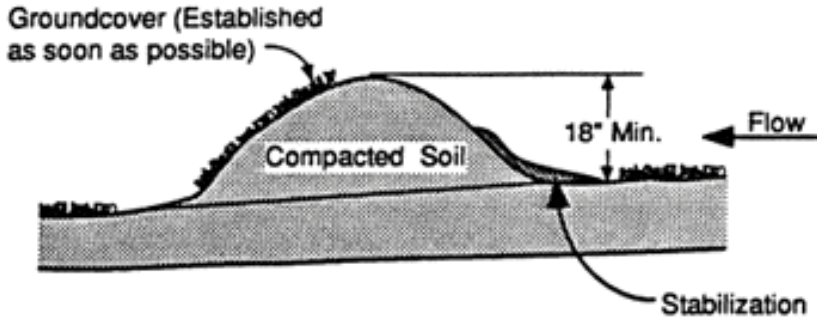
Interceptor Swale



Turf Reinforcement Mat Or A Layer of Crushed Stone Or Riprap Is Required When Velocities Exceed 6 Fps Or Slope Exceeds 2.0%

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Diversion Dike



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

E-2



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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.

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.

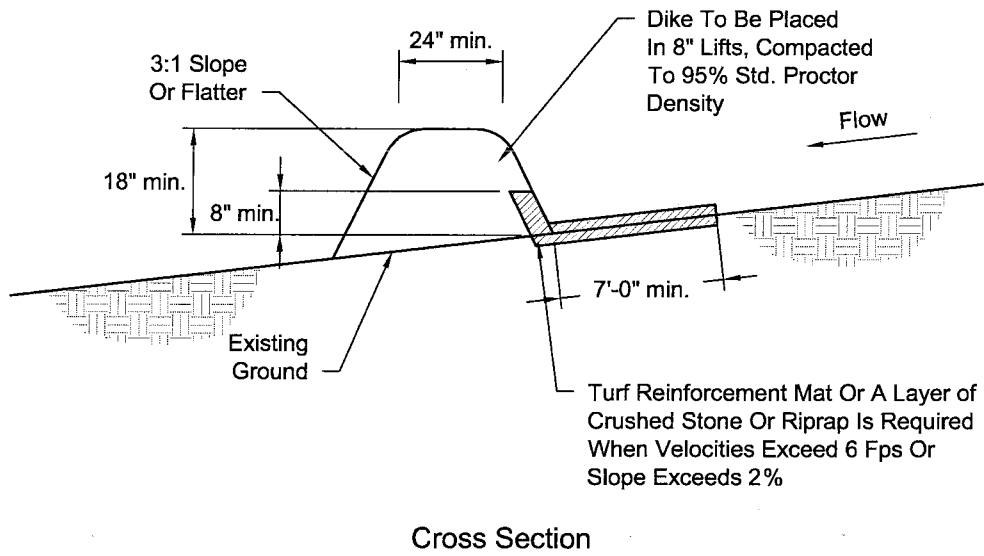
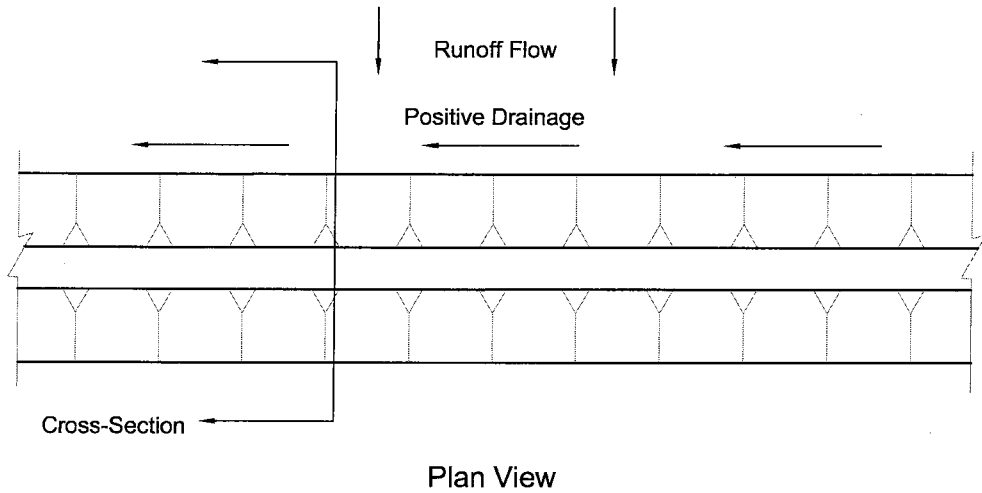
MAINTENANCE REQUIREMENTS

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



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| | |
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| <h1>Pipe Slope Drain</h1> | <p>Applications</p> <ul style="list-style-type: none"> Perimeter Control <input checked="" type="checkbox"/> Slope Protection Sediment Trapping Channel Protection Temporary Stabilization Permanent Stabilization Waste Management Housekeeping Practices |
| <p>D= Pipe Diameter</p> | <p>Targeted Constituents</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Sediment <input type="radio"/> Nutrients Toxic Materials <input type="radio"/> Oil & Grease <input checked="" type="radio"/> Floatable Materials <input type="radio"/> Other Construction Wastes |
| <p>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.</p> <p>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.</p> <p>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.</p> | <p>Implementation Requirements</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Capital Costs <input checked="" type="radio"/> Maintenance <input type="radio"/> Training <input checked="" type="radio"/> Suitability for Slopes > 5% |
| <p>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.</p> <p>DESIGN CRITERIA</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> The grade of the entrance shall be 3 percent maximum. <input type="checkbox"/> 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. <input type="checkbox"/> All sections of the pipe slope drain shall be connected using watertight collars or gasketed watertight fittings. | <p>Legend</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Significant Impact <input checked="" type="radio"/> Medium Impact <input type="radio"/> Low Impact ? Unknown or Questionable Impact |
| | <p>Varies</p> |
| | <p>E-3</p> |
| | <p>North Central Texas Council of Governments</p> |

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.

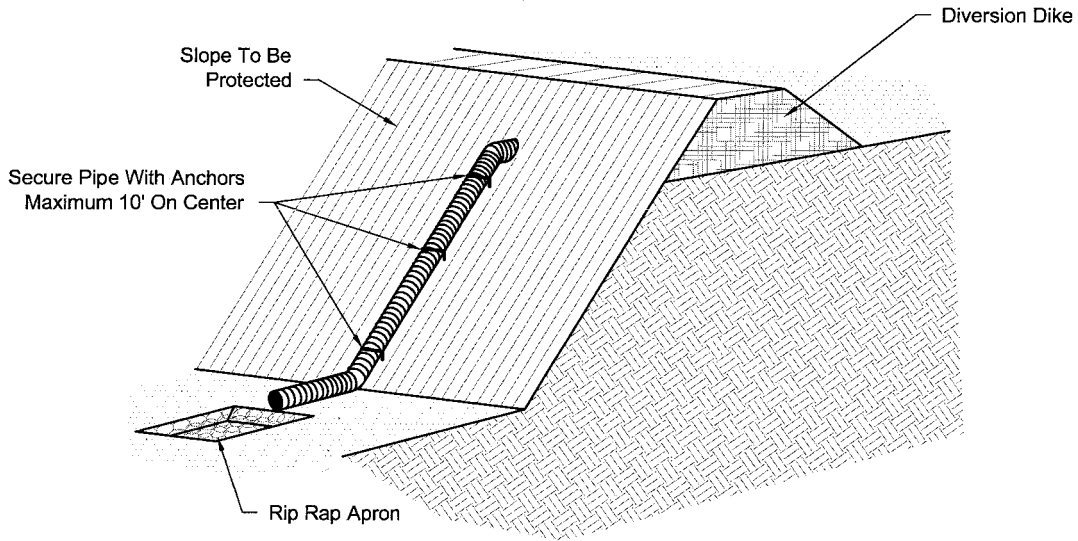
MAINTENANCE REQUIREMENTS

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.

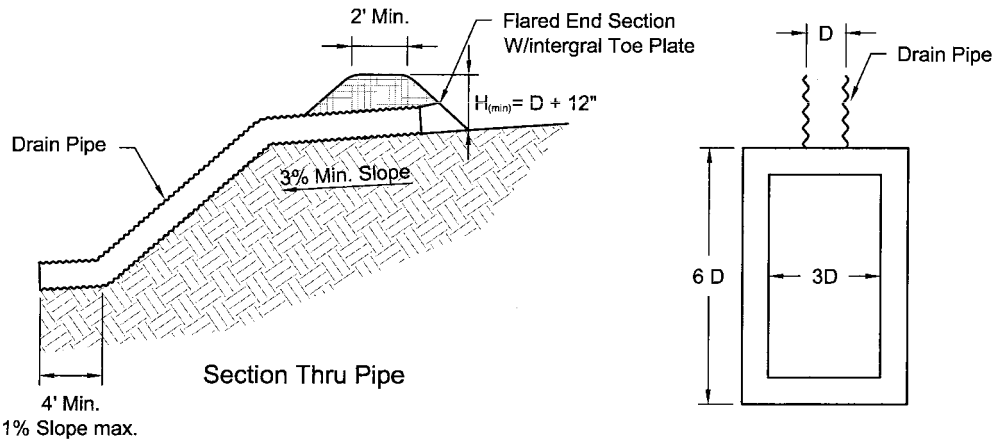
SPECIFICATION

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



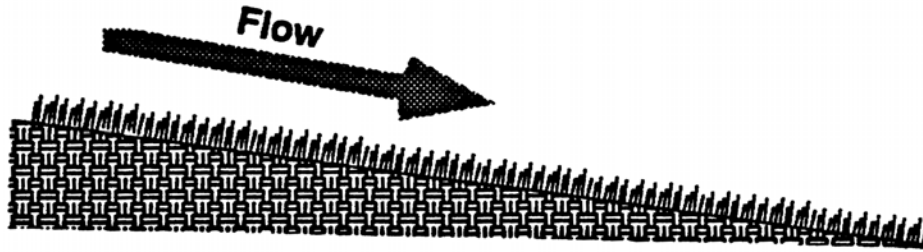
Section Thru Pipe

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

E-4



North Central Texas
Council of Governments

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 ft².
- 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 | 4.0 |
| | Western Wheat Grass | 5.0 |
| | Wheat (Red, Winter) | 30.0 |
| May 1 - Aug 31 | Foxtail Millet | 30.0 |
| Feb 15 - May 31 | Annual Rye | 20.0 |
| Sep 1 - Dec 31 | | |

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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| <h1>Mulching</h1>  | <p>Applications</p> <ul style="list-style-type: none"> Perimeter Control <input type="checkbox"/> Slope Protection Sediment Trapping Channel Protection <input type="checkbox"/> Temporary Stabilization Permanent Stabilization Waste Management Housekeeping Practices |
| <p>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.</p> <p>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.</p> <p>APPLICATIONS Mulch may be used on most construction-related disturbed area for surface protection including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Freshly seeded or planted areas, <input type="checkbox"/> Areas at risk due to the time period being unsuitable for growing vegetation, <input type="checkbox"/> Areas that are not conducive to seeding or planting. <input type="checkbox"/> 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. <p>DESIGN CRITERIA Mulch may be used by itself or in combination with netting or other anchors to promote soil stabilization.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Choice of mulch depends largely on slope, climate, and soil type in addition to availability of materials. <input type="checkbox"/> Mulch should be applied in an even and uniform manner where concentrated water flow is negligible. <input type="checkbox"/> 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. | <p>Targeted Constituents</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Sediment <input type="radio"/> Nutrients Toxic Materials <input type="radio"/> Oil & Grease <input type="radio"/> Floatable Materials <input type="radio"/> Other Construction Wastes <p>Implementation Requirements</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Capital Costs <input checked="" type="radio"/> Maintenance <input type="radio"/> Training <input type="radio"/> Suitability for Slopes > 5% <p>Legend</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> Significant Impact <input checked="" type="radio"/> Medium Impact <input type="radio"/> Low Impact ? Unknown or Questionable Impact <p>Fe=0.90</p> <p>E-5</p>  <p>North Central Texas Council of Governments</p> |

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 by 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

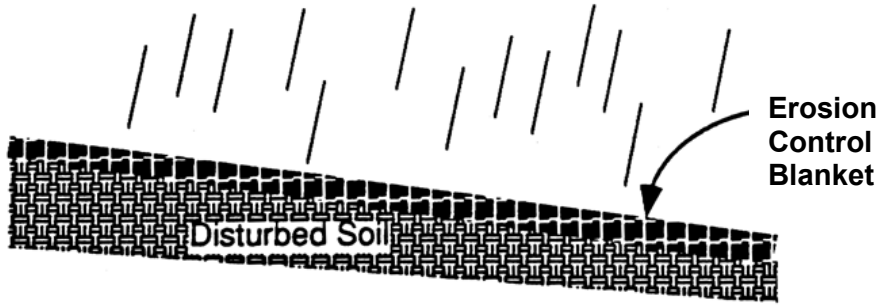
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.17 Mulching.

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

E-6



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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.

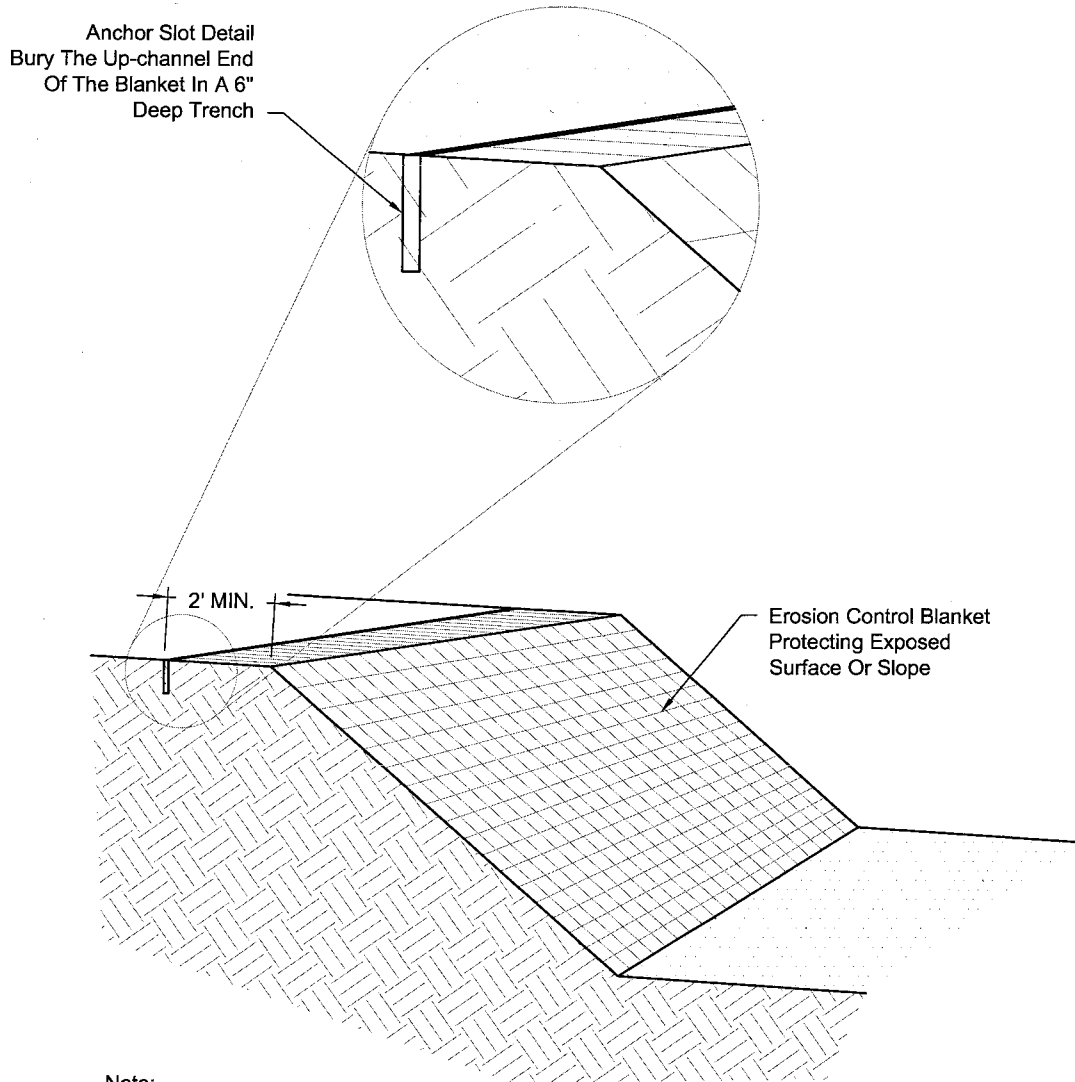
MAINTENANCE REQUIREMENTS

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.

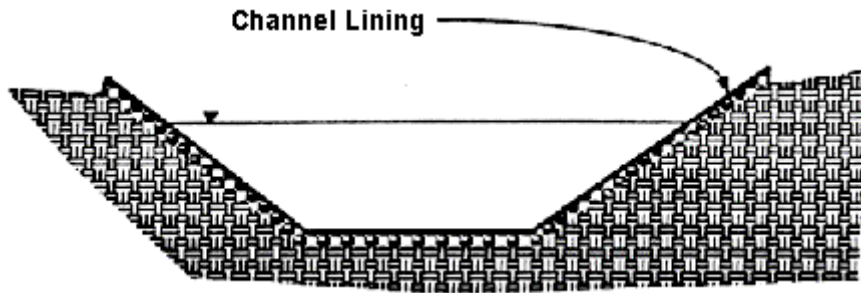
Erosion Control Blankets



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

E-7



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/ft² shear 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.

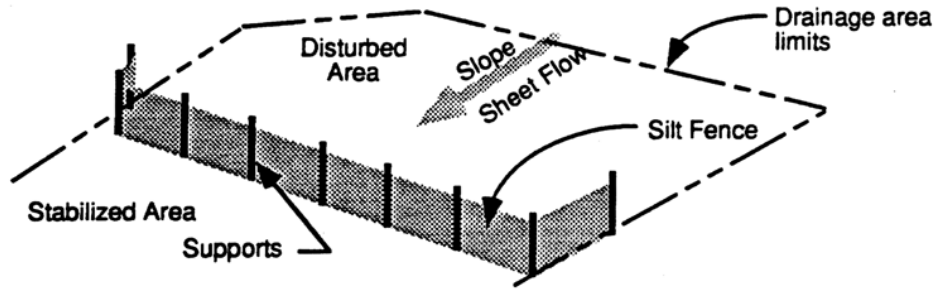
SPECIFICATIONS

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.

| | |
|--|---|
| <h1>Dust Control</h1> | <p>Applications</p> <ul style="list-style-type: none"> Perimeter Control Slope Protection Sediment Trapping Channel Protection Temporary Stabilization Permanent Stabilization Waste Management Housekeeping Practices |
| <p>DESCRIPTION Dust control includes those measures necessary to prevent wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.</p> <p>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.</p> <p>DESIGN CRITERIA</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock. <input type="checkbox"/> 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. <input type="checkbox"/> Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources. <input type="checkbox"/> Sprinkle the site with water until dampened sufficiently to prevent dust and repeat as needed. Do not apply water in quantities to cause runoff. <input type="checkbox"/> 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. | <p>Targeted Constituents</p> <ul style="list-style-type: none"> ● Sediment ○ Nutrients/Toxic Materials ○ Oil & Grease ○ Floatable Materials ○ Other Construction Wastes |
| <p>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.</p> | <p>Implementation Requirements</p> <ul style="list-style-type: none"> ○ Capital Costs ○ Maintenance ● Training ○ Suitability for Slopes > 5% |
| | <p>Legend</p> <ul style="list-style-type: none"> ● Significant Impact ● Medium Impact ○ Low Impact ? Unknown or Questionable Impact |
| | <p style="text-align: center;">E-8</p> |
| | <p style="text-align: center;">  North Central Texas Council of Governments </p> |

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Silt Fence



Applications

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

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 erodibility of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.

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



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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.

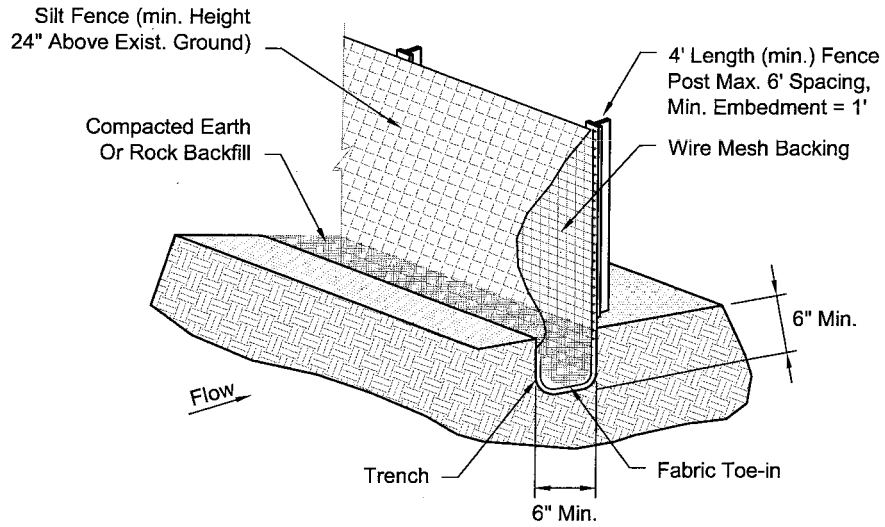
MAINTENANCE REQUIREMENTS

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.

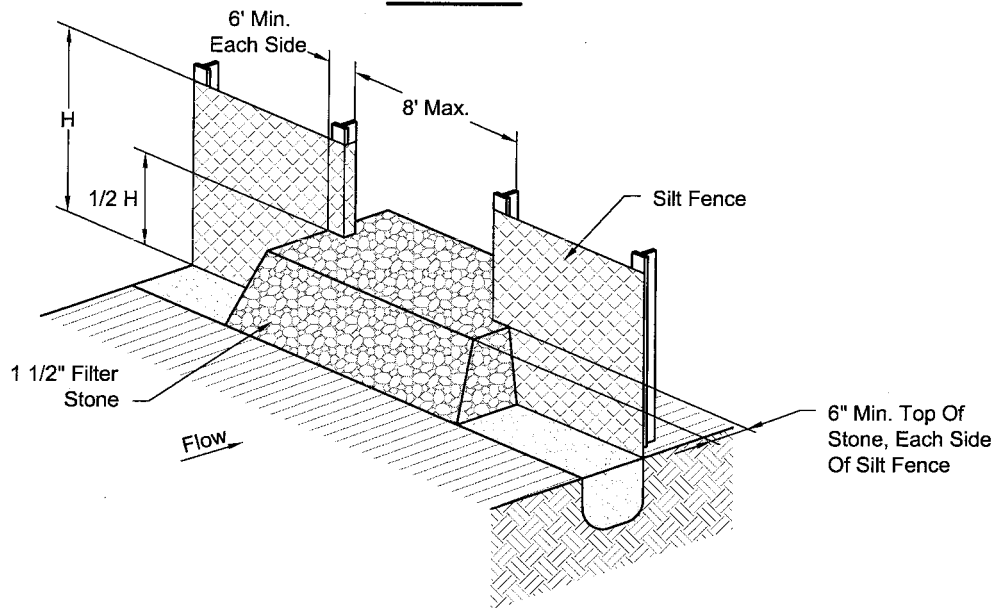
SPECIFICATION

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



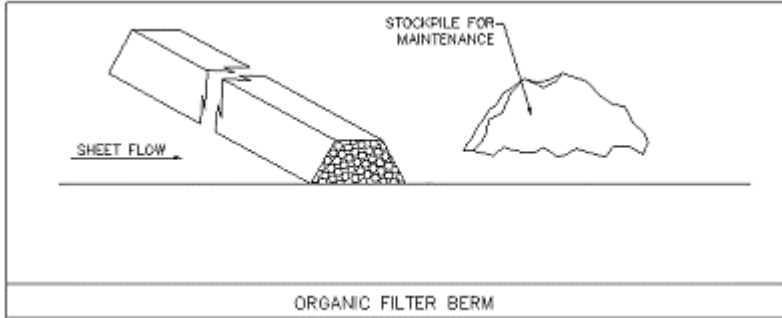
Silt Fence



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

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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 $\frac{1}{2}$ 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.

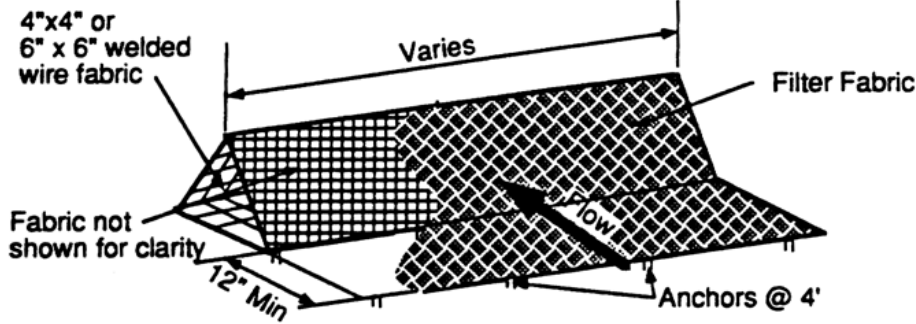
Dimensions of the berm must be maintained by replacing organic filter material when necessary.

There shall be no signs of erosion, breaching 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



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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.

MAINTENANCE REQUIREMENTS

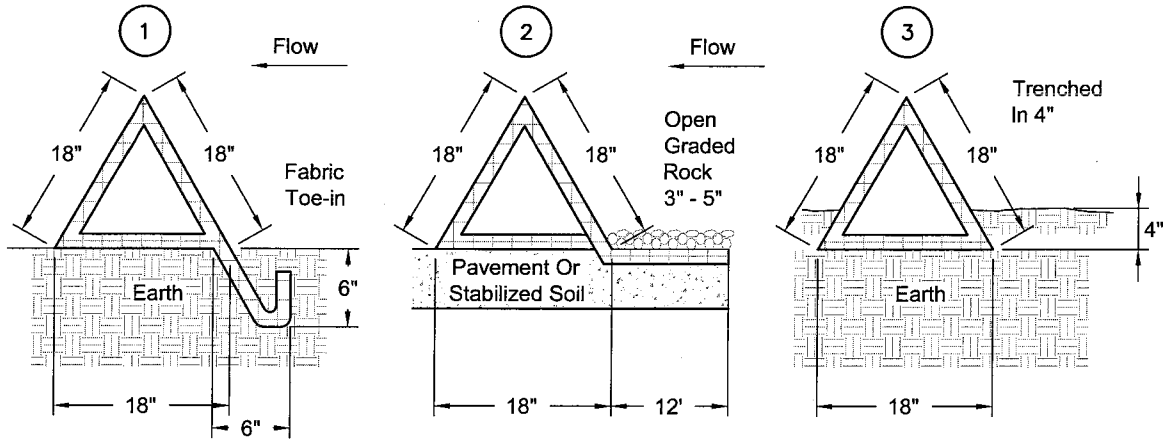
Triangular sediment filter dikes should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Sediment should be removed when it reaches approximately 6 inches in depth. If the fabric becomes clogged, it should be cleaned or, if necessary, replaced.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

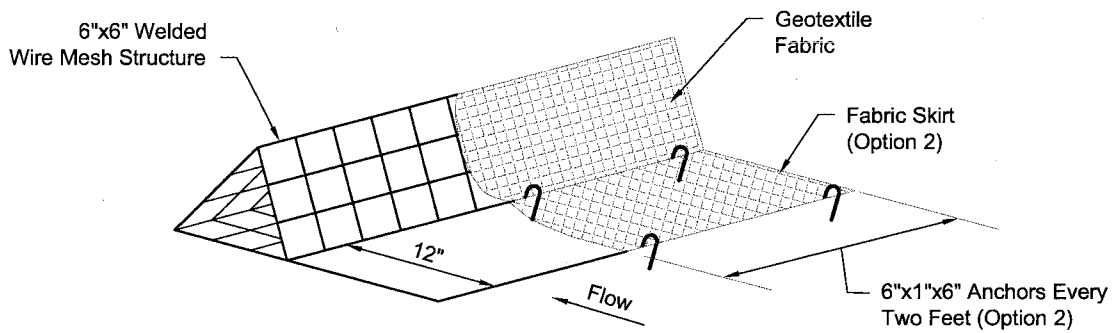
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.8 Triangular Sediment Filter Dike.

Triangular Sediment Filter Dike



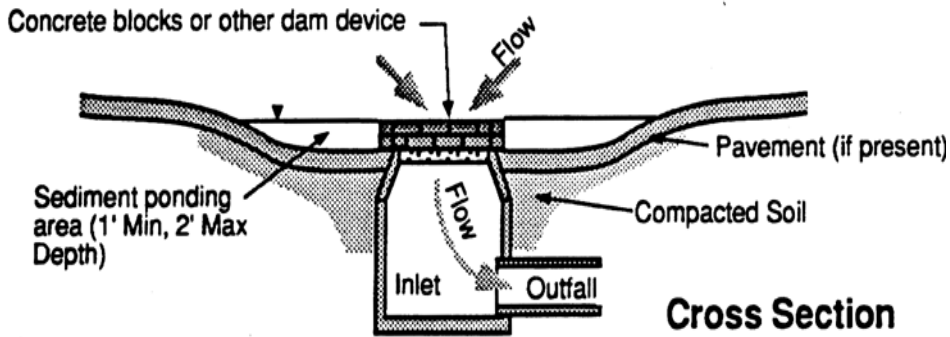
Cross Section Of Installation Options

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



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Inlet Protection



Applications

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

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.

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



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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 $\frac{3}{4}$ 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. $\frac{1}{2}$ " x $\frac{1}{2}$ " 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 may 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 remove sediment 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

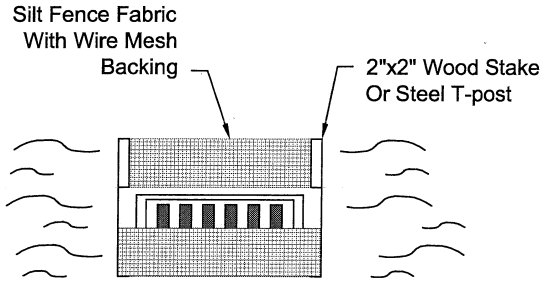
Inlet protection should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When silt fence is used and the fabric becomes clogged, it should be cleaned or, if necessary, replaced. Also, sediment should be removed when it reaches approximately 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.

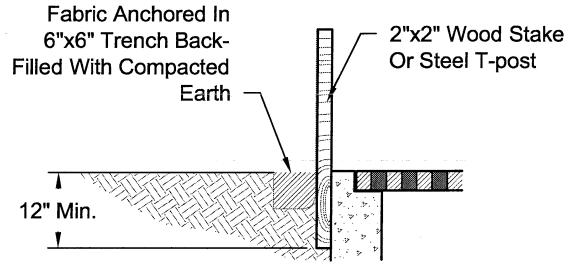
SPECIFICATION

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.

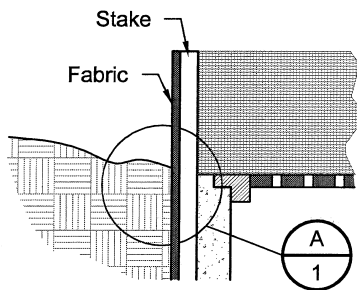
Inlet Protection - Filter Barrier



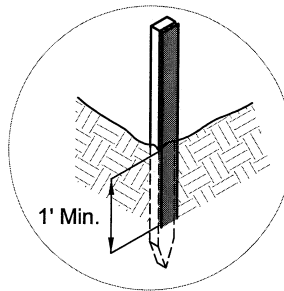
Perspective View



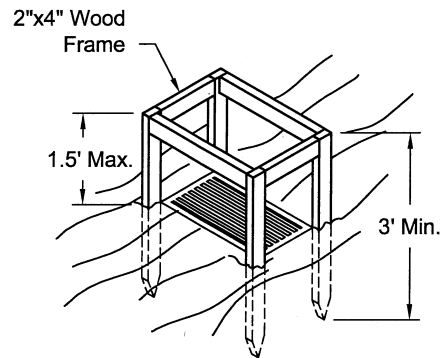
I. Standard Installation



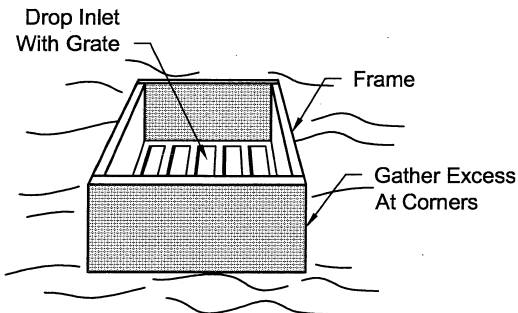
Elevation Of Stake And Fabric Orientation



Detail A



Perspective View

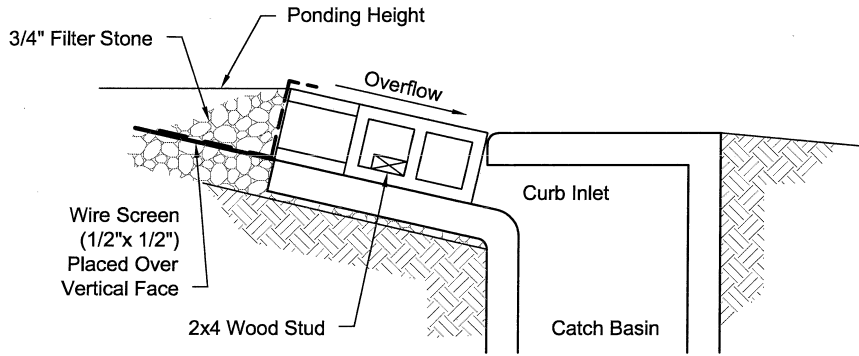


Perspective View

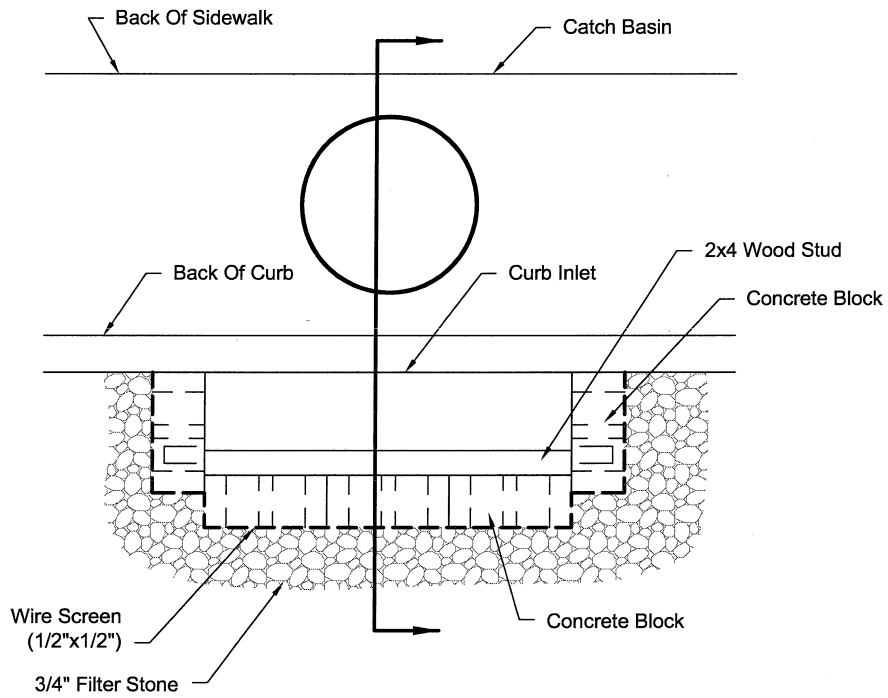
Specific application:

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

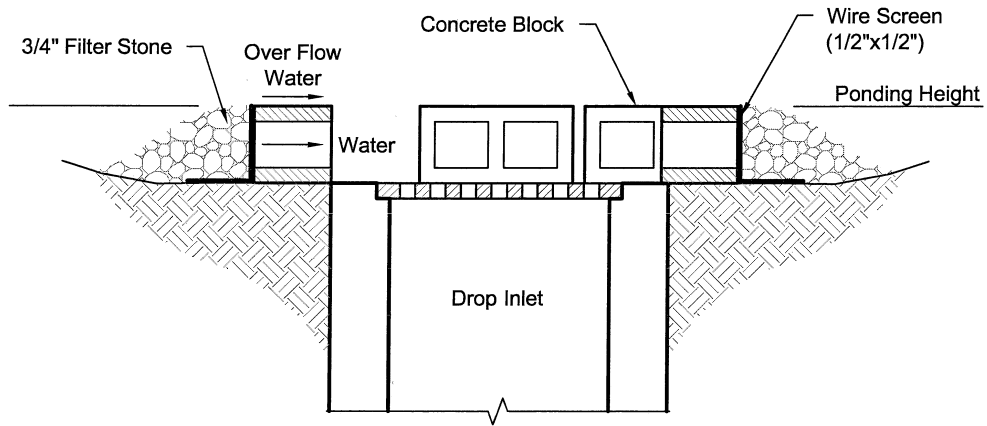


Cross Section

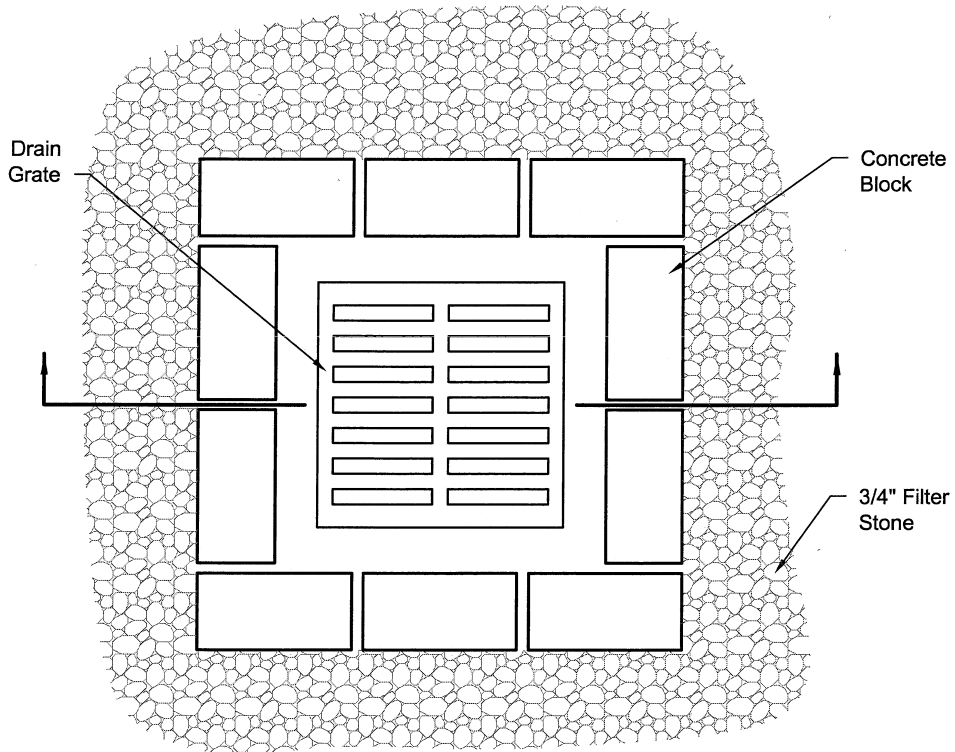


Plan View

Inlet Protection – Drop Inlet

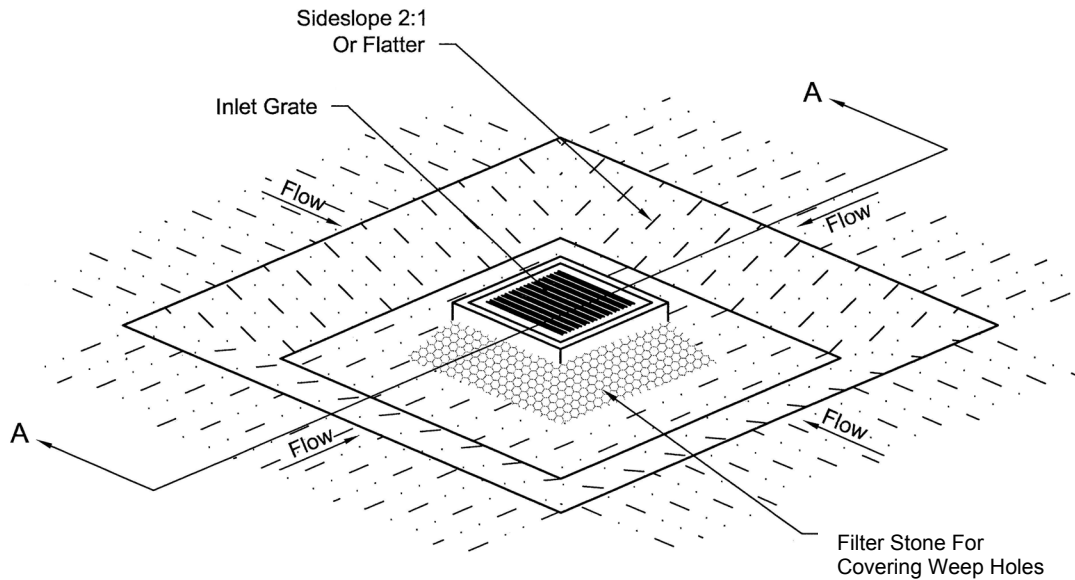


Cross Section

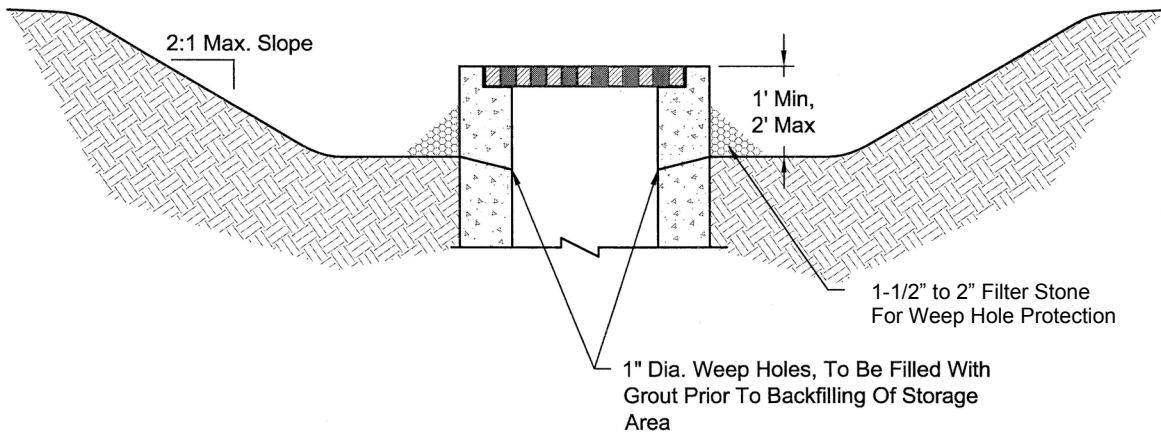


Plan View

Inlet Protection - Excavated Impoundment



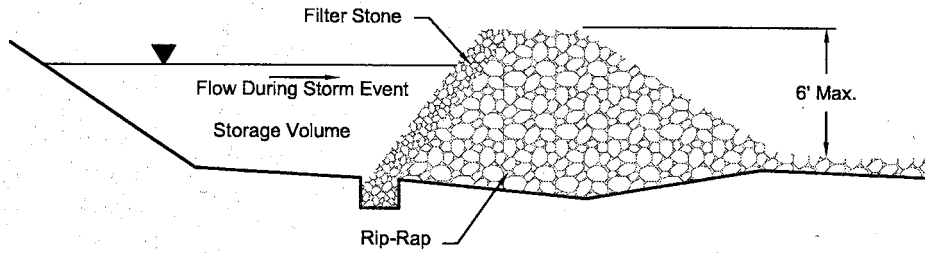
Isometric Plan View



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 placed 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

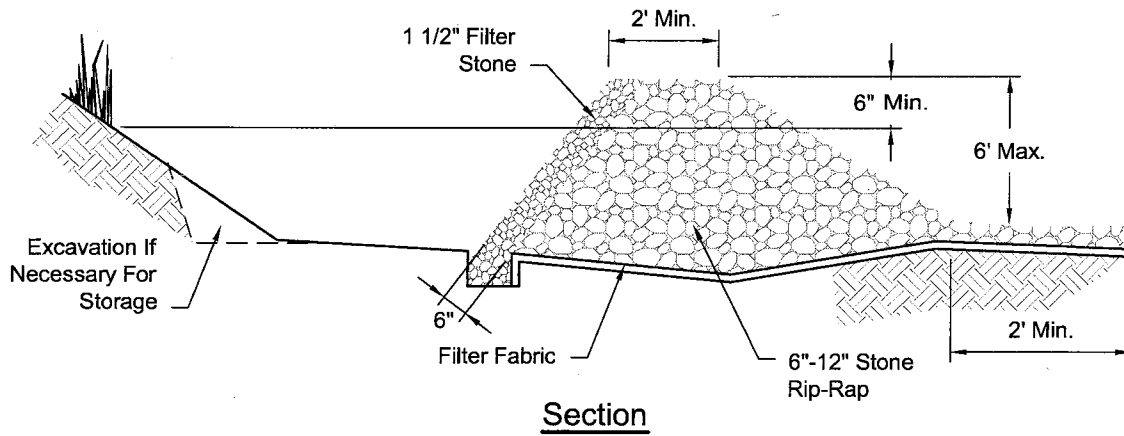
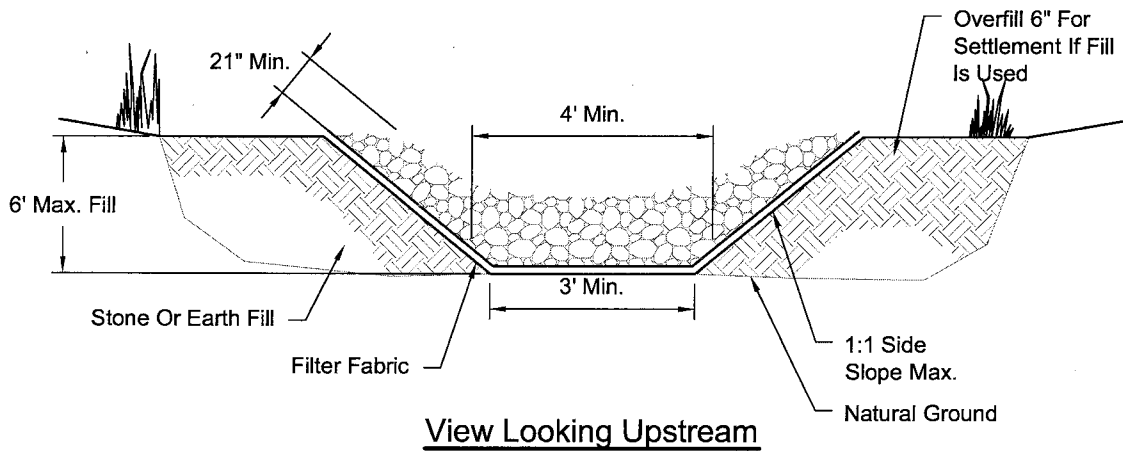
The stone outlet structure should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to check for clogging of the void spaces between stones. If the aggregate appears to be silted in such that efficiency is diminished, the stone should be replaced.

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

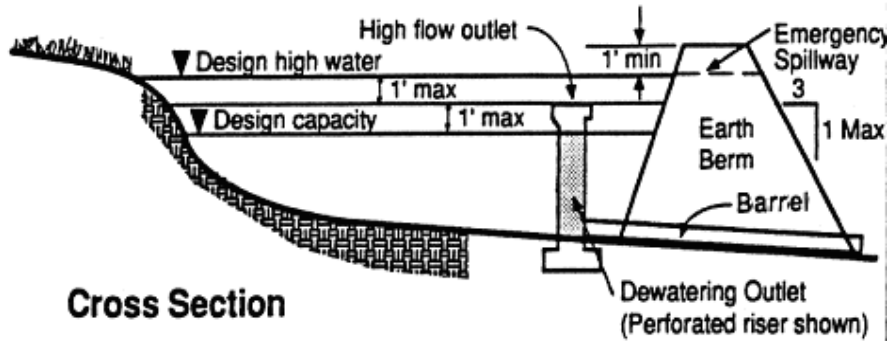
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.12 Stone Outlet Sediment Trap.

Stone Outlet Sediment Trap



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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.

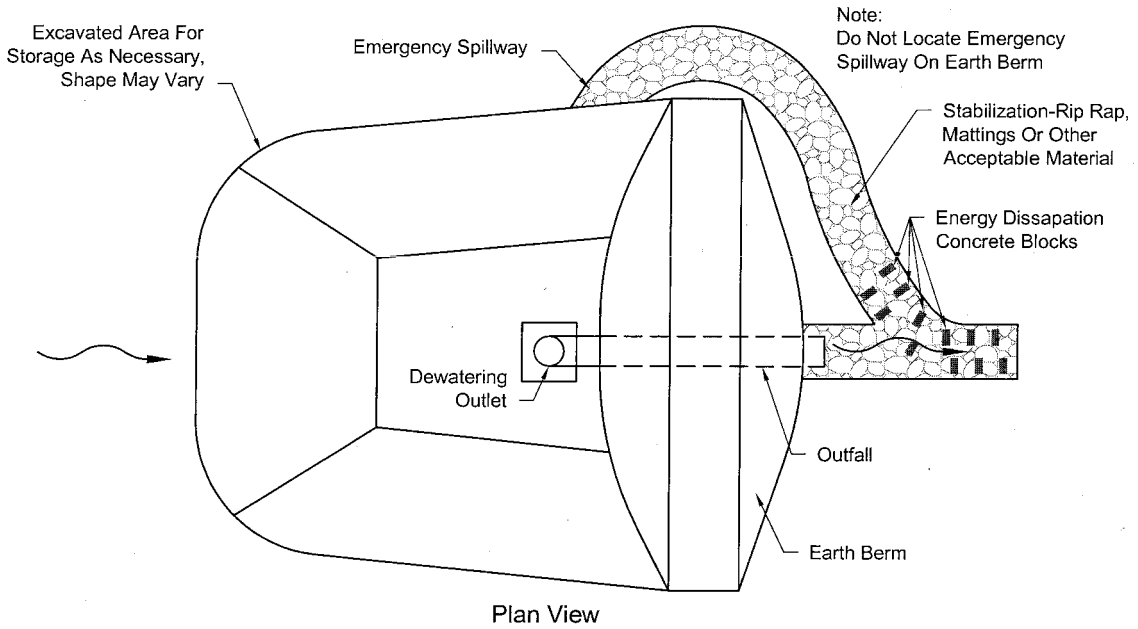
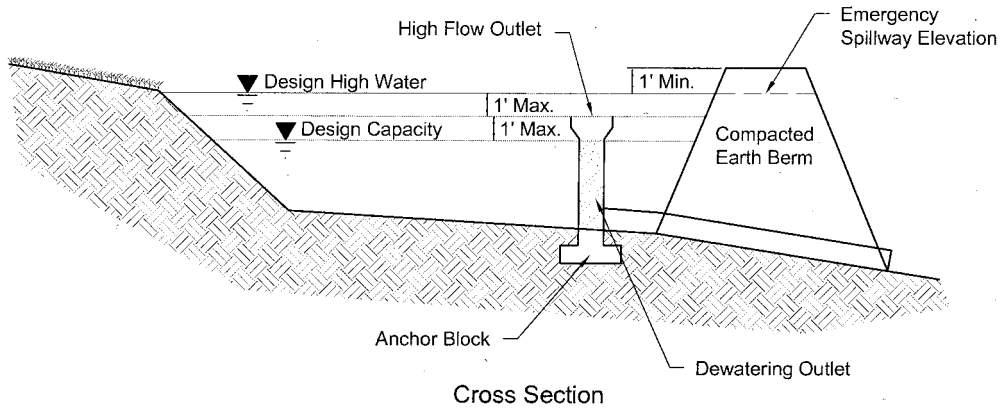
MAINTENANCE REQUIREMENTS

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

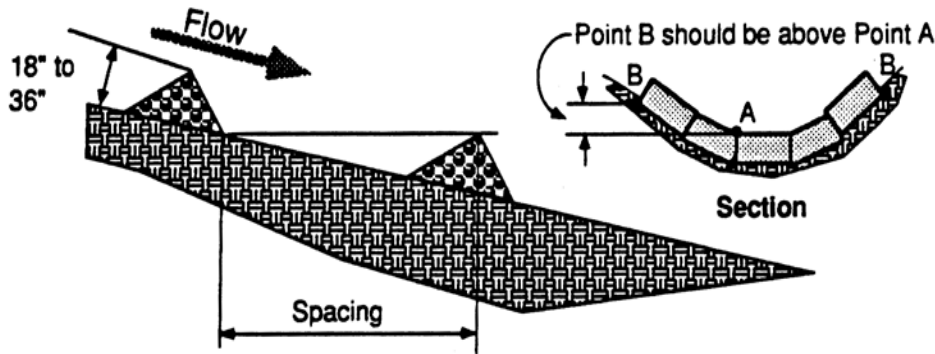
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Sediment Basin



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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

S-7



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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

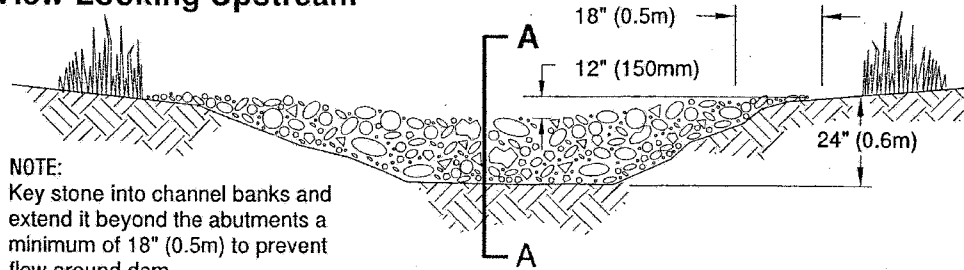
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12", whichever is less.

SPECIFICATION

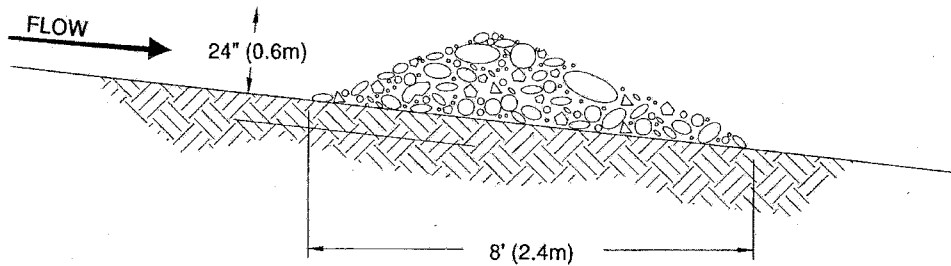
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.9 Rock Dam and Item 201.11 Sand Bag Dam.

Check Dams

View Looking Upstream

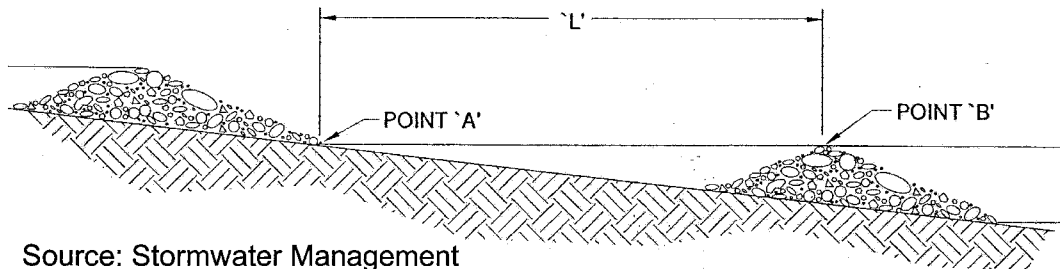


Section A - A



Spacing Between Check Dams

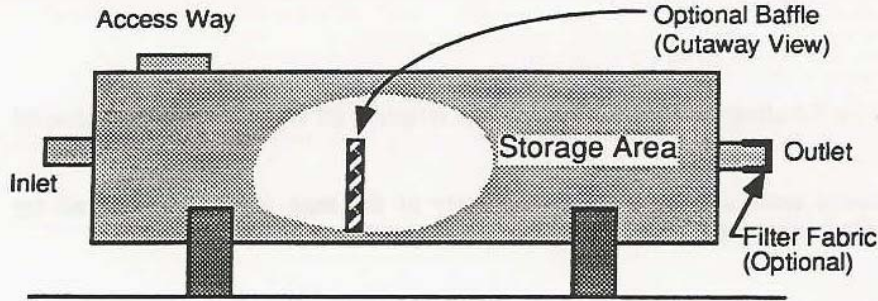
'L' = the distance such that points 'A' and 'B' are of equal elevation.



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

S-8



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.

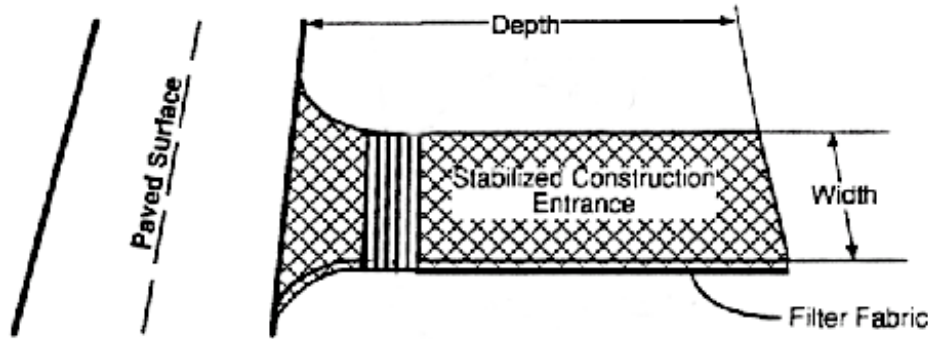
MAINTENANCE REQUIREMENTS

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

S-9



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 Products, 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

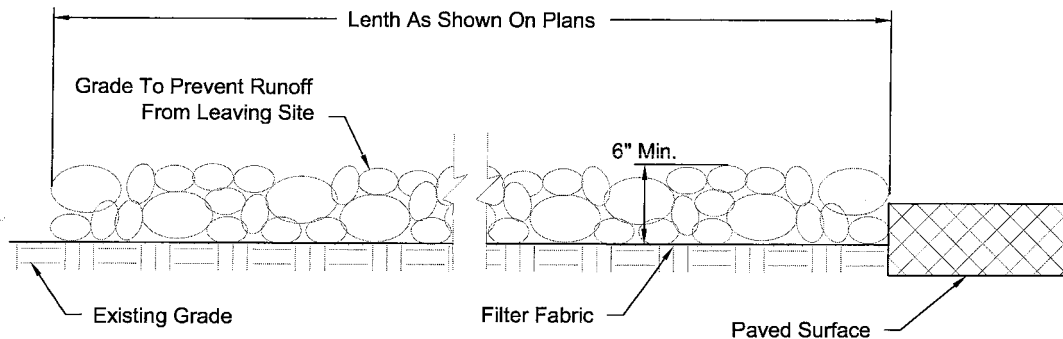
Construction entrances should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When sediment has substantially clogged the void area between the rocks, the aggregate mat must be washed down or replaced. Periodic re-grading and top dressing with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

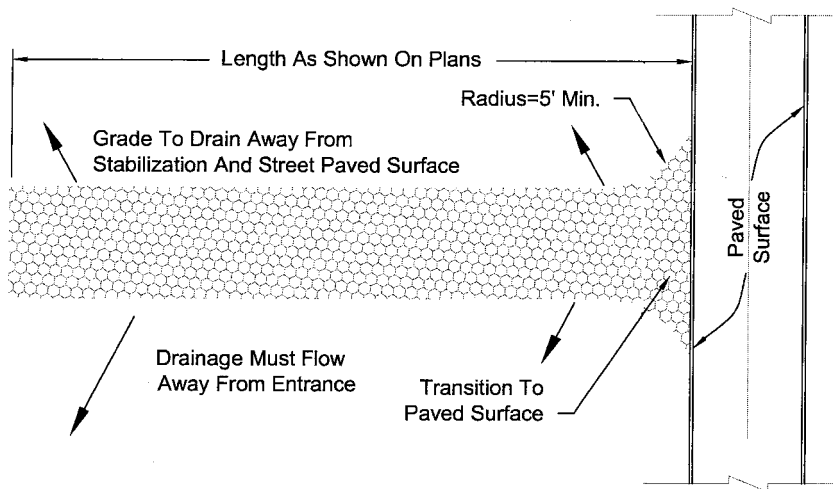
SPECIFICATION

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 Stabilized Construction Entrance.

Stabilized Construction Entrance



Profile View

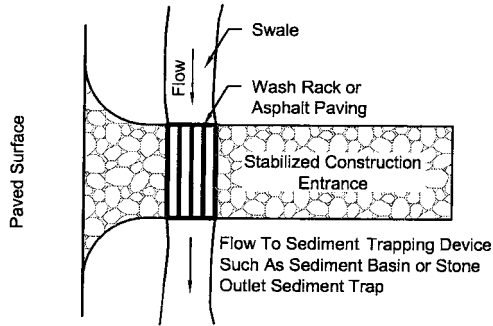


Plan View

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

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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



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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

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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

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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



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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



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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

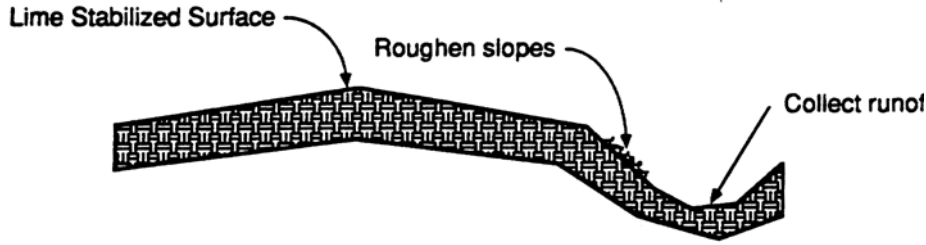
Site-specific solutions to sandblasting problems may be required.

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



Applications

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

Housekeeping Practices

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.

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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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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**Notice of Intent (NOI) for Storm Water
Discharges Associated with Construction
Activity under TPDES General Permit
(TXR150000)**

TCEQ Office Use Only
Permit No.: TXR15
RN:
CN:
Ref No:



Sign up now for ePermits NOI at www6.tceq.state.tx.us/steers
Get Instant Permit Coverage and only pay a \$225 application fee.

If filing a paper NOI you can pay the application fee on line? Go to www.tceq.state.tx.us/epay
Select Fee Type: GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION
If submitting a paper NOI, coverage under the general permit starts seven (7) days after the date postmarked for delivery to TCEQ.

IMPORTANT:

- Use the **INSTRUCTIONS** to fill out each question in this form.
- Use the attached **CUSTOMER CHECKLIST** to make certain all you filled out all required information.
- Incomplete applications **WILL** delay approval or result in **automatic Denial**.

Renewal of General Permit

Is this NOI to renew an ACTIVE permit?

- Yes - What is your permit number? Permit No. TXR15 _____
 No - a permit number will be issued.

Application Fee if mailing a paper NOI:

You must pay the \$325 Application Fee to TCEQ for the application to be considered complete.
Payment and NOI must be mailed to separate addresses. See instructions for correct mailing addresses.

Provide your payment information below, for us to verify payment of the application fee:

| | | |
|---|-----------------------------|--|
| <input checked="" type="checkbox"/> Mailed: | Check/Money Order No.: 2499 | Company Name on checking account: SWPPP INSPECTIONS, INC. |
| <input type="checkbox"/> EPAY: | Voucher No.: | Is the Payment Voucher copy attached? <input type="checkbox"/> Yes |

A. OPERATOR (applicant)

1. If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity?
CN 602500738 (Search Central Registry)

2. What is the Legal Name of the entity (applicant) applying for this permit?
The Whiting-Turner Contracting Company

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

3. What is the name and title of the person signing the application?
(The person must be an official meeting signatory requirements in TAC 305.43(a).)

Name: Espen Brooks Job Title: Vice President

4. What is the Operator's (applicant) mailing address as recognized by the US Postal Service? (verify at USPS.com)

Address: 2301 W. Plano Parkway Suite No./Bldg. No./Mail Code: Suite 104
City: Plano State: TX ZIP Code: 75075
Country Mailing Information (if outside USA): Country Code: Postal Code:

5. Phone No.: (469) 429.0800 Extension:

6. Fax No.: (469) 429.0801 E-mail Address: shawn.hashemi@whiting-turner.com

7. Indicate the type of Customer:

- | | | |
|---|---|--|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Sole Proprietorship-D.B.A. | <input type="checkbox"/> Limited Partnership |
| <input checked="" type="checkbox"/> Corporation | <input type="checkbox"/> Federal Government | <input type="checkbox"/> General Partnership |
| <input type="checkbox"/> State Government | <input type="checkbox"/> County Government | <input type="checkbox"/> City Government |
| <input type="checkbox"/> Other Government | <input type="checkbox"/> Other (describe): | |

| | |
|---|--|
| 8. Independent Operator: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If governmental entity, subsidiary, or part of a larger corporation, check "No".) | |
| 9. Number of Employees: <input type="checkbox"/> 0-20; <input type="checkbox"/> 21-100; <input type="checkbox"/> 101-250; <input type="checkbox"/> 251-500; or <input checked="" type="checkbox"/> 501 or higher | |
| 10. Customer Business Tax and Filing Numbers (This item is not applicable to Individuals, Government, GP or Sole Proprietor.) REQUIRED for Corporations and Limited Partnerships (Verify the entity's status and filing no. with TX SOS at 512/463-5555) | |
| State Franchise Tax ID Number: 15205294505 | Federal Tax ID: 520529450 |
| TX SOS Charter (filing) Number: 2740406 | DUNS Number (if known): |
| B. APPLICATION CONTACT | |
| If TCEQ needs additional information regarding this application, who should be contacted? | |
| 1. Name: Don Wims | Title: President |
| Company: SWPPP INSPECTIONS | |
| 2. Phone No.: (972) 530.5307 | Extension: |
| 3. Fax No.: 972 530.5309 | E-mail Address: dwims@swppp.com |
| C. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE | |
| 1. TCEQ Issued RE Reference Number (RN): RN N/A (Search <u>Central Registry</u>) | |
| 2. Name of Project or Site (the name as known by the community where this facility/project is located): Showbiz Cinemas (Waxahachie) (example: phase and name of subdivision or name of project that's unique to the site) | |
| 3. Does the site have a physical address? If Yes, complete <u>Section A</u> for a physical address. If No, complete <u>Section B</u> for site location information. | |
| <u>Section A:</u> Enter the physical address for the site. (verify it with <u>USPS.com</u> or other delivery source) | |
| Street Number: | Street Name: |
| City: | ZIP Code: |
| <u>Section B:</u> Enter the site location information. | |
| If no physical address (Street Number & Street Name), provide a written location access description to the site: (Ex.: phase 1 of Woodland subdivision located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South) Southeast corner of Broadhead Road and Highway 287 | |
| City where the site is located or nearest city to site: Waxahachie | ZIP Code where site is located: 75165 |
| 4. Identify the county where the site is located: Ellis | |
| 5. Latitude: 32.40165 | Longitude: -96.81614 |
| 6. What is the primary business of this entity? In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code) General Contractor | |
| 7. What is the mailing address for the regulated entity? | |
| Is the RE mailing address the same as the Operator? <input checked="" type="checkbox"/> Yes, address is the same as Operator <input type="checkbox"/> No, provide the address | |
| Street Number: | Street Name: |
| City: | State: |
| ZIP Code: | |
| D. GENERAL CHARACTERISTICS | |
| 1. Is the site located on Indian Country Lands? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – If Yes, do not submit this NOI. Contact EPA, Region VI If the site is on Indian country lands, you must obtain authorization through EPA, Region VI. | |
| 2. What is the Standard Industrial Classification (SIC) code (see instructions for common codes): (Search <u>Osha.gov</u>) Primary: 1542 Secondary: _____ | |

3(a) What is the total number of acres disturbed? 19 acres

3(b) Is the project site part of a larger common plan of development or sale? Yes No
If Yes, the total number of acres disturbed can be less than 5 acres.
If No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.

4. Discharge Information (all information MUST be provided or the permit will be denied)

4(a) What is the name of the water body(s) to receive the storm water runoff or potential runoff from the site?
Mustang Creek

4(b) What is the segment number(s) of the classified water body(s) that the discharge or potential discharge will eventually reach? 0815

4(c) Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) list of impaired waters?
 Yes No
If Yes, provide the name of the impaired water body(s).

4(d) Is the discharge into an MS4? Yes No
If Yes, what is the name of the MS4 Operator? City of Waxahachie
Note: The general permit requires you to send a copy of the NOI to the MS4 Operator.

4(e) Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer?
 Yes No
If the answer is Yes, please note that a copy of the agency approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) must be included or referenced in the Storm Water Pollution Prevention Plan.

E. CERTIFICATION

Check "Yes" to the certifications below. Failure to certify to all items will result in denial.

| | |
|---|---|
| <input checked="" type="checkbox"/> Yes | I certify that I have obtained a copy and understand the terms and conditions of the <u>general permit (TXR150000)</u> . |
| <input checked="" type="checkbox"/> Yes | I certify that the full legal name of the entity (Operator) applying for this permit has been provided and is legally authorized to do business in Texas. |
| <input checked="" type="checkbox"/> Yes | I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. |
| <input checked="" type="checkbox"/> Yes | I certify that a storm water pollution prevention plan has been developed and implemented prior to construction, and that is compliant with any applicable local sediment and erosion control plans and prepared and implemented as required in the general permit TXR150000. |

Operator Certification:

I, Espen Brooks Vice President
Typed or printed name (Required & must be legible) Title (Required & legible)

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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: Espen S. Brooks Date: 10/7/08
(Use blue ink)



**Notice of Termination (NOT)
for Authorizations under
TPDES General Permit TXR150000**

TCEQ Office Use Only
Permit No.:
RN:
CN:



**Sign up now for on line NOT at <http://www.tceq.state.tx.us/permitting/steers/steers.html>
Get your NOT Confirmation letter immediately after submitting the on line NOT form.**

What is the permit number to be terminated?

Processing will be delayed without the permit number. TXR15_____

A. OPERATOR (applicant)

1. What is the Customer Number (CN) issued to this entity? CN _____

2. What is the full Legal Name of the current permittee?

This must be the current permittee of the permit to be terminated.

3. What is the applicant's mailing address as recognized by the **US Postal Service**?

Address: _____ Suite No./Bldg. No./Mail Code: _____

City: _____ State: _____ ZIP Code: _____

Country Mailing Information (if outside USA). Country Code: _____ Postal Code: _____

4. Phone No.: () _____ Extension: _____

5. Fax No.: () _____ E-mail Address: _____

B. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

1. What is the TCEQ Issued RE Reference Number (RN)? **RN** _____

2. Name of Project or Site as currently permitted):

(example: phase and name of subdivision or name of project that's unique to the site)

3. Physical Address of Project or Site as currently permitted: (enter in spaces below)

Street Number: _____ Street Name: _____

City: _____ ZIP Code: _____ County (Counties if >1): _____

4. If no physical address (Street Number & Street Name), provide the written location access description to the site:

C. REASON FOR TERMINATION

Check the reason for termination:

- Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have either been removed, or scheduled for removal as defined in the SWP3.
- Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been defined in the SWP3 have been transferred to the new Operator.
- The activity is now authorized under an alternate TPDES permit.
- The activity never began at this site that is regulated under the general permit.

D. CERTIFICATION

I, _____ Title _____
Typed or printed name

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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under **30 Texas Administrative Code §305.44** to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date: _____
(Use blue ink)



LARGE CONSTRUCTION SITE NOTICE

FOR THE

Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

“PRIMARY OPERATOR” NOTICE

This notice applies to construction sites operating under Part II.E.3. of the TPDES General Permit Number TXR150000 for discharges of storm water runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The information on this notice is required in Part III.D.2. of the general permit. This notice shall be posted along with a copy of the signed Notice of Intent (NOI), as applicable. Additional information regarding the TCEQ storm water permit program may be found on the internet at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html

| | |
|---|---|
| Site-Specific TPDES Authorization Number: | |
| Operator Name: | The Whiting-Turner Contracting Company |
| Contact Name and Phone Number: | SWPPP INSPECTIONS, INC.--Don Wims 972.530.5307 |
| Project Description: <i>Physical address or description of the site's location, and estimated start date and projected end date, or date that disturbed soils will be stabilized.</i> | Showbiz Cinemas (Waxahachie) EJHN Mapsco 1081-Z Waxahachie, TX 75165 Estimated Start Date: 10/13/2008 Projected End Date: 05/2009 |
| Location of Storm Water Pollution Prevention Plan: | on site |

Jesse Wright

From: Jesse Wright [jwright@swppp.com]
Sent: Friday, October 10, 2008 9:28 AM
To: 'jchambers@waxahachie.com'
Cc: 'Don Wims'
Subject: MS4 submittal--Showbiz Cinemas (Waxahachie)
Attachments: Showbiz Cinemas Waxahachie GC NOI.pdf; Showbiz Cinemas Waxahachie Owner CSN.pdf

Jeff,

For Showbiz Cinemas (Waxahachie), attached is the NOI for The Whiting-Turner Contracting Company, LP and the Construction Site Notice for SHOWBIZ CINEMAS, LLC.

Please verify you received this email. Let me know if I need to send this to someone else.

Thanks,

Jesse Wright
SWPPP INSPECTIONS, INC.
972.693.2045 Mobile
972.530.5307 Office
972.530.5309 Fax

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: The Whiting-Turner Contracting Company

Address: 2301 West Plano Parkway, Suite 104
Plano, TX 75075

Telephone Number: 469.429.0800

Type of construction service provided: 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 Showbiz Cinemas (Waxahachie) in Waxahachie, TX.

Name: _____ Espen Brooks _____ Title: _____ Vice President _____

Signature: Espen S. Brooks Date: 10/7/08

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: SHOWBIZ CINEMAS, LLC

Address: 12400 Coit Road, Suite 800
Dallas, TX 75251

Telephone Number: 214.751.8183

Type of construction service provided: Owner

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 Showbiz Cinemas (Waxahachie) in Waxahachie, TX.

Name:  Bill Knight

Title:  President

Signature: 

Date: 10/9/08

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 Showbiz Cinemas (Waxahachie) in Waxahachie, TX.

Name: _____

Title: _____

Signature: _____

Date: _____

October 6, 2008

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:

_____ **Showbiz Cinemas (Waxahachie)** _____

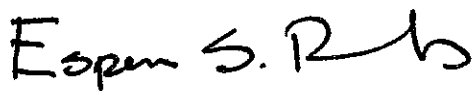
any Inspector for SWPPP INSPECTIONS, INC. is the duly authorized representative to sign all inspection reports requested by TXR150000; and,

_____ **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,



Espen Brooks
Vice President
The Whiting-Turner Contracting Company

"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."

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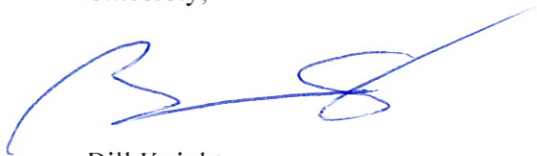
any Inspector for SWPPP INSPECTIONS, INC. is the duly authorized representative to sign all inspection reports requested by TXR150000; and,

_____ **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,



Bill Knight

President **DIRECTOR OF CONSTRUCTION**
SHOWBIZ CINEMAS, LLC

"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:

Showbiz Cinemas (Waxahachie)

**in
Waxahachie, TX**



WHERE IT ALL BEGINS

Geotechnical
Construction Materials
Environmental

2209 Wisconsin Street
Suite 100
Dallas, Texas 75229

Tel: 972.620.8911
Fax: 972.620.1302
www.alphatesting.com

July 22, 2008

Crepe Myrtle Enterprises, LLC
12400 Coit Road, Suite 800
Dallas, Texas 75251
Attention: Mr. Gary Witherspoon

Re: Addendum to Geotechnical Exploration
ShowBiz Site (Theater and 6 Out Parcels)
Broadhead Road at U.S. Highway 287
Waxahachie, Texas
ALPHA Report No. G080423-1

ALPHA TESTING recently completed a geotechnical exploration for the project referenced above (ALPHA Report No. G080423 dated March 23, 2008). We have been asked to provide supplemental geotechnical recommendations for spread footing foundations and below-grade walls. This letter presents those recommendations and should be considered an addendum to the referenced geotechnical report, and should not be considered separately from that report. All other comments and recommendations contained in the referenced geotechnical report, except those specifically modified herein, remain unchanged.

As discussed in the geotechnical report, the typical finish floor elevation for the main portion of the building will be 586.5 ft. We understand the auditoriums will have recessed slabs at elevations 580.5 ft and 582 ft. We also understand it may be desired to support the building using spread footing foundations in lieu of (or in addition to) drilled piers. The lower portions of the auditoriums are located along the exterior wall, and we understand the bottom of spread footings (if used along the exterior wall) would be about elevations 580 to 578 ft.

Spread Footing Foundations

Spread footing foundations bearing in tan weathered shaly limestone can be utilized for support of the building. As an alternative, spread footings could be used for the exterior walls of the building, with drilled piers bearing in tan weathered limestone used for the interior. Drilled piers bearing in tan weathered shaly limestone are discussed in the referenced geotechnical report. Differential settlement of up to about ½ inch could be expected between spread footing foundations bearing on top of tan shaly limestone and drilled piers extended into the tan shaly limestone.

Spread footing foundations bearing in tan weathered shaly limestone can be proportioned using an allowable bearing pressure of 5 ksf. Foundations should bear at a depth of at least 2 ft below the final adjacent grade. The weathered tan shaly limestone was encountered at about elevations



577 to 581 at Borings 1 through 5. The tan shaly limestone could be deeper at other locations. It will be necessary to extend the foundation excavations deeper to expose the limestone where it is not encountered at the planned foundation bearing level (elevations 580 ft and 578 ft). Foundation over-excavations can be backfilled to the design foundation bearing level using lean concrete or structural concrete if desired. Strip footings should have a minimum width of 15 inches, and individual footings should be at least 24 inches wide. Foundation settlement is estimated to be ½ inch or less.

Careful monitoring during construction is necessary to locate any pockets or seams of unsuitable materials which might be encountered in excavations for footings, and to verify the foundations are extended through any clay materials to bear on competent tan shaly limestone. ALPHA TESTING should observe foundation excavations to verify conditions are as anticipated. Unsuitable materials encountered at the foundation bearing surface during foundation construction should be removed and replaced with lean concrete (about 2,000 psi strength at 28 days).

Subgrade Preparation for Below-Grade Level

We understand the finish floor elevation of the below-grade levels will be about 580.5 and 582 ft. The floor slab recommendations contained in Section 6.2 of the referenced geotechnical report still generally apply to this building (i.e. placement of moisture conditioned soils above the shaly limestone); however, due to the depth of excavation for the below-grade areas and the depth to limestone encountered at the borings, we do not recommend using water pressure injection in this building. As discussed in the geotechnical report, it is not necessary to undercut limestone to install subgrade improvements for reducing slab movement.

A sub-floor drainage system is recommended beneath the below-grade slab in areas with finished space. The drain system could consist of collector pipes (6 inches in diameter, perforated and wrapped with filter fabric - Mirafi 140N, or equivalent) in shallow trenches connected to a uniform drainage blanket at least 8 inches thick. Spacing of the drain pipes should not exceed 25 ft. The drainage blanket should consist of free-draining gravel material with a maximum nominal particle size of 2 inches and not more than 5 percent passing the No. 200 sieve. Gravel meeting the gradation requirements of ASTM C-33 Size No. 57 is an example of a commercially available material suitable for this purpose. The sub-floor drainage system should be connected to suitable sump pits. The thickness of drainage blanket material can be counted as part of the thickness of non-expansive select fill used for improving the subgrade.

As a minimum, a properly designed and constructed moisture barrier should be placed between the slab and subgrade soils to retard moisture migration through the slab.

Lateral Earth Pressures for Below-Grade Walls

Below-grade walls for the proposed theater building should be designed to resist the expected lateral earth pressures. The magnitude of lateral earth pressure against underground walls is dependent on the method of backfill placement, type of backfill soil, drainage provisions, and



type of wall (rigid or yielding) after placement of the backfill. Experience demonstrates when a wall is held rigidly against horizontal movement (restrained at the top), the lateral pressure (at-rest lateral earth pressure) against the wall is greater than the normally assumed active pressure. Yielding walls (rotation at the top of the wall on the order of 0.1 to 0.4 percent of the wall height) can be designed for active earth pressures (k_a) but rigid walls should be designed for higher at-rest lateral earth pressures (k_o). Walls associated with the structures should be considered rigid. Walls should be designed using the equivalent fluid pressures provided in the table below, considering a triangular distribution and assuming a horizontal ground surface extending backward from the top of the wall. The equivalent fluid pressures provided do not include a factor of safety.

| LATERAL EARTH PRESSURE | | | |
|---|---------------------|---|---|
| Material | Condition | Equivalent Fluid Pressure, psf per ft of depth | |
| | | Drained | Undrained Including Hydrostatic Pressure |
| Free Draining Granular Soil $\Phi=32^\circ$, $\gamma_T=125$ pcf | At-Rest, $k_o=0.47$ | 59 | 92 |
| | Active, $k_a=0.31$ | 39 | 82 |
| On-Site Clay Soil, $\Phi=12^\circ$, $\gamma_T=125$ pcf | At-Rest, $k_o=0.8$ | -- | 113 |
| | Active, $k_a=0.7$ | | 106 |

Free draining granular material should consist of a clean, non-plastic, relatively well-graded sand or gravel with a maximum nominal particle size of 2 inches and less than 5 percent finer than the No. 200 sieve size. To reduce surface water seepage into the free draining backfill, the top 1-ft of the backfill should consist of on-site clay soil with a plasticity index of at least 25. The granular backfill should extend outward at least 2 ft from the base of the wall and extend upward on a slope 1 (horizontal) to 2 (vertical), or flatter. The granular backfill should be separated from the adjacent native soils using a filter fabric (Mirafi 140N, or equivalent) to prevent intrusion of native soils into the granular backfill.

Complete drainage of the free draining material should be provided to prevent the development of hydrostatic pressure on the wall. A typical drainage system could consist of 6 inch perforated (slotted) PVC pipes placed in filter trenches excavated parallel to the base of the walls for their entire length (perimeter drains), connected to suitable sumps. Septic drain field pipe is **not** considered suitable for this purpose. The drain pipes should be positioned at a depth at least 1.5 ft lower than the adjacent below-grade slab. The pipes should be surrounded by at least 6 inches of free-draining gravel (see **Subgrade Preparation for Below-Grade Level** above), with the gravel surrounded by a woven geotextile filter fabric (Mirafi 140N, or equivalent). A drainage system is beneficial regardless of the type of backfill used. If clay soils are used for retaining wall backfill, a manufactured vertical drainage medium or a minimum 1 ft wide vertical strip of



free-draining gravel should be provided immediately behind the wall, and hydraulically connected to the perimeter drainage system.

Below-grade walls should be waterproofed, and keyways and water stops should be used at all construction joints.

The effects of surcharge loading must also be considered. The surcharge load should be multiplied by the applicable coefficient of earth pressure from the table above, and the resulting pressure should be applied as a uniform lateral pressure over the full height of the wall.

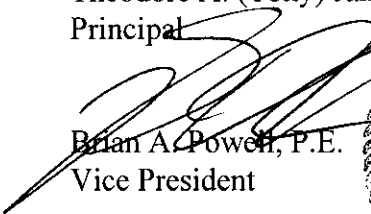
Lightweight, hand-controlled vibrating plate compactors are recommended for compaction of backfill adjacent to walls to reduce the possibility of increases in lateral pressures due to over-compaction. Heavy compaction equipment should not be operated near the walls. Also, compaction of backfill soils behind walls should not exceed 100 percent standard Proctor maximum dry density (ASTM D 698) to further limit lateral earth pressures against walls.

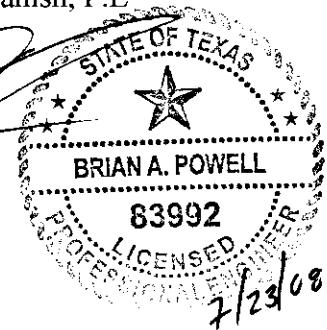
ALPHA TESTING, INC. appreciates the opportunity to be of service on this project. If we can be of further assistance, please contact our office.

Sincerely yours,

ALPHA TESTING, INC.

Theodore A. (Tony) Janish, P.E.
Principal


Brian A. Powell, P.E.
Vice President



TAJ/BAP/lf

Copies: (1) Client

- (1) Goodwin Commercial Properties (Ms. Pam Goodwin)
- (1) Hart Gaugler & Associates (Ms. Kathy Perantie, P.E.)
- (1) Kimley-Horn & Associates (Mr. Matt Moore, P.E.)

Reportable Quantities

Environmental Protection Agency

§ 110.1

(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.

110.1 Definitions.

110.2 Applicability.

110.3 Discharge of oil in such quantities as "may be harmful" pursuant to section 311(b)(4) of the Act.

110.4 Dispersants.

110.5 Discharges of oil not determined "as may be harmful" pursuant to section 311(b)(3) of the Act.

110.6 Notice.

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

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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 dura-

tion 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.

Subpart A—Applicability, Definitions, and General Requirements For All Facilities and All Types of Oils

- 112.1 General applicability.
- 112.2 Definitions.
- 112.3 Requirement to prepare and implement a Spill Prevention, Control, and Countermeasure Plan.
- 112.4 Amendment of Spill Prevention, Control, and Countermeasure Plan by Regional Administrator.
- 112.5 Amendment of Spill Prevention, Control, and Countermeasure Plan by owners or operators.
- 112.6 [Reserved]
- 112.7 General requirements for Spill Prevention, Control, and Countermeasure Plans.

Subpart B—Requirements for Petroleum Oils and Non-Petroleum Oils, Except Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and Vegetable Oils (Including Oils from Seeds, Nuts, Fruits, and Kernels)

- 112.8 Spill Prevention, Control, and Countermeasure Plan requirements for onshore facilities (excluding production facilities).
- 112.9 Spill Prevention, Control, and Countermeasure Plan requirements for onshore oil production facilities.
- 112.10 Spill Prevention, Control, and Countermeasure Plan requirements for onshore oil drilling and workover facilities.
- 112.11 Spill Prevention, Control, and Countermeasure Plan requirements for offshore oil drilling, production, or workover facilities.

Subpart C—Requirements for Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and for Vegetable Oils, Including Oils from Seeds, Nuts, Fruits and Kernels

- 112.12 Spill Prevention, Control, and Countermeasure Plan requirements for onshore facilities (excluding production facilities).
- 112.13 Spill Prevention, Control, and Countermeasure Plan requirements for onshore oil production facilities.
- 112.14 Spill Prevention, Control, and Countermeasure Plan requirements for onshore oil drilling and workover facilities.

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 fluoroborate | 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) |

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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 methyrate | 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 shore-

lines, 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.

302.1 Applicability.

302.2 Abbreviations.

302.3 Definitions.

302.4 Designation of hazardous substances.

302.5 Determination of reportable quantities.

302.6 Notification requirements.

302.7 Penalties.

302.8 Continuous releases.

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

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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, by-product, 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 North-

ern 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 | Cat-egory | Pounds (Kg) |
| Acenaphthene | 83329 | | 1* | 2 | | B | 100 (45.4) |
| Acenaphthylene | 208968 | | 1* | 2 | | D | 5000 (2270) |
| Acetaldehyde | 75070 | | 1000 | 1,3,4 | U001 | C | 1000 (454) |
| Acetaldehyde, chloro- | 107200 | | 1* | 4 | P023 | C | 1000 (454) |
| Acetaldehyde, trichloro- | 75876 | | 1* | 4 | U034 | D | 5000 (2270) |
| Acetamide | 60355 | | 1* | 3 | | B | 100 (45.4) |
| Acetamide, N-(aminothioxomethyl)- | 591082 | | 1* | 4 | P002 | C | 1000 (454) |
| Acetamide, N-(4-ethoxyphenyl)- | 62442 | | 1* | 4 | U187 | B | 100 (45.4) |
| Acetamide, 2-fluoro- | 640197 | | 1* | 4 | P057 | B | 100 (45.4) |
| Acetamide, N-9H-fluoren-2-yl- | 53963 | | 1* | 3,4 | U005 | X | 1 (0.454) |
| Acetic acid | 64197 | | 1000 | 1 | | D | 5000 (2270) |
| Acetic acid (2,4-dichlorophenoxy)-, salts & esters | 94757 | | 100 | 1,3,4 | U240 | B | 100 (45.4) |
| Acetic acid, Lead(2+) salt | 301042 | | 5000 | 1,4 | U144 | A | 10 (4.54) |
| Acetic acid, thallium (1+) salt | 563688 | | 1* | 4 | U214 | B | 100 (45.4) |
| Acetic acid, (2,4,5-trichlorophenoxy) | 93765 | | 100 | 1,4 | U232 | C | 1000 (454) |
| Acetic acid, ethyl ester | 141786 | | 1* | 4 | U112 | D | 5000 (2270) |
| Acetic acid, fluoro-, sodium salt | 62748 | | 1000 | 1 | P058 | A | 10 (4.54) |
| Acetic anhydride | 108247 | | 1* | 4 | U002 | D | 5000 (2270) |
| Acetone | 67641 | | 1* | 4 | P069 | D | 5000 (2270) |
| Acetone cyanohydrin | 75865 | | 10 | 1,4 | | A | 10 (4.54) |
| Acetonitrile | 75058 | | 1* | 3,4 | U003 | D | 5000 (2270) |
| Acetophenone | 98862 | | 1* | 3,4 | U004 | D | 5000 (2270) |
| 2-Acetylaminofluorene | 53963 | | 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 | | 1* | 4 | P003 | C | 1000 (454) |
| Acrolein | 107028 | | 1 | 1,2,3,4 | P003 | X | 1 (0.454) |
| Acrylamide | 79061 | | 1* | 3,4 | U007 | D | 5000 (2270) |
| Acrylic acid | 79107 | | 1* | 3,4 | U008 | D | 5000 (2270) |
| Acrylonitrile | 107131 | | 100 | 1,2,3,4 | U009 | B | 100 (45.4) |
| Adipic acid | 124049 | | 5000 | 1 | | D | 5000 (2270) |
| Aldicarb | 116063 | | 1* | 4 | P070 | X | 1 (0.454) |
| Aldrin | 309002 | | 1 | 1,2,4 | P004 | X | 1 (0.454) |
| Allyl alcohol | 107186 | | 100 | 1,4 | P005 | B | 100 (45.4) |

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| | | | | | | | |
|------------------------------------|----------|--|------|-------|------|--|-------------|
| Allyl chloride | 107051 | | 1000 | 1,3 | | | 1000 (454) |
| Aluminum phosphide | 20859738 | | 1* | 4 | P006 | | 100 (45.4) |
| Aluminum sulfate | 10043013 | ..... | 5000 | 1 | | | 5000 (2270) |
| 4-Aminobiphenyl | 92671 | ..... | 1* | 3 | | | 1 (0.454) |
| 5-(Aminomethyl)-3-isoxazolol | 2763964 | Muscimol 3(2H)-isoxazolone, 5-(aminomethyl)- | 1* | 4 | P007 | | 1000 (454) |
| 4-Aminopyridine | 504245 | 4-Pyridinamine | 1* | 4 | P008 | | 1000 (454) |
| Amitrole | 61825 | 1H-1,2,4-Triazol-3-amine | 1* | 4 | U011 | | 10 (4.54) |
| Ammonia | 7664417 | ..... | 100 | 1 | | | 100 (45.4) |
| Ammonium acetate | 631618 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium benzoate | 1863634 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium bicarbonate | 1066337 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium bichromate | 7789095 | ..... | 1000 | 1 | | | 10 (4.54) |
| Ammonium bifluoride | 1341497 | ..... | 5000 | 1 | | | 100 (45.4) |
| Ammonium bisulfite | 10192300 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium carbamate | 1111780 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium carbonate | 506876 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium chloride | 12125029 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium chromate | 7788989 | ..... | 1000 | 1 | | | 10 (4.54) |
| Ammonium citrate, dibasic | 3012655 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium fluoroborate | 13826830 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium fluoride | 12125018 | ..... | 5000 | 1 | | | 100 (45.4) |
| Ammonium hydroxide | 1336216 | ..... | 1000 | 1 | | | 1000 (454) |
| Ammonium oxalate | 6009707 | ..... | 5000 | 1 | | | 5000 (2270) |
| ..... | 5972736 | ..... |  |  |  |  |  |
| ..... | 14258492 | ..... |  |  |  |  |  |
| Ammonium picrate | 131748 | ..... | 1* | 4 | P009 | | 10 (4.54) |
| Ammonium silicofluoride | 16919190 | Phenol, 2,4,6-trinitro-, ammonium salt | 1000 | 1 | | | 1000 (454) |
| Ammonium sulfamate | 7773060 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium sulfide | 12135761 | ..... | 5000 | 1 | | | 100 (45.4) |
| Ammonium sulfite | 10196040 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium tartrate | 14307438 | ..... | 5000 | 1 | | | 5000 (2270) |
| ..... | 3164292 | ..... |  |  |  |  |  |
| Ammonium thiocyanate | 1762954 | ..... | 5000 | 1 | | | 5000 (2270) |
| Ammonium vanadate | 7803556 | ..... | 1* | 4 | P119 | | 1000 (454) |
| Amyl acetate | 628637 | Vanadic acid, ammonium salt | 1000 | 1 | | | 5000 (2270) |
| iso-Amyl acetate | 123922 | ..... |  |  |  |  |  |
| sec-Amyl acetate | 626380 | ..... |  |  |  |  |  |
| tert-Amyl acetate | 625161 | ..... |  |  |  |  |  |
| Aniline | 62533 | Benzenamine | 1000 | 1,3,4 | U012 | | 5000 (2270) |
| o-Anisidine | 90040 | ..... | 1* | 3 | | | 100 (45.4) |
| Anthracene | 120127 | ..... | 1* | 2 | | | 5000 (2270) |
| Antimony | 7440360 | ..... | 1* | 2 | | | 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 | | | 1000 (454) |
| Antimony potassium tartrate | 28300745 | ..... | 1000 | 1 | | | 100 (45.4) |
| Antimony trichloride | 7789619 | ..... | 1000 | 1 | | | 1000 (454) |
| Antimony trichloride | 10025919 | ..... | 1000 | 1 | | | 1000 (454) |
| Antimony trifluoride | 7783564 | ..... | 1000 | 1 | | | 1000 (454) |
| Antimony trioxide | 1309644 | ..... | 5000 | 1 | | | 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 | Cat-egory | Pounds (Kg) |
| Argentate(1-), bis(cyano-C)-, potassium Aroclor 1016 | 506616 12674112 | Potassium silver cyanide Aroclors | 1* | 4 | P099 | X | 1 (0.454) |
| | | | 10 | 1,2,3 | | | X | 1 (0.454) |
| Aroclor 1221 | 11104282 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1232 | 11141165 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1242 | 53469219 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1248 | 12672296 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1254 | 11097691 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1260 | 11096825 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclors | 1336363 | POLYCHLORINATED BIPHENYLS PCBs | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1016 | 12674112 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1221 | 11104282 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1232 | 11141165 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1242 | 53469219 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1248 | 12672296 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1254 | 11097691 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Aroclor 1260 | 11096825 | POLYCHLORINATED BIPHENYLS Aroclors | 10 | 1,2,3 | | X | 1 (0.454) |
| | | | | | | | |
| Arsenic †† | 7440382 | Arsenic acid H ₃ AsO ₄ | 1* | 2,3 | | X | 1 (0.454) |
| | | | 1* | 4 | P010 | X | 1 (0.454) |
| Arsenic acid | 1327522 | Arsenic acid | 1* | 4 | P010 | X | 1 (0.454) |
| | | | | | | | |
| Arsenic acid H ₃ AsO ₄ | 7778394 | Arsenic acid | 1* | 4 | P010 | X | 1 (0.454) |
| | | | | | | | |
| ARSENIC AND COMPOUNDS | N.A. | Arsenic Compounds (inorganic including ar- sine) | 1* | 2,3 | | | ** |
| Arsenic Compounds (inorganic including arsine) | N.A. | ARSENIC AND COMPOUNDS | 1* | 2,3 | | X | ** |
| Arsenic disulfide | 1303328 | Arsenic disulfide | 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 ₂ O ₃ | 1303282 | Arsenic pentoxide | 5000 | 1,4 | P011 | X | 1 (0.454) |
| Arsenic pentoxide | 1303282 | Arsenic oxide As ₂ O ₃ | 5000 | 1,4 | P011 | X | 1 (0.454) |
| Arsenic trichloride | 7784341 | Arsenic oxide As ₂ O ₃ | 5000 | 1,4 | P012 | X | 1 (0.454) |
| Arsenic trioxide | 1327533 | Arsenic oxide As ₂ O ₃ | 5000 | 1 | P012 | X | 1 (0.454) |
| Arsenic trisulfide | 1303339 | Diethylarsine | 1* | 4 | P038 | X | 1 (0.454) |
| Arsine, diethyl- | 692422 | Cacodylic acid | 1* | 4 | U136 | X | 1 (0.454) |
| Arsinic acid, dimethyl- | 75605 | Dichlorophenylarsine | 1* | 4 | P036 | X | 1 (0.454) |
| Arsinous dichloride, phenyl- | 696286 | Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl)- | 1* | 2,3 | P036 | X | 1 (0.454) |
| Asbestos *** | 1332214 | Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl)- | 1* | 4 | U014 | B | 100 (45.4) |
| Auramine | 492808 | L-Serine, diazoacetate (ester) | 1* | 4 | U015 | X | 1 (0.454) |
| Azaserine | 115026 | Ethylenimine | 1* | 3,4 | P054 | X | 1 (0.454) |
| Aziridine | 151564 | 2-Methyl aziridine 1,2-Propylenimine | 1* | 3,4 | P067 | X | 1 (0.454) |
| Aziridine, 2-methyl- | 75558 | Mitomycin C | 1* | 4 | U010 | A | 10 (4.54) |
| Azirino[2',3':3,4]pyrolo[1,2-aj]dole-4,7-dione 6-amino-8-[[amino-carbonyloxy]methyl]-1,1a,2,8a,8b-hexahydro-8a-methoxy-5-methyl-, [16s-(1a)alpha,8beta,8aalpha,8balpha]]- | 50077 | | | | | | |
| Barium cyanide | 542621 | 3-Methylcholanthrene | 10 | 1,4 | P013 | A | 10 (4.54) |
| Benzene | 56495 | Benzo[a]anthracene | 1* | 4 | U157 | A | 10 (4.54) |
| Benz[e]aceanthrylene, 1,2-dihydro-3-methyl- | 225514 | Benzene, dichloromethyl- | 1* | 4 | U016 | B | 100 (45.4) |
| Benzal chloride | 98873 | Pronamide | 1* | 4 | U017 | D | 5000 (2270) |
| Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propenyl)- | 2395085 | Benzo[a]anthracene | 1* | 4 | U192 | D | 5000 (2270) |
| Benzo[a]anthracene | 56553 | 1,2-Benzanthracene | 1* | 2,4 | U018 | A | 10 (4.54) |
| 1,2-Benzanthracene | 56553 | Benzo[a]anthracene | 1* | 2,4 | U018 | A | 10 (4.54) |
| Benz[a]anthracene, 7,12-dimethyl- | 57976 | Benzo[a]anthracene | 1* | 4 | U094 | X | 1 (0.454) |
| Benzenamine | 62533 | 7,12-Dimethylbenzo[a]anthracene | 1000 | 1,3,4 | U012 | D | 5000 (2270) |
| Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl)- | 492808 | Aniline | 1* | 4 | U014 | B | 100 (45.4) |
| Benzenamine, 4-chloro- | 106478 | Auramine | 1* | 4 | U014 | B | 100 (45.4) |
| Benzenamine, 4-chloro-2-methyl-, hydrochloride | 3165933 | p-Chloroaniline | 1* | 4 | P024 | C | 1000 (45.4) |
| Benzenamine, N,N-dimethyl-4-(phenylazo)- | 60117 | 4-Chloro-o-toluidine, hydrochloride | 1* | 4 | U049 | B | 100 (45.4) |
| Benzenamine, 2-methyl- | 95534 | Dimethyl aminoazobenzene | 1* | 3,4 | U093 | A | 10 (4.54) |
| Benzenamine, 4-methyl- | 106490 | o-Toluidine | 1* | 3,4 | U328 | B | 100 (45.4) |
| Benzenamine, 4,4'-methylenebis(2-chloro- | 101144 | p-Toluidine | 1* | 4 | U353 | B | 100 (45.4) |
| Benzenamine, 2-methyl-, hydrochloride | 636215 | 4,4'-Methylenebis(2-chloroaniline) | 1* | 3,4 | U158 | A | 10 (4.54) |
| Benzenamine, 2-methyl-5-nitro- | 99558 | o-Toluidine hydrochloride | 1* | 4 | U222 | B | 100 (45.4) |
| Benzenamine, 4-nitro- | 100016 | 5-Nitro-o-toluidine | 1* | 4 | U181 | B | 100 (45.4) |
| Benzenoic acid, 4-chloro- α -(4-chlorophenyl)- α -hydroxy-, ethyl ester | 71432 | p-Nitroaniline | 1* | 4 | P077 | D | 5000 (2270) |
| Benzenoic acid, 1-bromo-4-phenoxy- | 510156 | Chlorobenzilate | 1000 | 1,2,3,4 | U109 | A | 10 (4.54) |
| Benzenobutanoic acid, 4-bis(2-chloroethyl)amino- | 101553 | 4-Bromophenyl phenyl ether | 1* | 3,4 | U038 | A | 10 (4.54) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 305033 | Chlorambucil | 1* | 2,4 | U030 | B | 100 (45.4) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 108907 | Chlorobenzene | 1* | 4 | U035 | A | 10 (4.54) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 100447 | Chlorobenzene | 100 | 1,2,3,4 | U037 | B | 100 (45.4) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 95807 | Benzyl chloride | 100 | 1,3,4 | P028 | B | 100 (45.4) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 496720 | Toluenediamine | 1* | 3,4 | U221 | A | 10 (4.54) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 823405 | 2,4-Toluene diamine | 1* | 3,4 | U221 | A | 10 (4.54) |
| Benzenoic acid, 4-bis(2-chloroethyl)amino- | 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 | Cat-egory | Pounds (Kg) |
| 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester | 117817 | Bis(2-ethylhexyl)phthalate DEHP | 1* | 2,3,4 | U028 | B | 100 (45.4) |
| 1,2-Benzenedicarboxylic acid, dibutyl ester | 84742 | Diethylhexyl phthalate 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-dichloroethyldene)bis[4-chloro- | 72548 | DDD TDE | 1 | 1,2,4 | U060 | X | 1 (0.454) |
| Benzene, dichloromethyl- | 98873 | 4,4' DDD Benzal chloride | 1* | 4 | U017 | D | 5000 (2270) |
| Benzene, 1,3-diisocyanatomethyl- | 91087 | Toluene diisocyanate | 1* | 3,4 | U223 | B | 100 (45.4) |
| Benzene, dimethyl- | 584849 26471625 1330207 | 2,4-Toluene diisocyanate 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) |

| Chemical Name | PCNB | 82688 | PCNB | 1* | 3,4 | U185 | B | 100 (45.4) |
|--|---|----------|---|------|-------|------|---|-------------|
| Benzene, pentachloronitro- | Pentachloronitrobenzene | 82688 | Pentachloronitrobenzene | 1* | 3,4 | U185 | B | 100 (45.4) |
| Benzenesulfonic acid chloride | Quintobenzene | 98099 | Quintobenzene | 1* | 4 | U020 | B | 100 (45.4) |
| Benzenesulfonyl chloride | Benzenesulfonyl chloride | 98099 | Benzenesulfonyl chloride | 1* | 4 | U020 | B | 100 (45.4) |
| Benzene, 1,2,4,5-tetrachloro- | Benzene, 1,2,4,5-tetrachlorobenzene | 95943 | Benzene, 1,2,4,5-tetrachlorobenzene | 1* | 4 | U017 | D | 5000 (2270) |
| Benzenethiol | Thiophenol | 108985 | Thiophenol | 1* | 4 | P014 | B | 100 (45.4) |
| Benzene, 1,1'-(2,2,2-tri-chloroethylidene)bis[4-chloro- | DDT | 50293 | DDT | 1 | 1,2,4 | U061 | X | 1 (0.454) |
| | 4,4'-DDT | | 4,4'-DDT | | | | | |
| Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy- | Methoxychlor | 72435 | Methoxychlor | 1 | 1,3,4 | U247 | X | 1 (0.454) |
| Benzene, (trichloromethyl)- | Benzotrifluoride | 98077 | Benzotrifluoride | 1* | 3,4 | U023 | A | 10 (4.54) |
| Benzene, 1,3,5-trinitro- | 1,3,5-Trinitrobenzene | 99354 | 1,3,5-Trinitrobenzene | 1* | 4 | U234 | A | 10 (4.54) |
| Benzidine | [1,1'-Biphenyl]-4,4'-diamine | 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 | Saacharin and salts | 81072 | Saacharin and salts | 1* | 4 | U202 | X | 100 (45.4) |
| Benz[<i>a</i>]anthracene | Benz[<i>a</i>]anthracene | 56553 | Benz[<i>a</i>]anthracene | 1* | 2,4 | U018 | A | 10 (4.54) |
| | 1,2-Benzanthracene | | 1,2-Benzanthracene | | | | | |
| Benz[<i>b</i>]fluoranthene | | 205992 | | 1* | 2 | | X | 1 (0.454) |
| Benz[<i>k</i>]fluoranthene | | 207089 | | 1* | 2 | | D | 5000 (2270) |
| Benz[<i>k</i>]fluorene | Fluoranthene | 206440 | Fluoranthene | 1* | 2,4 | U120 | B | 100 (45.4) |
| 1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol) | | 22961826 | | 1* | 4 | U364 | B | ## |
| 1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb) | | 22781233 | | 1* | 4 | U278 | B | ## |
| 1,3-Benzodioxole, 5-(1-propenyl)- | Isosafrole | 120581 | Isosafrole | 1* | 4 | U141 | B | 100 (45.4) |
| 1,3-Benzodioxole, 5-(2-propenyl)- | Safrole | 94597 | Safrole | 1* | 4 | U203 | B | 100 (45.4) |
| 1,3-Benzodioxole, 5-propyl- | Dihydrosafrole | 94586 | Dihydrosafrole | 1* | 4 | U090 | A | 10 (4.54) |
| 7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, (Carboluran phenol) | | 1563388 | | 1* | 4 | U367 | A | ## |
| Benzoic acid | | 65850 | | 5000 | 1 | | D | 5000 (2270) |
| Benzoic acid, 2-hydroxy-, compd. with (3 <i>aS</i> -cis)-1,2,3,3 <i>a</i> ,8 <i>a</i> -hexahydro-1,3 <i>a</i> ,8-trimethylpyrrolo[2,3- <i>b</i>]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate) | | 57647 | | 1* | 4 | P188 | | ## |
| Benzonitrile | | 100470 | | 1000 | 1 | | D | 5000 (2270) |
| Benzo [rst]pentaphene | Dibenz[<i>a,l</i>]pyrene | 189559 | Dibenz[<i>a,l</i>]pyrene | 1* | 4 | U064 | A | 10 (4.54) |
| Benz[<i>ghi</i>]perylene | | 191242 | | 1* | 2 | | D | 5000 (2270) |
| 2 <i>H</i> -1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3% | Warfarin, & 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) |
| Benz[<i>a</i>]pyrene | | 50328 | | 1* | 2,4 | U022 | X | 1 (0.454) |
| 3,4-Benzopyrene | Benz[<i>a</i>]pyrene | 50328 | Benz[<i>a</i>]pyrene | 1* | 2,4 | U022 | X | 1 (0.454) |
| <i>p</i> -Benzoquinone | 2,5-Cyclohexadiene-1,4-dione | 106514 | 2,5-Cyclohexadiene-1,4-dione | 1* | 3,4 | U197 | A | 10 (4.54) |
| | Quinone | | Quinone | | | | | |
| Benzotrifluoride | Benzene, (trichloromethyl)- | 98077 | Benzene, (trichloromethyl)- | 1* | 3,4 | U023 | A | 10 (4.54) |
| Benzoyl chloride | | 98884 | | 1000 | 1 | | C | 1000 (454) |
| 1,2-Benzphenanthrene | Chrysene | 218019 | Chrysene | 1* | 2,4 | U050 | B | 100 (45.4) |
| Benzyl chloride | Benzene, chloromethyl- | 100447 | Benzene, chloromethyl- | 100 | 1,3,4 | P028 | B | 100 (45.4) |
| BERYLLIUM AND COMPOUNDS | Beryllium Compounds | N.A. | Beryllium Compounds | 1* | 2,3 | | B | 100 (45.4) |
| Beryllium Compounds | BERYLLIUM AND 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 | | | | | | |
| alpha-BHC | Beryllium †† | 319846 | Beryllium †† | 1* | 2,3,4 | P015 | 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 | Cat-egory | Pounds (Kg) |
| beta-BHC | 319857 | | 1* | 2 | | X | 1 (0.454) |
| delta-BHC | 319868 | | 1* | 2 | | X | 1 (0.454) |
| gamma-BHC | 58899 | Cyclohexane, 1,2,3,4,5,6-hexa chloro- (1α, 2α, 3β, 4α, 5α, 6β)- | 1 | 1,2,3,4 | U129 | X | 1 (0.454) |
| | | Hexachlorocyclohexane (gamma isomer) | | | | | |
| 2,2'-Bioxirane | 1464535 | Lindane | 1* | 4 | U085 | A | 10 (4.54) |
| (1,1'-Biphenyl)-4,4'-diamine | 92875 | 1,2,3,4-Diepoxybutane | 1* | 2,4 | U021 | X | 1 (0.454) |
| [1,1'-Biphenyl]-4,4'-diamine,3,3'-dichloro- | 91941 | Benzidine | 1* | 2,4 | U073 | X | 1 (0.454) |
| [1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethoxy- | 119904 | 3,3'-Dichlorobenzidine | 1* | 4 | U091 | B | 100 (45.4) |
| [1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethyl- | 119937 | 3,3'-Dimethoxybenzidine | 1* | 4 | U095 | A | 10 (4.54) |
| Biphenyl | 92524 | 3,3'-Dimethylbenzidine | 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- | 1* | 2,4 | U024 | C | 1000 (454) |
| Bis (2-ethylhexyl)phthalate | 117817 | Dichloromethoxy ethane | 1* | 2,4 | U028 | B | 100 (45.4) |
| | | Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro- | | | | | |
| | | Diethylhexyl phthalate | | | | | |
| | | 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester | | | | | |
| Bromoacetone | 598312 | 2-Propanone, 1-bromo- | 1* | 4 | P017 | C | 1000 (454) |
| Bromolom | 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 | Stychnidin-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 | 1* | 3,4 | U159 | D | 5000 (2270) |
| 2-Butanone peroxide | 1338234 | Methyl ethyl ketone | 1* | 4 | U160 | A | 10 (4.54) |
| 2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime. | 39196184 | Methyl ethyl ketone peroxide | 1* | 4 | P045 | B | 100 (45.4) |
| 2-Butenal | 123739 | Thiofanox | 100 | 1,4 | U053 | B | 100 (45.4) |
| 2-Butene, 1,4-dichloro- | 4170303 | Crotonaldehyde | 1* | 4 | U074 | X | 1 (0.454) |
| 2-Butene, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, | 764410 | 1,4-Dichloro-2-butene | 1* | 4 | U143 | A | 10 (4.54) |
| [1S]-[alpha(Z),7'(Z),3'R),7alphaipnall]- | 303344 | Lasiocarpine | 1* | 4 | | | |
| Butyl acetate | 123864 | | 5000 | 1 | | D | 5000 (2270) |
| iso-Butyl acetate | 110190 | | | | | | |
| sec-Butyl acetate | 105464 | | | | | | |

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| | | | | | | | |
|---|----------|---|------|---------|------|---|-------------|
| tert-Butyl acetate | 540885 | 1-Butanol | 1* | 4 | U031 | D | 5000 (2270) |
| n-Butyl alcohol | 71363 | | 1000 | 1 | | C | 1000 (454) |
| Butylamine | 109739 | ..... |  |  |  |  |  |
| iso-Butylamine | 78619 | ..... |  |  |  |  |  |
| sec-Butylamine | 513495 | ..... |  |  |  |  |  |
| ..... | 13952846 | ..... |  |  |  |  |  |
| tert-Butylamine | 75649 | ..... |  |  |  |  |  |
| Butyl benzyl phthalate | 85687 | 1,2-Benzenedicarboxylic acid, dibutyl ester | 1* | 2 | U069 | B | 100 (45.4) |
| η-Butyl phthalate | 84742 | Dibutyl phthalate | 100 | 1,2,3,4 | | A | 10 (4.54) |
| ..... |  | 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) |
| Cadmium 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 | ..... | 10 | 1,4 | P021 | A | 10 (4.54) |
| Calcium dodecylbenzenesulfonate | 26284062 | ..... | 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 (Dimethlan) | 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) |
| Carbamic acid, methylnitroso-, ethyl ester | 615532 | Urethane | | | | | |
| Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb) | 1129415 | N-Nitroso-N-methylurethane | 1* | 4 | U178 | X | 1 (0.454) |
| Carbamic acid, [1,2- phenylenebis(mino-carbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl) | 23564058 | ..... | 1* | 4 | P190 | | ## |
| Carbamic acid, phenyl-, 1-methylethyl ester (Propham) | 122429 | ..... | 1* | 4 | U373 | | ## |
| Carbamic chloride, dimethyl- | 79447 | Dimethylcarbamoil 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-ethanedithylbis, salts & esters | 111546 | Ethylenebis(dithiocarbamic 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 | B | ## |
| Carbaryl | 63252 | ..... | 100 | 1,3 | | A | 100 (45.4) |
| Carboluran | 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, difthalium(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) |
| Carbonochloric acid, methyl ester | 79221 | Methyl chloroacetate | 1* | 4 | U156 | C | 1000 (454) |
| Carbon tetrachloride | 56235 | Methyl chloroformate | 5000 | 1,2,3,4 | U211 | A | 10 (4.54) |
| Carbonyl sulfide | 463581 | Methane, tetrachloro- | 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 | 1 | 1,2,3,4 | U036 | X | 1 (0.454) |
| CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | | CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | | | | | |
| Chlordane, alpha & gamma isomers | N.A. | 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,9-octachloro-2,3,3a,4,7,7a-hexahydro- | 1* | 2 | | | ** |
| CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | 57749 | Chlordane | 1 | 1,2,3,4 | U036 | X | 1 (0.454) |
| CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | | CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | | | | | |
| Chlorinated BENZENES | N.A. | 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,9-octachloro-2,3,3a,4,7,7a-hexahydro- | 1* | 2 | | | ** |
| Chlorinated camphene | 8001352 | Camphene, octachloro- | 1 | 1,2,3,4 | P123 | X | 1 (0.454) |
| CHLORINATED ETHANES | N.A. | Toxaphene | 1* | 2 | | | ** |

| Chemical Name | CAS No. | Formula | Physical State | Routes of Exposure | Health Effects | Regulatory Category | Priority | Other |
|---|----------|---|----------------|--------------------|----------------|---------------------|----------|-------------|
| CHLORINATED NAPHTHALENE | N.A. | | | | | | | |
| CHLORINATED PHENOLS | N.A. | | | | | | | |
| Chlorine | 7782505 | | Gas | Inhalation | Irritation | 1 | 1* | ** |
| Chloromethane | 75003 | CH ₃ Cl | Gas | Inhalation | Irritation | 1 | 1* | 10 (4.54) |
| Chloroacetaldehyde | 494031 | ClCH ₂ CHO | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| Chloroacetic acid | 107200 | ClCH ₂ COOH | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 1000 (45.4) |
| 2-Chloroacetophenone | 79118 | ClCH ₂ COCH ₃ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| CHLOROALKYL ETHERS | 532274 | | | | | | | |
| N.A. | | | | | | | | |
| p-Chloroaniline | 106478 | ClC ₆ H ₄ NH ₂ | Solid | Inhalation, Skin | Irritation | 1 | 1* | 1000 (45.4) |
| Chlorobenzene | 108907 | C ₆ H ₅ Cl | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| Chlorobenzilate | 510156 | | | | | | | 10 (4.54) |
| 4-Chloro-m-cresol | 59507 | ClC ₆ H ₄ CH ₃ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 5000 (2270) |
| p-Chloro-m-cresol | 59507 | ClC ₆ H ₄ CH ₃ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 5000 (2270) |
| Chloroethane | 75003 | CH ₃ CH ₂ Cl | Gas | Inhalation | Irritation | 1 | 1* | 100 (45.4) |
| Chlorobromomethane | 124481 | CH ₂ BrCl | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| 1-Chloro-2,3-epoxypropane | 106898 | ClCH ₂ CH(O)CH ₂ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| 2-Chloroethyl vinyl ether | 110758 | ClCH ₂ CH ₂ OCH=CH ₂ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 1000 (45.4) |
| Chloroform | 67663 | CHCl ₃ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 10 (4.54) |
| Chloromethane | 74873 | CH ₃ Cl | Gas | Inhalation | Irritation | 1 | 1* | 100 (45.4) |
| Chloromethyl methyl ether | 107302 | ClCH ₂ OCH ₃ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 10 (4.54) |
| beta-Chloronaphthalene | 91587 | | | | | | | 5000 (2270) |
| 2-Chloronaphthalene | 91587 | | | | | | | 5000 (2270) |
| 2-Chlorophenol | 95578 | ClC ₆ H ₄ OH | Solid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| o-Chlorophenol | 95578 | ClC ₆ H ₄ OH | Solid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| 4-Chlorophenyl phenyl ether | 7005723 | | | | | | | 5000 (2270) |
| 1-(o-Chlorophenyl)thiourea | 5344621 | | | | | | | 100 (45.4) |
| Chloroprene | 126998 | ClCH=CHCH=CH ₂ | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 100 (45.4) |
| 3-Chloropropionitrile | 542767 | ClCH ₂ CH ₂ CN | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 1000 (45.4) |
| Chlorosulfonic acid | 7790945 | ClSO ₃ H | Liquid | Inhalation, Skin | Irritation | 1 | 1* | 1000 (45.4) |
| 4-Chloro-o-tolidine, hydrochloride | 3165933 | | | | | | | 100 (45.4) |
| Chlorpyrifos | 2921882 | | | | | | | 1 (0.454) |
| Chromic acetate | 1066304 | | | | | | | 1000 (45.4) |
| Chromic acid | 11115745 | | | | | | | 10 (4.54) |
| Chromic acid H ₂ CrO ₄ , calcium salt | 7738945 | | | | | | | 10 (4.54) |
| Chromic sulfate | 13765190 | | | | | | | 1000 (45.4) |
| Chromium ⁺⁺ | 10101538 | | | | | | | 1000 (45.4) |
| Chromium ⁺⁺⁺ | 7440473 | | | | | | | 5000 (2270) |
| CHROMIUM AND COMPOUNDS | N.A. | | | | | | | ** |
| Chromium Compounds | N.A. | | | | | | | ** |
| Chromous chloride | 10049055 | | | | | | | 1000 (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) |
| 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 | 5441183 | ..... | 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) |
| Cresosote | 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 | ..... | 1* | 3 | | B | 100 (45.4) |
| o-Cresylic acid | 95487 | ..... | 1* | 3 | | B | 100 (45.4) |
| p-Cresylic acid | 106445 | ..... | 1* | 3 | | B | 100 (45.4) |
| Crotonaldehyde | 123739 | ..... | 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 | | A | 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 | 815927 | ..... | 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) |

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| Chemical Name | 106514 | 110827 | 58899 | 108941 | 131895 | 77474 | 50180 | 94757 | 94111 | 94791 | 94804 | 1320189 | 1928387 | 1928616 | 1929733 | 2971382 | 25168267 | 53467111 | 94757 | 20830813 | 72548 | 72548 | 72559 | 72559 | 3547044 | 50293 | 50293 | N.A. | |
|--|--------|--------|-------|--------|--------|-------|-------|-------|-------|-------|-------|---------|---------|---------|---------|---------|----------|----------|-------|----------|-------|-------|-------|-------|---------|-------|-------|------|--|
| 2,5-Cyclohexadiene-1,4-dione | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyclohexane | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1 α ,2 α ,3 β ,4 α ,5 α ,6 β)- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyclohexanone | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Cyclohexyl-4,6-dinitrophenol | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,3-Cyclopentadiene, 1,2,3,4,5-hexachloro- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyclophosphamide | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-D Acid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-D Ester | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-D salts and esters | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Daunomycin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4,4' DDD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4,4'-DDE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDE ^b | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4,4' DDT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDT AND METABOLITES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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 | Cat-egory | Pounds (Kg) |
| DEHP | 117817 | 1,2-Benzenedicarboxylic acid, bis(2-ethyl-hexyl) ester. | 1* | 2,3,4 | U028 | B | 100 (45.4) |
| Diallate | 2303164 | Bis(2-ethylhexyl)phthalate Diethylhexyl phthalate 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[<i>a,h</i>]anthracene | 53703 | ..... | 1* | 2,4 | U063 | X | 1 (0.454) |
| 1,2:5,6-Dibenzanthracene | 53703 | Dibenz[<i>a,h</i>]anthracene 1,2:5,6-Dibenzanthracene | 1* | 2,4 | U063 | X | 1 (0.454) |
| Dibenz[<i>a,h</i>]anthracene | 53703 | Dibenz[<i>a,h</i>]anthracene | 1* | 2,4 | U063 | X | 1 (0.454) |
| Dibenz[<i>a,i</i>]pyrene | 189559 | 2,3,6-Dibenzanthracene | 1* | 4 | U064 | A | 10 (4.54) |
| Dibenzofuran | 132649 | Benzof[<i>s</i>]pentaphene | 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- | 1000 | 1,3,4 | U067 | X | 1 (0.454) |
| Dibutyl phthalate | 84742 | Ethylene dibromide 1,2-Benzenedicarboxylic acid, dibutyl ester | 100 | 1,2,3,4 | U069 | A | 10 (4.54) |
| Di- <i>n</i> -butyl phthalate | 84742 | <i>n</i> -Butyl phthalate Di- <i>n</i> -butyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester | 100 | 1,2,3,4 | U069 | A | 10 (4.54) |
| Dicamba | 1918009 | Dibutyl phthalate | 1000 | 1 | | C | 1000 (454) |
| Dichlobenil | 1194656 | ..... | 1000 | 1 | | B | 100 (45.4) |
| Dichlorobenzene | 117806 | ..... | 1 | 1 | | X | 1 (0.454) |
| 1,2-Dichlorobenzene | 25321226 | ..... | 100 | 1 | | B | 100 (45.4) |
| 1,3-Dichlorobenzene | 95501 | Benzene, 1,2-dichloro- <i>o</i> -Dichlorobenzene | 100 | 1,2,4 | U070 | B | 100 (45.4) |
| 1,4-Dichlorobenzene | 541731 | Benzene, 1,3-dichloro <i>m</i> -Dichlorobenzene | 1* | 2,4 | U071 | B | 100 (45.4) |
| <i>m</i> -Dichlorobenzene | 106467 | Benzene, 1,4-dichloro- <i>p</i> -Dichlorobenzene | 100 | 1,2,3,4 | U072 | B | 100 (45.4) |
| <i>o</i> -Dichlorobenzene | 541731 | Benzene, 1,3-dichloro 1,3-Dichlorobenzene | 1* | 2,4 | U071 | B | 100 (45.4) |
| <i>p</i> -Dichlorobenzene | 95501 | Benzene, 1,2-dichloro 1,2-Dichlorobenzene | 100 | 1,2,4 | U070 | B | 100 (45.4) |
| DICHLOROBENZIDINE | 106467 | Benzene, 1,4-dichloro- 1,4-Dichlorobenzene | 100 | 1,2,3,4 | U072 | B | 100 (45.4) |
| 3,3'-Dichlorobenzidine | N.A. | ..... | 1* | 2 | | X | ** |
| Dichlorobromomethane | 91941 | [1,1'-Biphenyl]-4,4'-diamine,3,3'-dichloro- | * | 2,3,4 | U073 | D | 1 (0.454) |
| 1,4-Dichloro-2-butene | 75274 | | 1* | 2 | | D | 5000 (2270) |
| | 764410 | 2-Butene, 1,4-dichloro- | 1* | 4 | U074 | X | 1 (0.454) |

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|---|----------|---|------|---------|------|---|-------------|
| 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) |
| 1,2-Dichloroethane | 107062 | Ethylene dichloride | 5000 | 1,2,3,4 | U077 | B | 100 (45.4) |
| 1,1-Dichloroethylene | 75354 | Ethene, 1,1-dichloro- | 5000 | 1,2,3,4 | U078 | B | 100 (45.4) |
| 1,2-Dichloroethylene | 156605 | Vinylidene chloride | 1* | 2,4 | U079 | C | 1000 (454) |
| Dichloroethyl ether | 111444 | Bis(2-chloroethyl) ether | 1* | 2,3,4 | U025 | A | 10 (4.54) |
| Dichloroisopropyl ether | 108601 | Propane, 2,2'-oxybis[2-chloro- | 1* | 2,4 | U027 | C | 1000 (454) |
| Dichloromethane | 75092 | Methane, dichloro- | 1* | 2,3,4 | U080 | C | 1000 (454) |
| Dichloromethoxy ethane | 111911 | Methylene chloride | 1* | 2,4 | U024 | C | 1000 (454) |
| Dichloromethyl ether | 542881 | Ethane, 1,1'-(methylenebis(oxy))bis(2-chloro- | 1* | 3,4 | P016 | A | 10 (4.54) |
| 2,4-Dichlorophenol | 120832 | Methane, oxybis(chloro- | 1* | 2,4 | U081 | B | 100 (45.4) |
| 2,6-Dichlorophenol | 87650 | Phenol, 2,4-dichloro- | 1* | 4 | U082 | B | 100(45.4) |
| Dichlorophenylarsine | 696286 | Phenol, 2,6-dichloro- | 1* | 4 | P036 | X | 1 (0.454) |
| Dichloropropane | 26638197 | Arsonous dichloride, phenyl- | 5000 | 1 | | C | 1000 (454) |
| 1,1-Dichloropropane | 78999 | | | | | | |
| 1,3-Dichloropropane | 142289 | Propane, 1,2-dichloro- | 5000 | 1,2,3,4 | U083 | C | 1000 (454) |
| 1,2-Dichloropropane | 78875 | Propylene dichloride | 5000 | 1 | | B | 100 (45.4) |
| 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 | 1 | 1,2,4 | P037 | X | 1 (0.454) |
| | | 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- | | | | | |
| | | octahydro-, | | | | | |
| | | (1a,2a,7b,7c,8a,8b,9a,9b)- | | | | | |
| | | 7,8-dichloro- | | | | | |
| | | 2,2'-Bioxirane | 1* | 4 | U085 | A | 10 (4.54) |
| 1,2:3,4-Diepoxybutane | 1464535 | | 1* | 3 | | B | 100 (45.4) |
| Diethanolamine | 111422 | | 1000 | 1 | | B | 100 (454.4) |
| Diethylamine | 109897 | | 1* | 3 | | C | 1000 (454) |
| N,N-Diethylaniline | 91667 | Arsine, diethyl- | 1* | 4 | P038 | X | 1 (0.454) |
| Diethylarsine | 692422 | 1,4-Dioxane | 1* | 3,4 | U108 | B | 100 (45.4) |
| Diethylsulfone | 123911 | 1,4-Diethylenedioxi- | 1* | 3,4 | U108 | B | 100 (45.4) |
| 1,4-Diethylenedioxi- | 123911 | 1,4-Diethylenedioxi- | 1* | 3,4 | U108 | B | 100 (45.4) |
| Diethylhexyl phthalate | 117817 | 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) | 1* | 2,3,4 | U028 | B | 100 (45.4) |
| N,N'-Diethylhydrazine | 1615801 | Bis(2-ethylhexyl)phthalate DEHP | 1* | 4 | U086 | A | 10 (4.54) |
| | | Hydrazine, 1,2-diethyl- | | | | | |

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|---|----------|--|------|----------|------|---|-------------|
| 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 (45.4) |
| Di-n-octyl phthalate | 117840 | 1,2-Benzenedicarboxylic acid, dioctyl ester | 1* | 2,4 | U107 | D | 5000 (2270) |
| 1,4-Dioxane | 123911 | 1,4-Diethylenedioxiide | 1* | 3,4 | U108 | B | 100 (45.4) |
| DIPHENYLHYDRAZINE | N.A. | 1,4-Diethylenedioxiide | 1* | 2 | | A | ** |
| 1,2-Diphenyl- | 122667 | Hydrazine, 1,2-diphenyl- | 1* | 2,3,4 | U109 | A | 10(4.54) |
| hydrazine ..... |  | ..... |  |  |  |  |  |
| 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 (45.4) |
| Disulfoton | 2764729 | Phosphorodithioic acid, o,o-diethyl S-[2-(ethylthio)ethyl]ester. Thiomidodicarbonic diamide [(HG2KN)C(S)]2NH | 1 | 1,4 | P039 | X | 1 (0.454) |
| Dithioburet | 298044 | ..... |  |  |  |  |  |
| 1,3-Dithiolane-2-carboxaldehyde, [(methylamino)carbonyloxime (Tirpate), 2,4-dimethyl-, O- | 541537 | ..... | 1* | 4 | P185 | B | # |
| Diuron | 330541 | ..... | 100 | 1 | | B | 100 (45.4) |
| Dodecylbenzenesulfonic acid | 27176870 | ..... | 1000 | 1 | | C | 1000 (45.4) |
| 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 | | X | ** |
| 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 (45.4) |

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| | | | | | | | |
|---|----------|--|------|---------|------|---|-------------|
| Ethane, 1,1,1-trichloro- | 71556 | Methyl chloroform | 1* | 2,3,4 | U226 | C | 1000(454) |
| Ethane, 1,1,2-trichloro- | 79005 | 1,1,1-Trichloroethane | 1* | 2,3,4 | U227 | B | 100(45.4) |
| Ethanedithioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester (A2213) | 30558431 | 1,1,2-Trichloroethane | 1* | 4 | U394 | | ## |
| Ethanimidothioic acid, 2-(dimethylamino)-N-[[methylamino]carbonyloxy]-2-oxo-, methyl ester (Oxamyl) | 23135220 | Methomyl | 1* | 4 | P194 | B | 100 (45.4) |
| Ethanimidothioic acid, N-[[methyl- amino]carbonyloxy]-, methyl ester | 16752775 | | 1* | 4 | P066 | | ## |
| Ethanimidothioic acid, N,N'- [thio]bis(methylamino)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 | Acetophenone | 1* | 4 | U395 | D | 5000(2270) |
| Ethanol, 1-phenyl- | 98862 | Vinyl chloride | 1* | 3,4 | U004 | X | 1 (0.454) |
| Ethene, chloro- | 75014 | 2-Chloroethyl vinyl ether | 1* | 2,3,4 | U043 | X | 1 (0.454) |
| Ethene, 2-chloroethoxy- | 110758 | 1,1-Dichloroethylene | 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) |
| Ethene, 1,2-dichloro- (E) | 156605 | Vinylidene chloride | 1* | 2,4 | U079 | C | 1000 (454) |
| Ethene, tetrachloro- | 127184 | 1,2-Dichloroethylene | 1* | 2,3,4 | U210 | B | 100(45.4) |
| Ethene, trichloro- | 79016 | Tetrachloroethylene | 1000 | 1,2,3,4 | U228 | B | 100(45.4) |
| Ethion | 563122 | Trichloroethene | 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 | Carbamic acid, ethyl ester | 1000 | 1,2,3 | | C | 1000(454) |
| Ethyl carbamate | 51796 | Urethane | 1* | 3,4 | U238 | B | 100(45.4) |
| Ethyl chloride | 75003 | Chloroethane | 1* | 2,3 | | B | 100(45.4) |
| Ethyl cyanide | 107120 | Propanenitrile | 1* | 4 | P101 | A | 10 (4.54) |
| Ethylenebis(2-thiocarbamic acid, salts & esters) | 111546 | Carbamodithioic acid, 1,2-ethanedilybis, 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) |
| Ethylene dichloride | 107062 | Ethane, 1,2-dibromo- | 5000 | 1,2,3,4 | U077 | B | 100(45.4) |
| Ethylene glycol | 107211 | Ethane, 1,2-dichloro- | | | | | |
| Ethylene glycol monoethyl ether | 110805 | Ethanol, 2-ethoxy- | 1* | 3 | | D | 5000 (2270) |
| Ethylenimine | 151564 | Aziridine | 1* | 4 | U359 | C | 1000 (454) |
| Ethylene oxide | 75218 | Oxirane | 1* | 3,4 | P054 | X | 1(0.454) |
| Ethylenethiourea | 96457 | 2-Imidazolidinethione | 1* | 3,4 | U115 | A | 10(4.54) |
| Ethyl ether | 60297 | Ethane, 1,1'-oxybis- | 1* | 4 | U116 | A | 10(4.54) |
| Ethylene dichloride | 75343 | 1,1-Dichloroethane | 1* | 4 | U117 | B | 100 (45.4) |
| Ethyl methacrylate | 97632 | Ethane, 1,1-dichloro- | | | | | |
| Ethyl methanesulfonate | 62500 | 2-Propenoic acid, 2-methyl-, ethyl ester | 1* | 4 | U118 | C | 1000 (454) |
| | | 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 † | RCA waste Number | Cat-egory | Pounds (Kg) |
| Famphur | 52857 | Phosphorothioic acid, O, ₁ 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 ² | N.A. | ..... | 1* | 3 | | | ** |
| Fluoranthene | 206440 | ..... | 1* | 2,4 | U120 | B | 100 (45.4) |
| Fluorene | 86737 | Benzol[j,k]fluorene | 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 | U123 | 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-nitrosoamino)- | 18883664 | D-Glucose, 2-deoxy-2-[(methyl/nitrosoamino)- carbonylamino] Streptozocin. | 1* | 4 | U206 | X | 1 (0.454) |
| D-Glucose, 2-deoxy-2-[(methyl/nitrosoamino)-carbonylamino]- | 18883664 | Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoamino)- | 1* | 4 | U206 | X | 1 (0.454) |
| ..... |  | Streptozocin | | | | | |
| Glycylaldehyde | 765344 | Oxirane-carboxaldehyde | 1* | 4 | U126 | A | 10 (4.54) |
| Glycol ethers, ⁴ | N.A. | ..... | 1* | 3 | | | ** |
| Guanidine, N-methyl-N-nitro- | 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 | | | ** |

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| Chemical Name | 76448 | Chemical Name | 76448 | 1 | 1,2,3,4 | P059 | X | 1, (0.454) |
|--|---------|---|---------|------|---------|------|---|-------------|
| Heptachlor | 76448 | 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro- | 76448 | 1 | 1,2,3,4 | P059 | X | 1, (0.454) |
| HEPTACHLOR AND METABOLITES | N.A. | | | | | | | |
| Heptachlor epoxide | 1024573 | | 1024573 | 1* | 2 | | X | ** |
| Hexachlorobenzene | 118741 | Benzene, hexachloro- | 118741 | 1* | 2,3,4 | U127 | A | 1 (0.454) |
| Hexachlorobutadiene | 87683 | 1,3-Butadiene 1,1,2,3,4,4-hexachloro- | 87683 | 1* | 2,3,4 | U128 | X | 1 (0.454) |
| HEXACHLOROCYCLOHEXANE (all isomers) | 608731 | | 608731 | 1* | 2 | | | ** |
| Hexachlorocyclohexane (gamma isomer) | 58899 | γ-BHC | 58899 | 1 | 1,2,3,4 | U129 | X | 1 (0.454) |
| | | Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3β,4α,5α,6β)- | | | | | | |
| | | Lindane | | | | | | |
| | | Lindane (all isomers) | | | | | | |
| Hexachlorocyclopentadiene | 77474 | 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro- | 77474 | 1 | 1,2,3,4 | U130 | A | 10 (4.54) |
| Hexachloroethane | 67721 | Ethane, hexachloro- | 67721 | 1* | 2,3,4 | U131 | B | 100 (45.4) |
| Hexachlorophene | 70304 | Phenol, 2,2'-methylenebis[3,4,6-trichloro-1-Propene, 1,1,2,3,3,3-hexachloro- | 70304 | 1* | 4 | U132 | B | 100 (45.4) |
| Hexachloropropene | 1888717 | | 1888717 | 1* | 4 | U243 | C | 1000 (45.4) |
| Hexaethyl tetraphosphate | 757584 | Tetraphosphoric acid, hexaethyl ester | 757584 | 1* | 4 | P062 | B | 100 (45.4) |
| Hexamethylene-1,6-diisocyanate | 822060 | | 822060 | 1* | 3 | | B | 100 (45.4) |
| Hexamethylphosphoramide | 680319 | | 680319 | 1* | 3 | | X | 1 (0.454) |
| Hexane | 110543 | | 110543 | 1* | 3 | | D | 5000 (2270) |
| Hexone | 108101 | Methyl isobutyl ketone | 108101 | 1* | 3,4 | U161 | D | 5000 (2270) |
| | | 4-Methyl-2-pentanone | | | | | | |
| Hydrazine | 302012 | | 302012 | 1* | 3,4 | U133 | X | 1 (0.454) |
| Hydrazine, 1,2-diethyl- | 1615801 | N,N-Diethylhydrazine | 1615801 | 1* | 4 | U086 | A | 10 (4.54) |
| Hydrazine, 1,1-dimethyl- | 57147 | 1,1-Dimethylhydrazine | 57147 | 1* | 3,4 | U098 | A | 10 (4.54) |
| Hydrazine, 1,2-dimethyl- | 540738 | 1,2-Dimethylhydrazine | 540738 | 1* | 4 | U099 | X | 1 (0.454) |
| Hydrazine, 1,2-diphenyl- | 122667 | 1,2-Diphenylhydrazine | 122667 | 1* | 2,3,4 | U109 | A | 10 (4.54) |
| Hydrazine, methyl- | 60344 | Methyl hydrazine | 60344 | 1* | 3,4 | P068 | A | 10 (4.54) |
| Hydrazinecarbothioamide | 79196 | Thiosemicarbazide | 79196 | 1* | 4 | P116 | B | 100 (45.4) |
| Hydrochloric acid | 7647010 | Hydrogen chloride | 7647010 | 5000 | 1,3 | | D | 5000 (2270) |
| Hydrocyanic acid | 74908 | Hydrogen cyanide | 74908 | 10 | 1,4 | P063 | A | 10 (4.54) |
| Hydrofluoric acid | 7664393 | Hydrogen fluoride | 7664393 | 5000 | 1,3,4 | U134 | B | 100 (45.4) |
| Hydrochloric acid | 7647010 | Hydrochloric acid | 7647010 | 5000 | 1,3 | | D | 5000 (2270) |
| Hydrogen cyanide | 74908 | Hydrocyanic acid | 74908 | 10 | 1,4 | P063 | A | 10 (4.54) |
| Hydrogen fluoride | 7664393 | Hydrofluoric acid | 7664393 | 5000 | 1,3,4 | U134 | B | 100 (45.4) |
| Hydrogen phosphide | 7803512 | Phosphine | 7803512 | 1* | 3,4 | P096 | B | 100 (45.4) |
| Hydrogen sulfide | 7783064 | Hydrogen sulfide H ₂ S | 7783064 | 100 | 1,4 | U135 | B | 100 (45.4) |
| Hydrogen sulfide H ₂ S | 7783064 | Hydrogen sulfide | 7783064 | 100 | 1,4 | U135 | B | 100 (45.4) |
| Hydroperoxide, 1-methyl-1-phenylethyl- | 80159 | alpha,alpha-Dimethylbenzylhydroperoxide | 80159 | 1* | 4 | U096 | A | 10 (4.54) |
| Hydroquinone | 123319 | | 123319 | 1* | 3 | | B | 100 (45.4) |
| 2-Imidazolidinethione | 96457 | Ethylenethiourea | 96457 | 1* | 3,4 | U116 | A | 10 (4.54) |
| Indeno(1,2,3-cd)pyrene | 193395 | 1,10-(1,2-Phenylene)pyrene | 193395 | 1* | 2,4 | U137 | B | 100 (45.4) |
| Iodomethane | 74884 | Methane, iodo- | 74884 | 1* | 3,4 | U138 | B | 100 (45.4) |
| | | Methyl iodide | | | | | | |
| | | Phthalic anhydride | | | | | | |
| 1,3-Isobenzofurandione | 85449 | | 85449 | 1* | 3,4 | U190 | D | 5000 (2270) |
| Isobutyl alcohol | 78631 | 1-Propanol, 2-methyl- | 78631 | 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,8beta)- | 465736 | 1* | 4 | P060 | X | 1 (0.454) |
| | | | | | | | | |
| Isophorone | 78591 | | 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 † | RQ | Category |
| Isoprene | 78795 | ..... | 1000 | 1 | B | 100 (45.4) |
| Isopropanolamine dodecylbenzenesulfonate | 42504461 | ..... | 1000 | 1 | C | 1000 (454) |
| Isosafrole | 120581 | ..... | 1* | 4 | B | 100 (45.4) |
| 3(2H)-isoxazolon-5-(aminomethyl)- | 2763964 | Muscimol | 1* | 4 | C | 1000 (454) |
| Kepone | 143500 | 5-(Aminomethyl)-3-isoxazololone, 1,3,4-Metheno-2H-cyclobutal[c]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachlorohydro- | 1 | 1,4 | X | 1 (0.454) |
| Lasiocarpine | 303344 | 2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutyl]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]- | 1* | 4 | A | 10 (4.54) |
| Lead†† | 7439921 | ..... | 1* | 2 | A | 10 (4.54) |
| Lead acetate | 301042 | Acetic acid, lead(2+) salt | 5000 | 1,4 | 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 | ..... | 5000 | 1 | X | 1 (0.454) |
| Lead, bis(acetato-O)tetrahydroxytri- | 7645252 | ..... | 1* | 4 | A | 10 (4.54) |
| Lead chloride | 10102484 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead fluoroborate | 1335326 | Lead subacetate | 1000 | 1 | A | 10 (4.54) |
| Lead fluoride | 7758954 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead iodide | 13814965 | ..... | 1000 | 1 | A | 10 (4.54) |
| Lead nitrate | 7783462 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead phosphate | 10101630 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead stearate | 10099748 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead sulfite | 7446277 | Phosphoric acid, lead(2+) salt (2:3) | 1* | 4 | A | 10 (4.54) |
| Lead thiocyanate | 1072351 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead subacetate | 7428480 | ..... | 1* | 4 | A | 10 (4.54) |
| Lead sulfate | 52652592 | Lead, bis(acetato-O)tetrahydroxytri- | 5000 | 1 | A | 10 (4.54) |
| Lead sulfide | 1335326 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead sulfide | 7446142 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead thiocyanate | 15739807 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead thiocyanate | 1314870 | ..... | 5000 | 1 | A | 10 (4.54) |
| Lead thiocyanate | 592870 | ..... | 5000 | 1 | A | 10 (4.54) |

| Chemical Name | 1 | 1,2,3,4 | U129 | X | 1 (0.454) |
|--|----------|---------|-------|---|-------------|
| Lindane | 58899 | 1 | U129 | X | 1 (0.454) |
| γ-BHC | 58899 | 1 | U129 | X | 1 (0.454) |
| Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-, Hexachlorocyclohexane (gamma isomer) | 58899 | 1 | U129 | X | 1 (0.454) |
| Lindane (all isomers) | 58899 | 1 | U129 | X | 1 (0.454) |
| γ-BHC | 58899 | 1 | U129 | X | 1 (0.454) |
| Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-, Hexachlorocyclohexane (gamma isomer) | 58899 | 1 | U129 | X | 1 (0.454) |
| Lindane | 58899 | 1 | U129 | X | 1 (0.454) |
| 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 | 5000 | 1,3,4 | D | 5000 (2270) |
| Maleic hydrazide | 123331 | 1* | 4 | D | 5000 (2270) |
| Malononitrile | 109773 | 1* | 4 | C | 1000 (454) |
| Manganese bis(dimethylcarbamodithioato-S,S)-(Manganese dimethylthiocarbamate) | 15339363 | 1* | 4 | C | 1000 (454) |
| Manganese Compounds | N.A. | 1* | 3 | D | ** |
| MDI | 101688 | 1* | 3 | D | 5000 (2270) |
| Melphalan | 148823 | 1* | 4 | X | 1 (0.454) |
| MEK | 78933 | 1* | 3,4 | D | 5000 (2270) |
| Mercaptodimethyl | 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) |
| Mercury | 7782867 | 1* | 2,3,4 | X | 1 (0.454) |
| MERCURY AND COMPOUNDS | 7439976 | 1* | 2,3 | X | ** |
| Mercury Compounds | N.A. | 1* | 2,3 | X | ** |
| Mercury, (acetate-O)phenyl- | N.A. | 1* | 2,3 | X | ** |
| Mercury, (acetate-O)phenyl- | 62384 | 1* | 4 | B | 100 (45.4) |
| Mercury fulminate | 628864 | 1* | 4 | A | 10 (4.54) |
| Methacrylonitrile | 126987 | 1* | 4 | C | 1000 (454) |
| Methanamine, N-methyl- | 124403 | 1000 | 1,4 | C | 1000 (454) |
| Methanamine, N-methyl-N-nitroso- | 62759 | 1* | 2,3,4 | A | 10 (4.54) |
| Methane, bromo- | 74839 | 1* | 2,3,4 | C | 1000 (454) |
| Methane, bromo- | 74839 | 1* | 2,3,4 | C | 1000 (454) |
| Methane, chloro- | 74873 | 1* | 2,3,4 | B | 100 (45.4) |
| Methane, chloromethoxy- | 107302 | 1* | 3,4 | A | 10 (4.54) |
| Methane, dibromo- | 74953 | 1* | 4 | C | 1000 (454) |
| Methane, dichloro- | 75092 | 1* | 2,3,4 | C | 1000 (454) |
| Methane, dichlorodifluoro- | 75718 | 1* | 4 | 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 | Cat-egory | Pounds (Kg) |
| Methane, iodo- | 74884 | Iodomethane | 1* | 3,4 | U138 | B | 100 (45.4) |
| Methane, isocyanato- | 624839 | Methyl isocyanide | 1* | 3,4 | P064 | A | 10 (4.54) |
| Methane, oxybis(chloro- | 542881 | Bis(chloromethyl)ether | 1* | 3,4 | P016 | A | 10 (4.54) |
| Methanesulfenyl chloride, trichloro- | 594423 | Dichloromethyl ether | 1* | 4 | P118 | B | 100 (45.4) |
| Methanesulfonic acid, ethyl ester | 62500 | Trichloromethanesulfenyl chloride | 5000 | 1,2,3,4 | U119 | X | 1 (0.454) |
| Methane, tetrachloro- | 56235 | Carbon tetrachloride | 1* | 4 | U211 | A | 10 (4.54) |
| Methane, tetraortho- | 509148 | Tetraorthomethane | 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 | 100 | 1,4 | U153 | B | 100 (45.4) |
| Methanimidamide, N,N-dimethyl-N-[3- [[[(methylamino)carbonyl]oxy]phenyl]- (Formetanate hydrochloride)] | 23422539 | Thiomethanol | 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,4,5,5a,5b,6,6- dechlorooctahydro- | 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- 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a- hexahydro- | 76448 57749 | Heptachlor | 1* | 1,2,3,4 | P059 | X | 1 (0.454) |
| Methanol | | Chloroform | 1 | 1,2,3,4 | U036 | X | 1 (0.454) |
| Methapyrene | | Chloroform, alpha & gamma isomers | | | | | |
| Methyl | | CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | | | | | |
| Methoxychlor | 72435 | Methyl alcohol | 1* | 3,4 | U154 | D | 5000 (2270) |
| Methyl alcohol | 67561 | 1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl- N'-(2-thienylmethyl)- | 1* | 4 | U155 | D | 5000 (2270) |
| 2-Methyl aziridine | 75558 | Ethanidithioic acid, N-[[methyl- amino]carbonyl]oxy]-, methyl ester | 1* | 4 | P066 | B | 100 (45.4) |
| Methyl bromide | 74839 | Benzene, 1,1'-(2,2,2-trichloroethyl- idene)bis[4- methoxy- Methanol | 1 | 1,3,4 | U247 | X | 1 (0.454) |
| | | Aziridine, 2-methyl- | 1* | 3,4 | U154 | D | 5000 (2270) |
| | | 1,2-Propylenimine | 1* | 3,4 | P067 | X | 1 (0.454) |
| | | Bromomethane | | | | | |
| | | Methane, bromo- | 1* | 2,3,4 | U029 | C | 1000 (454) |

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| | | | | | | | |
|--|---------|---|------|-------|------|---|-------------|
| 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) |
| Methyl chloroacetate | 79221 | Methane, chloro- | 1* | 4 | U156 | C | 1000 (454) |
| Methyl chloroform | 71556 | Carbonochloric acid, methyl ester | 1* | 2,3,4 | U226 | C | 1000 (454) |
| Methyl chloroformate | 79221 | Methyl chloroformate | 1* | 4 | U156 | C | 1000 (454) |
| 3-Methylcholanthrene | 56495 | 1,1,1-Trichloroethane | 1* | 4 | U157 | A | 10 (4.54) |
| 4,4'-Methylenebis(2-chloroaniline) | 101144 | Methyl chloroacetate | 1* | 3,4 | U158 | A | 10 (4.54) |
| Methylene bromide | 74953 | Benz[j]aceanthrylene, 1,2-dihydro-3-methyl- | 1* | 4 | U068 | C | 1000 (454) |
| Methylene chloride | 75092 | Benzeneamine, 4,4'-methylene-bis(2-chloro- | 1* | 2,3,4 | U080 | C | 1000 (454) |
| 4,4'-Methylenedianiline | 101779 | Methane, dibromo- | 1* | 3 | | A | 10 (4.54) |
| Methylene diphenyl diisocyanate | 101688 | Dichloromethane | 1* | 3 | | D | 5000 (2270) |
| Methyl ethyl ketone | 78933 | Methane, dichloro- | 1* | 3,4 | U159 | D | 5000 (2270) |
| Methyl ethyl ketone peroxide | 1338234 | MDI | 1* | 4 | U160 | A | 10 (4.54) |
| Methyl hydrazine | 60344 | 2-Butanone | 1* | 3,4 | P068 | A | 10 (4.54) |
| Methyl iodide | 74884 | MEK | 1* | 3,4 | U138 | B | 100 (45.4) |
| Methyl isobutyl ketone | 108101 | Methyl acetate | 1* | 3,4 | U161 | D | 5000 (2270) |
| Methyl isocyanate | 624839 | Hexone | 1* | 3,4 | P064 | A | 10 (4.54) |
| 2-Methylacetonitrile | 75865 | 4-Methyl-2-pentanone | 10 | 1,4 | P069 | A | 10 (4.54) |
| Methylmercaptan | 74931 | Methane, isocyanato- | 1* | 1,4 | | A | 10 (4.54) |
| Methyl methacrylate | 80626 | Acetone cyanohydrin | 10 | 1,4 | | A | 10 (4.54) |
| Methyl parathion | 298000 | Propanenitrile, 2-hydroxy-2-methyl- | 100 | 1,4 | U153 | B | 100 (45.4) |
| 4-Methyl-2-pentanone | 108101 | Methanethiol | 5000 | 1,3,4 | U162 | C | 1000 (454) |
| Methyl tert-butyl ether | 1634044 | Thiomethanol | 100 | 1,4 | P071 | B | 100 (45.4) |
| Methylthiouracil | 56042 | 2-Propenoic acid, 2-methyl-, methyl ester | 1* | 3,4 | U161 | D | 5000 (2270) |
| Mevinphos | 7786347 | Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester | 1* | 3 | | C | 1000 (454) |
| Mexacarbate | 315184 | Hexone | 1000 | 4 | U164 | A | 10 (4.54) |
| Mitomycin C | 50077 | Methyl isobutyl ketone | 1 | 1 | | A | 10 (4.54) |
| MNNG | 70257 | 4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo- | 1000 | 1 | U010 | C | 1000 (454) |
| Monoethylamine | 75047 | Azirino[2',3':3,4]pyrrolo[1,2-s]indole-4,7-dione,6-amino-6-[[[aminocarbonyloxy] methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta, 8aalpha)-8a(alpha)]- | 1* | 4 | | A | 10 (4.54) |
| Monomethylamine | 74895 | Guandine, N-methyl-N'-nitro-N-nitroso- | 1000 | 1 | U163 | B | 100 (45.4) |
| Multi Source Leachate | 2763964 | (Aminomethyl)-3-isoxazolidinone | 1* | 4 | | X | 1 (0.454) |
| Muscimol | | | 1* | 4 | F039 | 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-[β-amino-2,3,6-indeoxy-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 | Chloromaphazine | 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 | 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) |
| Naphthelic 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 | ..... | 5000 | 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 | ..... | 5000 | 1 | | B | 100 (45.4) |
| Nickel chloride | 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-pyrrolicinyl)-, (S)- | 1* | 4 | P075 | B | 100 (45.4) |
| Nitric acid | 7697372 | ..... | 1000 | 1 | | C | 1000 (454) |
| 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 | D | 10 (4.54) |
| p-Nitroaniline | 100016 | Benzeneamine, 4-nitro- | 1* | 4 | P077 | D | 5000 (2270) |
| Nitrobenzene | 98953 | Benzene, nitro- | 1000 | 1,2,3,4 | U169 | C | 1000 (454) |
| 4-Nitrobiphenyl | 92933 | ..... | 1000 | 3 | | A | 10 (4.54) |
| Nitrogen dioxide | 10102440 | Nitrogen oxide NO ₂ | 1000 | 1,4 | P078 | A | 10 (4.54) |
| Nitrogen dioxide | 10544726 | ..... | 1000 | 1,4 | P078 | A | 10 (4.54) |
| Nitrogen oxide NO | 10102439 | Nitric oxide | 1* | 4 | P076 | A | 10 (4.54) |

| Chemical Name | 1000 | 1,4 | P078 | A | 10 (4.54) |
|--|----------|---------|------|---|-------------|
| Nitrogen oxide NO ₂ | 10102440 | | | A | 10 (4.54) |
| Nitroglycerine | 10544726 | | | A | 10 (4.54) |
| Nitrophenol (mixed) | 55630 | 4 | P081 | B | 100 (45.4) |
| m-Nitrophenol | 25154556 | 1 | | B | 100 (45.4) |
| o-Nitrophenol | 554847 | | | B | 100 (45.4) |
| p-Nitrophenol | 100027 | 1,2,3,4 | U170 | B | 100 (45.4) |
| o-Nitrophenol | 88755 | 1,2 | | B | 100 (45.4) |
| p-Nitrophenol | 100027 | 1,2,4 | U170 | B | 100 (45.4) |
| 2-Nitrophenol | 88755 | 1,2 | | B | 100 (45.4) |
| 4-Nitrophenol | 100027 | 1,2,3,4 | U170 | B | 100 (45.4) |
| NITROPHENOLS | N.A. | 2 | | A | ** |
| 2-Nitropropane | 79469 | 3,4 | U171 | A | 10 (4.54) |
| NITROSAMINES | N.A. | 2 | | A | ** |
| N-Nitrosodi-n-butylamine | 924163 | 4 | U172 | A | 10 (4.54) |
| N-Nitrosodiethanolamine | 1116547 | 4 | U173 | X | 1 (0.454) |
| N-Nitrosodimethylamine | 55185 | 4 | U174 | X | 1 (0.454) |
| N-Nitrosodimethylamine | 62759 | 4 | P082 | X | 1 (0.454) |
| N-Nitrosodiphenylamine | 86306 | 2,3,4 | | B | 100 (45.4) |
| N-Nitroso-N-ethylurea | 759739 | 2 | | X | 1 (0.454) |
| N-Nitroso-N-methylurea | 684935 | 4 | U176 | X | 1 (0.454) |
| N-Nitroso-N-methylurethane | 615532 | 3,4 | U177 | X | 1 (0.454) |
| N-Nitrosomethylvinylamine | 4549400 | 4 | U178 | X | 1 (0.454) |
| N-Nitrosomorpholine | 59892 | 4 | P084 | A | 10 (4.54) |
| N-Nitrosopiperidine | 100754 | 3 | | X | 1 (0.454) |
| N-Nitrosopyrrolidine | 930552 | 4 | U179 | X | 1 (0.454) |
| Nitrotoluene | 1321126 | 4 | U180 | X | 1 (0.454) |
| m-Nitrotoluene | 99081 | 1000 | | C | 1000 (45.4) |
| o-Nitrotoluene | 88722 | | | | |
| p-Nitrotoluene | 99890 | | | | |
| 5-Nitro-o-toluidine | 99558 | 4 | U181 | B | 100 (45.4) |
| Octamethylpyrophosphoramide | 152169 | 4 | P085 | B | 100 (45.4) |
| Osmium oxide OsO ₄ (T-4) | 20816120 | 4 | P087 | C | 1000 (45.4) |
| Osmium tetroxide | 20816120 | 4 | P087 | C | 1000 (45.4) |
| 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid | 145733 | 4 | P088 | C | 1000 (45.4) |
| 1,2-Oxathiolane 2,2-dioxide | 1120714 | 3,4 | U193 | A | 10 (4.54) |
| 2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide | 50180 | 4 | U058 | A | 10 (4.54) |
| Oxirane | 75218 | 3,4 | U115 | A | 10 (4.54) |
| Oxirane carboxaldehyde | 765344 | 4 | U126 | A | 10 (4.54) |
| Oxirane, (chloromethyl)- | 106898 | 1,3,4 | U041 | B | 100 (45.4) |
| Paraformaldehyde | 30525894 | 1 | | C | 1000 (45.4) |
| Paraldehyde | 123637 | 4 | U182 | C | 1000 (45.4) |
| Parathion | 56382 | 1,3,4 | P089 | A | 10 (4.54) |
| PCBs | 1336363 | 1,2,3 | | X | 1 (0.454) |
| Nitrogen dioxide | | | | | |
| 1,2,3-Propanetriol, trinitrate- | | | | | |
| 2-Nitrophenol | | | | | |
| 4-Nitrophenol | | | | | |
| Phenol, 4-nitro- | | | | | |
| 2-Nitrophenol | | | | | |
| Phenol, 4-nitro- | | | | | |
| 4-Nitrophenol | | | | | |
| o-Nitrophenol | | | | | |
| p-Nitrophenol | | | | | |
| Phenol, 4-nitro- | | | | | |
| Propane, 2-nitro | | | | | |
| 1-Butanamine, N-butyl-N-nitroso- | | | | | |
| Ethanol, 2,2-(nitrosimino)bis- | | | | | |
| Ethylamine, N-ethyl-N-nitroso- | | | | | |
| Methanamine, N-methyl-N-nitroso- | | | | | |
| Urea, N-ethyl-N-nitroso- | | | | | |
| Urea, N-methyl-N-nitroso- | | | | | |
| Carbamic acid, methyl/nitroso-, ethyl ester | | | | | |
| Vinylamine, N-methyl-N-nitroso- | | | | | |
| Piperidine, 1-nitroso- | | | | | |
| Pyrrolidine, 1-nitroso- | | | | | |
| Benzenamine, 2-methyl-5-nitro- | | | | | |
| Diphosphoramide, octamethyl- | | | | | |
| Osmium tetroxide | | | | | |
| Osmium oxide OsO ₄ (T-4) | | | | | |
| Endothal | | | | | |
| 1,3-Propane sulfone | | | | | |
| Cyclophosphamide | | | | | |
| Ethylene oxide | | | | | |
| Glycidyaldehyde | | | | | |
| 1-Chloro-2,3-epoxypropane | | | | | |
| Epichlorohydrin | | | | | |
| 1,3,5-Trioxane, 2,4,6-trimethyl- | | | | | |
| Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester. | | | | | |
| Aroclors | | | | | |
| 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 | Cat-egory | 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- pentachloronitro- benzene | 1* | 3,4 | U185 | B | 100 (45.4) |
| Pentachlorobenzene | 608935 | Quintobenzene | 1* | 4 | U183 | A | 10 (4.54) |
| Pentachloroethane | 76017 | Benzene, pentachloro- Ethane, pentachloro- Benzene, pentachloronitro- PCNB | 1* | 4 4 3,4 | U184 U185 | A B | 10 (4.54) 100 (45.4) |
| Pentachlorophenol | 87865 | Quintobenzene | 10 | 1,2,3,4 | U242 | A | 10 (4.54) |
| 1,3-Pentadiene | 504609 | Phenol, pentachloro- 1-Methylbutadiene | 1* | 4 | U186 | B | 100 (45.4) |
| Perchloroethylene | 127184 | Ethene, tetrachloro- Tetrachloroethene | 1* | 2,3,4 | U210 | B | 100 (45.4) |
| Phenacetin | 62442 | Tetrachloroethylene | 1* | 4 | U187 | B | 100 (45.4) |
| Phenanthrene | 85018 | Acetamide, N-(4-ethoxyphenyl)- | 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-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- methylcarbamate] | 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 | ..... | 1* | 4 | P020 | C | 1000 (454) |
| Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb) | 2631370 | Dinoseb | 1* | 4 | P201 | C | 1000 (454) |

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| Chemical Name | 1000 | 1,2,3,4 | U170 | B | 100 (45.4) |
|--|----------|---------|------|---|-------------|
| Phenol, 4-nitro- | 100027 | | | | |
| Phenol, pentachloro | 87865 | 1,2,3,4 | U170 | B | 100 (45.4) |
| Phenol, 2,3,4,6-tetrachloro- | 58902 | 1,2,3,4 | U242 | A | 10 (4.54) |
| Phenol, 2,4,5-trichloro- | 95954 | 4 | U212 | A | 10 (4.54) |
| Phenol, 2,4,6-trichloro- | 88062 | 1,3,4 | U230 | A | 10 (4.54) |
| Phenol, 2,4,6-trinitro- ammonium salt | 131748 | 1,2,3,4 | U231 | A | 10 (4.54) |
| L-Phenylalanine, 4-[bis(2-chloroethyl) amino] | 148823 | 4 | P009 | A | 10 (4.54) |
| p-Phenylenediamine | 106503 | 1* | U150 | X | 1 (0.454) |
| 1,10-(1,2-Phenylene)pyrene | 193395 | 3 | | D | 5000 (2270) |
| Phenylmercury acetate | 62384 | 2,4 | U137 | B | 100 (45.4) |
| Phenylthiourea | 103855 | 1* | P082 | B | 100 (45.4) |
| Phorate | 298022 | 1* | P093 | B | 100 (45.4) |
| | | 1* | P094 | A | 10 (4.54) |
| Phosgene | 75445 | | | | |
| Phosphine | 7803512 | 1,3,4 | P095 | A | 10 (4.54) |
| Phosphoric acid | 7664382 | 3,4 | P096 | B | 100 (45.4) |
| Phosphoric acid, diethyl 4-nitrophenyl ester | 311455 | 1 | | D | 5000 (2270) |
| Phosphoric acid, lead(2+) salt (2:3) | 7446277 | 4 | P041 | B | 100 (45.4) |
| Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester | 298044 | 1,4 | U145 | A | 10 (4.54) |
| Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester | 298022 | 1 | P039 | X | 1 (0.454) |
| Phosphorodithioic acid, O,O-diethyl S-methyl ester | 3288582 | 4 | P094 | A | 10 (4.54) |
| Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] | 60515 | 1* | U087 | D | 5000 (2270) |
| Phosphorodithioic acid, bis(1-methylethyl) ester | 55914 | 4 | P044 | A | 10 (4.54) |
| Phosphorodithioic acid, O,O-diethyl O-(4-nitrophenyl) ester | 56382 | 1 | P043 | B | 100 (45.4) |
| Phosphorodithioic acid, O-[4-(dimethylamino) sulfonyl]phenyl]O,O-di- | 52857 | 1,3,4 | P089 | A | 10 (4.54) |
| methyl ester | | 4 | P087 | C | 1000 (454) |
| Phosphorodithioic acid, O,O-dimethyl O-(4-nitrophenyl) ester | 298000 | 1,4 | P071 | B | 100 (45.4) |
| Phosphorus | 297972 | 4 | P040 | B | 100 (45.4) |
| Phosphorus oxychloride | 7723140 | 1,3 | | X | 1 (0.454) |
| Phosphorus pentasulfide | 10025873 | 1 | | C | 1000 (454) |
| Phosphorus sulfide | 1314803 | 1,4 | U189 | B | 100 (45.4) |
| Phosphorus trichloride | 7719122 | 1,4 | U189 | B | 100 (45.4) |
| PHthalate ESTERS | N.A. | 1 | | C | 1000 (454) |
| Phthalic anhydride | 85449 | 2 | | | ** |
| Piperidine, 1-nitroso- | 109068 | 3,4 | U190 | D | 5000 (2270) |
| Plumbane, tetraethyl- | 100754 | 4 | U191 | D | 5000 (2270) |
| POLYCHLORINATED BIPHENYLS | 78002 | 4 | U179 | A | 10 (4.54) |
| | 1336363 | 1,4 | P110 | A | 10 (4.54) |
| | | 1,2,3 | | X | 1 (0.454) |
| Polycyclic Organic Matter ^e | 12674112 | 1,2,3 | | X | 1 (0.454) |
| | 11104282 | 10 | | X | 1 (0.454) |
| | 11141165 | 10 | | X | 1 (0.454) |
| | 53469219 | 10 | | X | 1 (0.454) |
| | 12672996 | 10 | | X | 1 (0.454) |
| | 11097691 | 10 | | X | 1 (0.454) |
| | 11096825 | 10 | | X | 1 (0.454) |
| | N.A. | 1* | | X | 1 (0.454) |
| | | 1* | | X | ** |

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 | Cat-egory | Pounds (Kg) |
| POLYNUCLEAR AROMATIC HYDROCARBONS | | | | | | | |
| Potassium arsenate | N.A. | ..... | 1* | 2 | | ** | |
| Potassium arsenite | 7784410 | ..... | 1000 | 1 | | X | 1 (0.454) |
| Potassium bichromate | 10124502 | ..... | 1000 | 1 | | X | 1 (0.454) |
| Potassium chromate | 7778509 | ..... | 1000 | 1 | | A | 10 (4.54) |
| Potassium cyanide | 7789006 | ..... | 1000 | 1 | | A | 10 (4.54) |
| Potassium cyanide K (CN) | 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 | 1310563 | ..... | 1000 | 1 | | C | 1000 (454) |
| Potassium permanganate | 7722647 | ..... | 100 | 1 | | B | 100 (45.4) |
| Potassium silver cyanide | 506616 | Argenate (1-), bis(cyano-C), potassium | 1* | 4 | P099 | X | 1 (0.454) |
| Pronamide | 23950585 | Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propenyl)- | 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 | D-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 sulfone | 1120714 | 1,2-Oxatholane, 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 | 5000 | 1,2,3,4 | U083 | C | 1000 (454) |
| Propanedinitrile | 109773 | Propylene dichloride | 1* | 4 | U149 | C | 1000 (454) |
| Propanenitrile | 107120 | Malonitrile | 1* | 4 | P101 | A | 10 (4.54) |
| Propanenitrile, 3-chloro- | 542767 | Ethyl cyanide | 1* | 4 | P027 | C | 1000 (454) |
| Propanenitrile, 2-hydroxy-2-methyl- | 75865 | 3-Chloropropionitrile | 10 | 1,4 | P069 | A | 10 (4.54) |
| Propane, 2,2'-oxybis[2-chloro- | 108601 | Acetone cyanohydrin | 1* | 2,4 | U027 | C | 1000 (454) |
| 1,2,3-Propanetriol, trinitrate | 56630 | 2-Methylactonitrile | 1* | 4 | P081 | A | 10 (4.54) |
| 1-Propanol, 2,3-dibromo-, phosphate (3:1) | 126727 | Dichloroisopropyl ether | 1* | 4 | U235 | A | 10 (4.54) |
| 1-Propanol, 2-methyl- | 78831 | Nitroglycerine | 1* | 4 | U140 | D | 5000 (2270) |
| Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone) | 1646884 | Tris(2,3-dibromopropyl) phosphate | 1* | 4 | P203 | D | 5000 (2270) |
| 2-Propanone | 67641 | Isobutyl alcohol | 1* | 4 | U002 | D | 5000 (2270) |
| 2-Propanone, 1-bromo- | 598312 | Acetone | 1* | 4 | P017 | C | 1000 (454) |
| Propargile | 2312358 | Bromoacetone | 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-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) |

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|---|---------|---|------|---------|------|---|-------------|
| 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 | Methyl 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) |
| Propionic anhydride | 123626 | 2,4,5-TP acid | | | | | |
| Propoxur (Baygon) | 114261 | ..... | 5000 | 1 | | D | 5000 (2270) |
| n-Propylamine | 107108 | 1-Propanamine | 1* | 3 | | B | 100 (45,4) |
| Propylene dichloride | 78875 | 1,2-Dichloropropane | 1* | 4 | U194 | D | 5000 (2270) |
| Propylene oxide | 75569 | Propane, 1,2-dichloro- | 5000 | 1,2,3,4 | U083 | C | 1000 (454) |
| 1,2-Propylenimine | 75558 | Aziridine, 2-methyl- | 1* | 1,3 | P067 | B | 100 (45,4) |
| 2-Propyn-1-ol | 107197 | 2-Methyl aziridine | 1* | 3,4 | | X | 1 (0,454) |
| Pyrene | 129000 | Propargyl alcohol | 1* | 4 | P102 | C | 1000 (454) |
| Pyrethrins | 121299 | ..... | 1000 | 2 | | D | 5000 (2270) |
| | 121211 | ..... |  | 1 | | X | 1 (0,545) |
| | 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-pyrroldinyl)-, (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 | Methylthiouacil | 1* | 4 | U164 | A | 10 (4,54) |
| Pyrrolidine, 1-nitroso- | 930552 | N-Nitrosopyrrolidine | 1* | 4 | U180 | X | 1 (0,454) |
| Pyrrolol[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 | X | ## |
| Quinoline | 91225 | p-Benzquinone | 1000 | 1,3 | | D | 5000 (2270) |
| Quinoline | 106514 | 2,5-Cyclohexadiene-1,4-dione | 1* | 3,4 | U197 | A | 10 (4,54) |
| Quintobenzene | 82688 | Benzene, pentachloronitro | 1* | 3,4 | U185 | B | 100(45,4) |
| | | PCNB | | | | | |
| | | Pentachloronitrobenzene | | | | | |
| RADIONUCLIDES | N.A. | ..... | 1* | 3 | | | \$ |
| Radionuclides (including radon) | N.A. | ..... | 1* | 3 | | | \$ |
| Reserpine | 50555 | Yohimban-16-carboxylic acid, 11,17-dimethoxy-, methyl ester | 1* | 4 | U200 | D | 5000 (2270) |
| | | 18-[(3,4,5-trimethoxybenzoyl)oxy-, methyl ester, (3beta, 16beta, 17alpha, 18beta, 20alpha)- | | | | | |
| 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 | Cat-egory | Pounds (Kg) |
| Selenious acid | 7783008 | Thallium selenite | 1* | 4 | U204 | A | 10 (4.54) |
| Selenous acid, dithallium (1+) salt | 12039520 | ..... | 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 dioxide | 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 | ..... | 1* | 4 | U015 | X | 1 (0.454) |
| Silver †† | 7440224 | Azaserine | 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 | ..... | 100 | 1 | | B | 100 (45.4) |
| | 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 | 7588794 | | 5000 | 1 | | D | 5000 (2270) |
| | 10039324 | | 5000 | 1 | | D | 5000 (2270) |
| | 10140655 | | 10140655 | 1 | | | |

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| Chemical Name | Section | Code | Priority | Category | Value |
|---|---------|------|----------|----------|-------------|
| Sodium phosphate, tribasic | 1 | 5000 | 1 | D | 5000 (2270) |
| Sodium selenite | 1 | 1000 | 1 | B | 100 (45.4) |
| Streptozotocin | 4 | 1* | 4 | X | 1 (0.454) |
| Strontium chromate | 1 | 1000 | 1 | A | 10 (4.54) |
| Strychnidin-10-one | 1,4 | 10 | 1,4 | A | 10 (4.54) |
| Strychnidin-10-one, 2,3-dimethoxy- | 1* | 1* | 4 | B | 100 (45.4) |
| Strychnine, & salts | 1,4 | 10 | 1,4 | A | 10 (4.54) |
| Styrene | 1,3 | 1000 | 1,3 | C | 1000(454) |
| Styrene oxide | 1* | 1* | 3 | B | 100 (45.4) |
| Sulfur monochloride | 1000 | 1000 | 1 | C | 1000 (454) |
| Sulfur phosphide | 1,4 | 100 | 1,4 | B | 100 (45.4) |
| Sulfuric acid | 1 | 1000 | 1 | C | 1000 (454) |
| Sulfuric acid, dithallium (1+) salt | 1,4 | 1000 | 1,4 | B | 100 (45.4) |
| Sulfuric acid, dimethyl ester | 3,4 | 1* | 3,4 | B | 100(45.4) |
| 2,4,5-T acid | 1,4 | 100 | 1,4 | C | 1000 (454) |
| 2,4,5-T amines | 1 | 100 | 1 | D | 5000 (2270) |
| 2,4,5-T esters | 1 | 100 | 1 | C | 1000 (454) |
| 2,4,5-T salts | 1 | 100 | 1 | C | 1000 (454) |
| 2,4,5-T | 1,4 | 100 | 1,4 | C | 1000 (454) |
| TCDD | 2,3 | 1* | 2,3 | X | 1(0.454) |
| TDE | 1,2,4 | 1 | 1,2,4 | X | 1 (0.454) |
| 1,2,4,5-Tetrachlorobenzene | 4 | 1* | 4 | D | 5000 (2270) |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1* | 1* | 2,3 | X | 1(0.454) |
| 1,1,1,2-Tetrachloroethane | 1* | 1* | 4 | B | 100 (45.4) |
| 1,1,1,2,2-Tetrachloroethane | 1* | 1* | 2,3,4 | B | 100(45.4) |
| 1,1,1,2,2,2-Tetrachloroethane | 1* | 1* | 2,3,4 | B | 100(45.4) |
| D-Glucose, 2-deoxy-2-[(methylamino)carboxylamino]- | | | | | |
| Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoimido)- | | | | | |
| Strychnine, & salts | | | | | |
| Brucine | | | | | |
| Strychnidin-10-one | | | | | |
| Styrene | | | | | |
| Styrene oxide | | | | | |
| Sulfur monochloride | | | | | |
| Sulfur phosphide | | | | | |
| Sulfuric acid | | | | | |
| Sulfuric acid, dithallium (1+) salt | | | | | |
| Sulfuric acid, dimethyl ester | | | | | |
| 2,4,5-T acid | | | | | |
| 2,4,5-T amines | | | | | |
| 2,4,5-T esters | | | | | |
| 2,4,5-T salts | | | | | |
| 2,4,5-T | | | | | |
| Acetic acid, (2,4,5-trichlorophenoxy) | | | | | |
| Acetic acid, (2,4,5-trichlorophenoxy) | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | | | | |
| Benzene, 1,1'-(2,2-dichloroethylene)bis[4-chloro- DDD 4,4' DDD, | | | | | |
| Benzene, 1,2,4,5-tetrachloro- | | | | | |
| TCDD | | | | | |
| Ethane, 1,1,1,2-tetrachloro- | | | | | |
| Ethane, 1,1,2,2-tetrachloro- | | | | | |

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 | Cat-egory | Pounds (Kg) |
| Tetrachloroethene | 127184 | Ethene, tetrachloro- Perchloroethylene Tetrachloroethylene | 1* | 2,3,4 | U210 | B | 100(45.4) |
| Tetrachloroethylene | 127184 | Ethene, tetrachloro Perchloroethylene Tetrachloroethylene | 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) |
| Tetraethylthiopyrophosphate | 3689245 | Thiodiphosphoric acid, tetraethyl ester | 1* | 4 | P109 | B | 100 (45.4) |
| Tetrahydrofuran | 1099999 | 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 tetraphosphate | 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 | Thallium oxide Tl ₂ O ₃ | 1* | 2 | | C | 1000 (454) |
| Thallium and compounds | N.A. | 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 (I) 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 | Sulfuric acid, dithallium(1+) salt | 1000 | 1,4 | P115 | B | 100 (45.4) |
| Thioacetamide | 10031591 | Ethanethioamide | 1* | 4 | U218 | A | 10 (4.54) |
| Thiodiphosphoric acid, tetraethyl ester | 62555 | Tetraethylthiopyrophosphate | 1* | 4 | P109 | B | 100 (45.4) |
| Thiofanox | 3689245 | 2-Butanone, 3,3-dimethyl-1-(methylthio)- | 1* | 4 | P045 | B | 100 (45.4) |
| Thioimidocarbonic diamide [(H ₂ N)C(S)] 2NH | 39196184 | O[(methylamino)carbonyl] oxime. | 1* | 4 | | | |
| Thiomethanol | 541537 | Dithiobiuret | 1* | 4 | P049 | B | 100 (45.4) |
| | 74931 | Methanethiol | 100 | 1,4 | U153 | B | 100 (45.4) |
| | | Methylmercaptan | | | | | |
| 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 | Thiourea | 1* | 4 | U219 | A | 10 (4.54) |
| Thiourea, (2-chlorophenyl)- | 5344821 | 1-(2-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 [(H ₂ N)C(S)] 2S ₂ , tetramethyl- | 1* | 4 | U244 | A | 10 (4.54) |

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| Chemical Name | Section | Priority | Code | Category | Quantity |
|---|----------|----------|---------|----------|-------------|
| Titanium tetrachloride | 7550450 | 1* | 3 | C | 1000 (45.4) |
| Toluene | 108883 | 1000 | 1,2,3,4 | C | 1000(45.4) |
| Toluenediamine | 95807 | 1* | 3,4 | A | 10(4.54) |
| 2,4-Toluene diamine | 486720 | | | | |
| | 823405 | | | | |
| | 25376458 | | | | |
| 2,4-Toluene diamine | 95807 | 1* | 3,4 | A | 10(4.54) |
| | 486720 | | | | |
| | 823405 | | | | |
| | 25376458 | | | | |
| Toluene diisocyanate | 91087 | 1* | 3,4 | B | 100 (45.4) |
| | 584849 | | | | |
| | 26471625 | | | | |
| 2,4-Toluene diisocyanate | 91087 | 1* | 3,4 | B | 100 (45.4) |
| | 584849 | | | | |
| | 26471625 | | | | |
| o-Toluidine | 95534 | 1* | 3,4 | B | 100(45.4) |
| p-Toluidine | 106490 | 1* | 4 | B | 100 (45.4) |
| o-Toluidine hydrochloride | 636215 | 1* | 4 | B | 100 (45.4) |
| Toxaphene | 8001352 | 1* | 1,2,3,4 | X | 1 (0.454) |
| 2,4,5-TP acid | 93721 | 100 | 1,4 | B | 100 (45.4) |
| 2,4,5-TP esters | 32534955 | 100 | 1 | B | 100 (45.4) |
| 1H-1,2,4-Triazol-3-amine | 61825 | 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 | 1* | 2,3,4 | C | 1000 (45.4) |
| 1,1,2-Trichloroethane | 79005 | 1* | 2,3,4 | B | 100 (45.4) |
| Trichloroethene | 79016 | 1000 | 1,2,3,4 | B | 100 (45.4) |
| Trichloroethylene | 79016 | 1000 | 1,2,3,4 | B | 100 (45.4) |
| Trichloromethanesulfonyl chloride | 594423 | 1* | 4 | B | 100 (45.4) |
| Trichloromonofluoromethane | 75694 | 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 | 10 | 1,3,4 | A | 10 (4.54) |
| 2,4,6-Trichlorophenol | 88062 | 10 | 1,2,3,4 | A | 10 (4.54) |
| 3,4,5-Trichlorophenol | 609198 | | | | |
| 2,4,5-Trichlorophenol | 95954 | 10* | 1,4 | A | 10 (4.54) |
| 2,4,6-Trichlorophenol | 88062 | 10 | 1,2,4 | A | 10 (4.54) |
| Triethanolamine dodecylbenzenesulfonate | 27323417 | 1000 | 1 | C | 1000 (45.4) |
| 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 | Cat-egory | 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-Trinitrobenzene, 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'-di-methyl-(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 Characteristic of Toxicity: | N.A. | | 1* | 4 | | | |
| 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) |

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|---|----------------------|------|------------|------|---|-------------|
| 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 | 1* | 4 | U237 | A | 10 (4.54) |
| Uranyl acetate | 541093 | 5000 | 1 | | B | 100 (45.4) |
| Uranyl nitrate | 10102064 36478769 | 5000 | 1 | | B | 100 (45.4) |
| Urea, N-ethyl-N-nitroso- | 759739 | *1 | 4 | U176 | X | 1 (0.454) |
| Urea, N-methyl-N-nitroso | 684935 | *1 | 3, 4 | U177 | X | 1 (0.454) |
| Urethane | 51796 | *1 | 3, 4 | U238 | B | 100 (45.4) |
| Vanadic acid, ammonium salt | 7803556 | *1 | 4 | P119 | C | 1000 (454) |
| Vanadium oxide V ₂ O ₅ | 1314621 | 1000 | 1, 4 | P120 | C | 1000 (454) |
| Vanadium pentoxide | 1314621 | 1000 | 1, 4 | P120 | C | 1000 (454) |
| Vanadyl sulfate | 27774136 | 1000 | 1 | | C | 1000 (454) |
| Vinyl acetate | 108054 | 1000 | 1, 3 | | D | 5000 (2270) |
| Vinyl acetate monomer | 108054 | 1000 | 1, 3 | | D | 5000 (2270) |
| Vinylamine, N-methyl-N-nitroso- | 4549400 | 1* | 4 | P084 | A | 10 (4.54) |
| Vinyl bromide | 593602 | 1* | 3 | | B | 100 (45.4) |
| Vinyl chloride | 75014 | 1* | 2, 3, 4 | U043 | X | 1 (0.454) |
| Vinylidene chloride | 75354 | 5000 | 1, 2, 3, 4 | U078 | B | 100 (45.4) |
| Warfarin, & salts, when present at concentrations greater than 0.3% | 81812 | 1* | 4 | P001 | B | 100 (45.4) |
| Xylene | 1330207 | 1000 | 1, 3, 4 | U239 | B | 100 (45.4) |
| m-Xylene | 108383 | 1* | 3 | | C | 1000 (454) |
| o-Xylene | 95476 | 1* | 3 | | C | 1000 (454) |
| p-Xylene | 106423 | 1* | 3 | | B | 100 (45.4) |
| Xylene (mixed) | 1330207 | 1000 | 1, 3, 4 | U239 | B | 100 (45.4) |
| Xylenes (isomers and mixture) | 1330207 | 1000 | 1, 3, 4 | U239 | B | 100 (45.4) |
| 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 | Cat-egory | 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 | | C | 1000 (454)** |
| Zinc acetate | 567346 | | 1000 | 1 | | C | 1000 (454) |
| Zinc ammonium chloride | 52628258 | | 5000 | 1 | | C | 1000 (454) |
| | 14639975 | | | | | | |
| | 14639986 | | | | | | |
| Zinc, bis(dimethylcarbamodithioato-S,S'), (Ziram) | 137304 | | 1* | 4 | P205 | C | ## |
| 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 cyanide | 7646857 | | 5000 | 1 | | C | 1000 (454) |
| Zinc cyanide Zn(CN)2 | 557211 | Zinc cyanide Zn(CN)2 | 10 | 1,4 | P121 | A | 10 (4.54) |
| Zinc fluoride | 557211 | Zinc cyanide | 10 | 1,4 | P121 | A | 10 (4.54) |
| Zinc formate | 7783495 | | 1000 | 1 | | C | 1000 (454) |
| Zinc hydrosulfite | 557415 | | 1000 | 1 | | C | 1000 (454) |
| Zinc nitrate | 7779864 | | 1000 | 1 | | C | 1000 (454) |
| Zinc phenosulfonate | 7779886 | | 5000 | 1 | | C | 1000 (454) |
| Zinc phosphide | 127822 | | 5000 | 1 | | D | 5000 (2270) |
| | 1314847 | Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10%. | 1000 | 1,4 | P122 | B | 100 (45.4) |
| | 1314847 | Zinc phosphide | 1000 | 1,4 | P122 | B | 100 (45.4) |
| Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10%. | | | 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) |

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|---|---------|-------|------|-------|------|---|-------------|
| (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. | ..... | 1* | 4 | F002 | A | 5000 (2270) |
| F002 |  | ..... |  |  |  |  | 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 | ..... | 100 | 1,2,4 | U070 | D | 5000 (2270) |
| (g) o-Dichlorobenzene | 95501 | ..... | 1* | 4 | U121 | B | 100 (45,4) |
| (h) Trichlorofluoromethane | 75694 | ..... | 1* | 2,4 | U227 | B | 100 (45,4) |
| (i) 1,1,2-Trichloroethane | 79005 | ..... | 1* | 4 | F003 | B | 100 (45,4) |
| F003 |  | ..... |  |  |  |  |  |
| 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) |
| F008 | | | 1* | 4 | F008 | A | 10 (4.54) |
| F009 | | | 1* | 4 | F009 | A | 10 (4.54) |
| F010 | | | 1* | 4 | F010 | A | 10 (4.54) |
| F011 | | | 1* | 4 | F011 | A | 10 (4.54) |
| F012 | | | 1* | 4 | F012 | A | 10 (4.54) |
| F019 | | | 1 | 4 | F019 | A | 10 (4.54) |
| F020 | | | 1* | 4 | F020 | X | 1 (0.454) |
| F021 | | | 1* | 4 | F021 | X | 1 (0.454) |

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|--|----|---|------|---|-----------|
| 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. F022 | 1* | 4 | F022 | X | 1 (0.454) |
| 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. F023 | 1* | 4 | F023 | X | 1 (0.454) |
| 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). F024 | 1* | 4 | F024 | X | 1 (0.454) |
| 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 desiccants(sic), wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in § 261.32). F025 | 1* | 4 | F025 | X | 1 (0.454) |
| 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. F026 | 1* | 4 | F026 | X | 1 (0.454) |
| 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. F027 | 1* | 4 | F027 | X | 1 (0.454) |
| 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). F028 | 1* | 4 | F028 | 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) |
| F032 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. | | | 1* | 4 | F032 | X | 1 (0.454) |
| F034 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 creosote 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. | | | 1* | 4 | F034 | X | 1 (0.454) |
| F035 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. | | | 1* | 4 | F035 | X | 1 (0.454) |
| F037 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. | | | 1* | 4 | F037 | X | 1 (0.454) |

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| 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. | F038 | 4 | 1* | X | 1 (0.454) |
| 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 | 4 | 1* | X | 1 (0.454) |
| Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol. | K002 | 4 | 1* | A | 10 (4.54) |
| Wastewater treatment sludge from the production of chrome yellow and orange pigments. | K003 | 4 | 1* | A | 10 (4.54) |
| Wastewater treatment sludge from the production of molybdate orange pigments. | K004 | 4 | 1* | A | 10 (4.54) |
| Wastewater treatment sludge from the production of zinc yellow pigments. | K005 | 4 | 1* | A | 10 (4.54) |
| Wastewater treatment sludge from the production of chrome green pigments. | K006 | 4 | 1* | 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 | Cat-egory | Pounds (Kg) |
| K007 Wastewater treatment sludge from the production of iron blue pigments. | | | 1* | 4 | K007 | A | 10 (4.54) |
| K008 Oven residue from the production of chrome oxide green pigments. | | | 1* | 4 | K008 | A | 10 (4.54) |
| K009 Distillation bottoms from the production of acetaldehyde from ethylene. | | | 1* | 4 | K009 | A | 10 (4.54) |
| K010 Distillation side cuts from the production of acetaldehyde from ethylene. | | | 1* | 4 | K010 | A | 10 (4.54) |
| K011 Bottom stream from the wastewater stripper in the production of acrylonitrile. | | | 1* | 4 | K011 | A | 10 (4.54) |
| K013 Bottom stream from the acetonitrile column in the production of acrylonitrile. | | | 1* | 4 | K013 | A | 10 (4.54) |
| K014 Bottoms from the acetonitrile purification column in the production of acrylonitrile. | | | 1* | 4 | K014 | D | 5000 (2270) |
| K015 Still bottoms from the distillation of benzyl chloride. | | | 1* | 4 | K015 | A | 10 (4.54) |
| K016 Heavy ends or distillation residues from the production of carbon tetrachloride. | | | 1* | 4 | K016 | X | 1 (0.454) |
| K017 Heavy ends (still bottoms) from the purification column in the production of epi-chlorohydrin. | | | 1* | 4 | K017 | A | 10 (4.54) |
| K018 Heavy ends from the fractionation column in ethyl chloride production. | | | 1* | 4 | K018 | X | 1 (0.454) |
| K019 Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production. | | | 1* | 4 | K019 | X | 1 (0.454) |
| K020 Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production. | | | 1* | 4 | K020 | X | 1 (0.454) |
| K021 Aqueous spent antimony catalyst waste from fluoromethanes production. | | | 1* | 4 | K021 | A | 10 (4.54) |
| K022 | | | 1* | 4 | K022 | X | 1 (0.454) |

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|--|----|---|------|---|-------------|
| Distillation bottom tars from the production of pheno/acetone from cumene. | 1* | 4 | K023 | D | 5000 (2270) |
| K023 Distillation light ends from the production of phthalic anhydride from naphthalene. | 1* | 4 | K024 | D | 5000 (2270) |
| K024 Distillation bottoms from the production of phthalic anhydride from naphthalene. | 1* | 4 | K025 | A | 10 (4.54) |
| K025 Distillation bottoms from the production of nitrobenzene by the nitration of benzene. | 1* | 4 | K026 | C | 1000 (454) |
| K026 Stripping still tails from the production of methyl ethyl pyridines. | 1* | 4 | K027 | A | 10 (4.54) |
| K027 Centrifuge and distillation residues from toluene diisocyanate production. | 1* | 4 | K028 | X | 1 (0.454) |
| K028 Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane. | 1* | 4 | K029 | X | 1 (0.454) |
| K029 Waste from the product steam stripper in the production of 1,1,1-trichloroethane. | 1* | 4 | K030 | X | 1 (0.454) |
| K030 Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene. | 1* | 4 | K031 | X | 1 (0.454) |
| K031 By-product salts generated in the production of MSMA and cacodylic acid. | 1* | 4 | K032 | A | 10 (4.54) |
| K032 Wastewater treatment sludge from the production of chlordane. | 1* | 4 | K033 | A | 10 (4.54) |
| K033 Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane. | 1* | 4 | K034 | A | 10 (4.54) |
| K034 Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane. | 1* | 4 | K035 | X | 1 (0.454) |
| K035 Wastewater treatment sludges generated in the production of creosote. | 1* | 4 | K036 | X | 1 (0.454) |
| K036 Still bottoms from toluene reclamation distillation in the production of disulfoton. | 1* | 4 | K037 | X | 1 (0.454) |
| K037 Wastewater treatment sludges from the production of disulfoton. | 1* | 4 | K038 | A | 10 (4.54) |
| K038 Wastewater from the washing and stripping of phosphate production. | 1* | 4 | K039 | A | 10 (4.54) |
| K039 | 1* | 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) |
| Filter cake from the filtration of diethylphosphorodithioic acid in the production of phosphate. | | | 1* | 4 | K040 | A | 10 (4.54) |
| K040 | | | | | | | |
| Wastewater treatment sludge from the production of phosphate. | | | 1* | 4 | K041 | X | 1 (0.454) |
| K041 | | | | | | | |
| Wastewater treatment sludge from the production of toxaphene. | | | 1* | 4 | K042 | A | 10 (4.54) |
| K042 | | | | | | | |
| Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T. | | | 1* | 4 | K043 | A | 10 (4.54) |
| K043 | | | | | | | |
| 2,6-Dichlorophenol waste from the production of 2,4-D. | | | 1* | 4 | K044 | A | 10 (4.54) |
| K044 | | | | | | | |
| Wastewater treatment sludges from the manufacturing and processing of explosives. | | | 1* | 4 | K045 | A | 10 (4.54) |
| K045 | | | | | | | |
| Spent carbon from the treatment of wastewater containing explosives. | | | 1* | 4 | K046 | A | 10 (4.54) |
| K046 | | | | | | | |
| Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds. | | | 1* | 4 | K047 | A | 10 (4.54) |
| K047 | | | | | | | |
| Pink/red water from TNT operations. | | | 1* | 4 | K048 | A | 10 (4.54) |
| K048 | | | | | | | |
| Dissolved air flotation (DAF) float from the petroleum refining industry. | | | 1* | 4 | K049 | A | 10 (4.54) |
| K049 | | | | | | | |
| Stop oil emulsion solids from the petroleum refining industry. | | | 1* | 4 | K050 | A | 10 (4.54) |
| K050 | | | | | | | |
| Heat exchanger bundle cleaning sludge from the petroleum refining industry. | | | 1* | 4 | K051 | A | 10 (4.54) |
| K051 | | | | | | | |
| API separator sludge from the petroleum refining industry. | | | 1* | 4 | K052 | A | 10 (4.54) |
| K052 | | | | | | | |
| Tank bottoms (leaded) from the petroleum refining industry. | | | 1* | 4 | K060 | X | 1 (0.454) |
| K060 | | | | | | | |
| Ammonia still lime sludge from coking operations. | | | 1* | 4 | K061 | A | 10 (4.54) |
| K061 | | | | | | | |
| Emission control dust/sludge from the primary production of steel in electric furnaces. | | | 1* | 4 | K061 | A | 10 (4.54) |

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| 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 ferrochromium/silicon 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. | | | 1* | 4 | K095 | B | 100 (45.4) |
| Distillation bottoms from the production of 1,1,1-trichloroethane. | | | 1* | 4 | K096 | B | 100 (45.4) |
| Heavy ends from the production of 1,1,1-trichloroethane. | | | 1* | 4 | K097 | X | 1 (0.454) |
| Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane. | | | 1* | 4 | K098 | X | 1 (0.454) |
| Untreated process wastewater from the production of toxaphene. | | | 1* | 4 | K099 | A | 10 (4.54) |
| Untreated wastewater from the production of 2,4-D. | | | 1* | 4 | K100 | A | 10 (4.54) |
| Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting. | | | 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. | | | 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. | | | 1* | 4 | K103 | B | 100 (45.4) |
| Process residues from aniline extraction from the production of aniline. | | | 1* | 4 | K104 | A | 10 (4.54) |
| Combined wastewater streams generated from nitrobenzene/aniline production. | | | 1* | 4 | K105 | A | 10 (4.54) |
| Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes. | | | 1* | 4 | K106 | X | 1 (0.454) |
| Wastewater treatment sludge from the mercury cell process in chlorine production. | | | 10 | 4 | K107 | X | 10 (4.54) |

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| Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides. | K108 | 4 | 10 | X | 10 (4.54) |
| Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides. | K109 | 4 | 10 | X | 10 (4.54) |
| Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides. | K110 | 4 | 10 | X | 10 (4.54) |
| Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides. | K111 | 4 | 1* | A | 10 (4.54) |
| Product washwaters from the production of dinitrotoluene via nitration of toluene. | K112 | 4 | 1* | A | 10 (4.54) |
| Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene. | K113 | 4 | 1* | A | 10 (4.54) |
| Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene. | K114 | 4 | 1* | A | 10 (4.54) |
| Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene. | K115 | 4 | 1* | A | 10 (4.54) |
| Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene. | K116 | 4 | 1* | A | 10 (4.54) |
| Organic condensate from the solvent recovery column in the production of toluene dicyanate via phosgenation of toluenediamine. | K117 | 4 | 1* | X | 1 (0.454) |
| Wastewater from the reaction vent gas scrubber in the production of ethylene bromide via bromination of ethene. | K118 | 4 | 1* | X | 1 (0.454) |
| Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide. | K123 | 4 | 1* | A | 10 (4.54) |
| Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenedisithiocarbamic acid and its salts. | K124 | 4 | 1* | A | 10 (4.54) |
| Reactor vent scrubber water from the production of ethylenedisithiocarbamic acid and its salts. | K125 | 4 | 1* | A | 10 (4.54) |
| Filtration, evaporation, and centrifugation solids from the production of ethylenedisithiocarbamic acid and its salts. | K126 | 4 | 1* | 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 ethylenedisithiocarbamic acid and its salts. | | | | | | | |
| K131 Wastewater from the reactor and spent sulfuric acid from the acid dryer in the production of methyl bromide. | | | 100 | 4 | K131 | X | 100 (45.4) |
| K132 Spent absorbent and wastewater solids from the production of methyl bromide. | | | 1000 | 4 | K132 | X | 1000 (454) |
| K136 Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene. | | | 1* | 4 | K136 | X | 1 (0.454) |
| K140 Floor sweepings, off-specification product and spent filter media from the production of 2,4,6-tribromophenol. | | | 1* | 4 | K140 | B | ## 100 (45.4) |
| K141 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). | | | 1* | 4 | K141 | X | 1 (0.454) |
| K142 Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal. | | | 1* | 4 | K142 | X | 1 (0.454) |
| K143 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. | | | 1* | 4 | K143 | X | 1 (0.454) |
| K144 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. | | | 1* | 4 | K144 | X | 1 (0.454) |
| K145 Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal. | | | 1* | 4 | K145 | X | 1 (0.454) |
| K147 Tar storage tank residues from coal tar refining. | | | 1* | 4 | K147 | X | 1 (0.454) |
| K148 | | | 1* | 4 | K148 | X | 1 (0.454) |

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|--|----|---|------|---|-----------|--|--|--|--|
| Residues from coal tar distillation, including, but not limited to, still bottoms. | | | | | | | | | |
| K149 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]. | 1* | 4 | K149 | A | 10 (4.54) | | | | |
| K150 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. | 1* | 4 | K150 | A | 10 (4.54) | | | | |
| K151 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. | 1* | 4 | K151 | A | 10 (4.54) | | | | |
| 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.) | *1 | 4 | K156 | | ## | | | | |
| 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.) | *1 | 4 | K157 | | ## | | | | |
| 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.) | *1 | 4 | K158 | | ## | | | | |
| K159 Organics from the treatment of thiocarbamate wastes. | 1* | 4 | K159 | | ## | | | | |
| K161 Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust, and floor sweepings from the production of dihydrocarbamate acids and their salts (This listing does not include K125 or K126). | 1* | 4 | K161 | | ## | | | | |
| K169 Crude oil storage tank sediment from petroleum refining operations. | 1* | 4 | K169 | A | 10(4.54) | | | | |
| K170 Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations. | 1* | 4 | K170 | X | 1 (0.454) | | | | |
| K171' Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations. | 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 † | RQ | Category | |
| Spent hydrotreating catalyst from petroleum refining operations. (This listing does not include inert support media.) K172 ^a | | | 1* | 4 | K172 | X | 1 (0.454) |
| Spent hydrorefining catalyst from petroleum refining operations. (This listing does not include inert support media.) | | | | | | | |

† 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.
 *—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.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

| 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,8aalp,8balp)]- 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. Phosphorofluoric 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. |

| 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,2aalp,3beta,6beta, 6aalp,7beta, 7aalp)-. |
| 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. |

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

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| 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-(1,1'-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. |

| 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-Methylacetonitrile. |
| 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. |

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REGISTRY NUMBER LIST OF CERCLA HAZ-
ARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS
REGISTRY NUMBER LIST OF CERCLA HAZ-
ARDOUS SUBSTANCES—Continued

| CASRN | Hazardous substance |
|-------|--|
| | Methyl chlorocarbonate. |
| 79312 | Methyl chloroformate. |
| 79345 | iso-Butyric acid. |
| | Ethane, 1,1,2,2-tetrachloro-. |
| 79447 | 1,1,2,2-Tetrachloroethane. |
| | Carbamic chloride, dimethyl-. |
| 79469 | Dimethylcarbonyl chloride. |
| | Propane, 2-nitro-. |
| 80159 | 2-Nitropropane. |
| | alpha, alpha-Dimethylbenzylhydroperoxide. |
| 80626 | Hydroperoxide, 1-methyl-1-phenylethyl-. |
| | Methyl methacrylate. |
| 81072 | 2-Propenoic acid, 2-methyl-, methyl ester. |
| | Saccharin and salts. |
| 81812 | 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide. |
| | Warfarin, & salts, when present at concentra- tions greater than 0.3%. |
| | 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1- phenyl -butyl)-, & salts, when present at con- centrations greater than 0.3%. |
| 82688 | Benzene, pentachloronitro-. |
| | PCNB. |
| | Pentachloronitrobenzene. |
| 83329 | Quintobenzene. |
| 84662 | Acenaphthene. |
| | Diethyl phthalate. |
| 84742 | 1,2-Benzenedicarboxylic acid, diethyl ester. |
| | 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. |

| 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. |

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| CASRN | Hazardous substance |
|--------|---|
| | Phenol, 4-nitro-. |
| 100254 | 4-Nitrophenol. |
| 100414 | p-Dinitrobenzene. |
| 100425 | Ethylbenzene. |
| 100447 | Styrene. |
| | Benzene, chloromethyl-. |
| 100470 | Benzyl chloride. |
| 100754 | Benzonitrile. |
| | N-Nitrosopiperidine. |
| 101144 | Piperidine, 1-nitroso-. |
| | 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-. |
| 103855 | 4-Bromophenyl phenyl ether. |
| | Phenylthiourea. |
| 105464 | Thiourea, phenyl-. |
| 105679 | sec-Butyl acetate. |
| 106423 | Phenol, 2,4-dimethyl-. |
| | 2,4-Dimethylphenol. |
| 106445 | p-Benzene, dimethyl. |
| | p-Xylene. |
| 106467 | p-Cresol. |
| | p-Cresylic acid. |
| 106478 | Benzene, 1,4-dichloro-. |
| | p-Dichlorobenzene. |
| 106490 | 1,4-Dichlorobenzene. |
| | Benzenamine, 4-chloro-. |
| 106503 | p-Chloroaniline. |
| 106514 | Benzenamine, 4-methyl-. |
| | p-Toluidine. |
| | Phenylenediamine (para-isomer). |
| | p-Benzoquinone. |
| | 2,5-Cyclohexadiene-1,4-dione. |
| 106898 | Quinone. |
| | 1-Chloro-2,3-epoxypropane. |
| | Epichlorohydrin. |
| 106934 | Oxirane, (chloromethyl)-. |
| | Dibromoethane. |
| | Ethane, 1,2-dibromo-. |
| 107028 | Ethylene, dibromide. |
| | Acrolein. |
| 107051 | 2-Propenal. |
| 107062 | Allyl chloride. |
| | Ethane, 1,2-dichloro-. |
| 107108 | Ethylene dichloride. |
| | 1,2-Dichloroethane. |
| 107120 | n-Propylamine. |
| | 1-Propanamine. |
| 107131 | Ethyl cyanide. |
| | Propanenitrile. |
| 107153 | Acrylonitrile. |
| 107186 | 2-Propenenitrile. |
| | Ethylenediamine. |
| | Allyl alcohol. |
| 107197 | 2-Propen-1-ol. |
| | Propargyl alcohol. |
| 107200 | 2-Propyn-1-ol. |
| | Acetaldehyde, chloro-. |
| 107302 | Chloroacetaldehyde. |
| | Chloromethyl methyl ether. |
| 107493 | Methane, chloromethoxy-. |
| | Diphosphoric acid, tetraethyl ester. |
| 107926 | Tetraethyl pyrophosphate. |
| 108054 | Butyric acid. |
| | Vinyl acetate. |
| 108101 | Vinyl acetate monomer. |
| | Methyl isobutyl ketone. |
| | 4-Methyl-2-pentanone. |

| CASRN | Hazardous substance |
|--------|---|
| 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-ethanediybis, 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 |

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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 |
|--------|--|
| 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. |
| 120821 | 1,3-Benzodioxole, 5-)1-propenyl)-. |
| 120832 | 1,2,4-Trichlorobenzene. |
| 121142 | Phenol, 2,4-dichloro-, 2,4-Dichlorophenol. |
| 121211 | Benzene, 1-methyl-2,4-dinitro-, 2,4-Dinitrotoluene. |
| 121299 | Pyrethrins. |
| 121448 | Pyrethrins. |
| 121755 | Triethylamine. |
| 122098 | Malathion. |
| 122394 | alpha, alpha-Dimethylphenethylamine. |
| 122429 | Benzeneethanamine, alpha, alpha-dimethyl-, Diphenylamine. |
| 122667 | Carbamic acid, phenyl-, 1-methylethyl ester (Propham). |
| 123331 | Hydrazine, 1,2-diphenyl-, 1,2-Diphenylhydrazine. |
| 123626 | Maleic hydrazide. |
| 123637 | 3,6-Pyridazinedione, 1,2-dihydro-, Propionic anhydride. |
| 123739 | Paraldehyde. |
| 123864 | 1,3,5-Trioxane, 2,4,6-trimethyl-, Crotonaldehyde. |
| 123911 | 2-Butenal. |
| 123922 | Butyl acetate. |
| 124049 | 1,4-Diethyleneoxide. |
| 124403 | 1,4-Diethylenedioxiide. |
| 124414 | 1,4-Dioxane. |
| 124481 | iso-Amyl acetate. |
| 126727 | Adipic acid. |
| 126987 | Dimethylamine. |
| 126998 | Methanamine, N-methyl-, Sodium methylate. |
| 127184 | Chlorodibromomethane. |
| 127822 | Tris(2,3-dibromopropyl) phosphate. |
| 129000 | 1-Propanol, 2,3-dibromo-, phosphate (3:1). |
| 130154 | Methacrylonitrile. |
| 131113 | 2-Propenenitrile, 2-methyl-, 2-Chloro-1,3-butadiene. |
| 131748 | Ethene, tetrachloro-, Perchloroethylene. |
| 131895 | Tetrachloroethene. |
| 133062 | Tetrachloroethylene. |
| 134327 | Zinc phenolsulfonate. |
| 137268 | Pyrene. |
| 137304 | 1,4-Naphthalenedione. |
| 140885 | 1,4-Naphthoquinone. |
| | Dimethyl phthalate. |
| | 1,2-Benzenedicarboxylic acid, dimethyl ester. |
| | Ammonium picrate. |
| | Phenol, 2,4,6-trinitro-, ammonium salt. |
| | Phenol, 2-cyclohexyl-4,6-dinitro-, 2-Cyclohexyl-4,6-dinitrophenol. |
| | Captan. |
| | alpha-Naphthylamine. |
| | 1-Naphthalenamine. |
| | Thioperoxydicarbonic diamide ((H2N)C(S))2S2, tetramethyl-, Thiram. |
| | Zinc, bis(dimethylcarbomodithioato-S,S')-, (Ziram). |
| | Ethyl acrylate. |

| CASRN | Hazardous substance |
|--------|---|
| 141786 | 2-Propenoic acid, ethyl ester. |
| 142289 | Acetic acid, ethyl ester. |
| 142712 | Ethyl acetate. |
| 142847 | 1,3-Dichloropropane. |
| 143339 | Cupric acetate. |
| 143500 | Dipropylamine. |
| 145733 | 1-Propanamine, N-propyl-, Sodium cyanide. |
| 148823 | Sodium cyanide Na(CN). |
| 151508 | Kepone. |
| 151564 | 1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachlorooctahydro-, Endothall. |
| 152169 | 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid. |
| 156605 | L-Phenylalanine, 4-[bis(2-chloroethyl) amino]. |
| 189559 | Melphalan. |
| 191242 | Potassium cyanide. |
| 193395 | Potassium cyanide K(CN). |
| 205992 | Aziridine. |
| 206440 | Ethyleneimine. |
| 207089 | Diphosphoramidate, octamethyl-, Octamethylpyrophosphoramidate. |
| 208968 | Ethene, 1,2-dichloro- (E). |
| 218019 | 1,2-Dichloroethylene. |
| 225514 | Benzo [rst]pentaphene. |
| 297972 | Dibenz[a,i]pyrene. |
| 298000 | Benzo[ghi]perylene. |
| 298022 | Indeno(1,2,3-cd)pyrene. |
| 298044 | 1,10-(1,2-Phenylene)pyrene. |
| 300765 | Benzo[b]fluoranthene. |
| 301042 | Benzo[j,k]fluorene. |
| 302012 | Fluoranthene. |
| 303344 | Benzo(k)fluoranthene. |
| 305033 | Acenaphthylene. |
| 309002 | Chrysene. |
| 311455 | 1,2-Benzphenanthrene. |
| | Benz[c]acridine. |
| | O,O-Diethyl O-pyrazinyl phosphorothioate. |
| | Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester. |
| | Methyl parathion. |
| | Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester. |
| | Phorate. |
| | Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester. |
| | Disulfoton. |
| | Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester. |
| | Naled. |
| | Acetic acid, lead(2+) salt. |
| | Lead acetate. |
| | Hydrazine. |
| | Lasiocarpine. |
| | 2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-. |
| | Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-. |
| | Chlorambucil. |
| | Aldrin. |
| | 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1, 4,4a,5,8,8a-hexahydro-(1alpha,4 alpha,4beta,5alpha,8alpha,8beta)-. |
| | Diethyl-p-nitrophenyl phosphate. |

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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)2]NH. |
| 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. |

| 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 | Methanesulfonyl chloride, trichloro-. Trichloromethanesulfonyl 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. |

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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 |
|---------|---|
| 815827 | Oxiranecarboxyaldehyde. |
| 823405 | Cupric tartrate. 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- 2,4-D Ester. |
| 1320189 | Nitrotoluene. |
| 1321126 | Arsenic acid. |
| 1327522 | Arsenic acid H3AsO4. Arsenic oxide As2O3. Arsenic trioxide. |
| 1327533 | Benzene, dimethyl. Xylene (mixed). |
| 1330207 | Zinc borate. Asbestos. |
| 1332076 | Sodium bifluoride. |
| 1332214 | Lead subacetate. |
| 1333831 | Lead, bis(acetato-O)tetrahydroxytri. |
| 1335326 | Ammonium hydroxide. |
| 1336216 | Aroclors. |
| 1336363 | PCBs. POLYCHLORINATED BIPHENYLS. |
| 1338234 | Methyl ethyl ketone peroxide. 2-Butanone peroxide. |
| 1338245 | Naphthenic acid. |
| 1341497 | Ammonium bifluoride. |

| 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. |

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| 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 SeS ₂ . |
| 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 H ₃ AsO ₄ . |
| 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. |

| CASRN | Hazardous substance |
|----------|--|
| 7783008 | Selenious acid. |
| 7783064 | Hydrogen sulfide. |
| | Hydrogen sulfide H ₂ S. |
| 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 | Meviphos. |
| 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 NO ₂ . |
| 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. |

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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)- 2,4,5-T salts. |
| 13560991 | Beryllium nitrate. |
| 13597994 | Zirconium nitrate. |
| 13746899 | Calcium chromate. |
| 13765190 | Chromic acid H2CrO4, calcium salt. Lead fluoborate. |
| 13814965 | Ammonium fluoborate. |
| 13826830 | sec-Butylamine. |
| 13952846 | Cobaltous sulfamate. |
| 14017415 | Nickel nitrate. |
| 14216752 | Ammonium oxalate. |
| 14258492 | Lithium chromate. |
| 14307358 | Ammonium tartrate. |
| 14307438 | Zinc ammonium chloride. |
| 14639975 | Zinc ammonium chloride. |
| 14639986 | Zinc ammonium chloride. |
| 14644612 | Zirconium sulfate. |
| 15339363 | Manganese, bis(dimethylcarbomodithioato-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]-, 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 | Ethanimidothioic 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-propenyl)-. 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. |

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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-, di-methyl ester (Thiodicarb). |
| 61792072 | 2,4,5-T esters. |

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

| 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) |

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APPENDIX B TO § 302.4—RADIONUCLIDES—
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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) |

| 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 (3.7E 7) |
| 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) |

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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) |

| 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) |

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APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

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) |

| 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-226 ϕ | 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) |

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APPENDIX B TO § 302.4—RADIONUCLIDES—
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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) |

| 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-232 ϕ | 90 | 0.001 (3.7E 7) |
| Thorium-234 | 90 | 100 (3.7E 12) |

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APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

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-234 [Ⓞ] | 92 | 0.1 (3.7E 9) |
| Uranium-235 [Ⓞ] | 92 | 0.1 (3.7E 9) |
| Uranium-236 | 92 | 0.1 (3.7E 9) |
| Uranium-237 | 92 | 100 (3.7E 12) |
| Uranium-238 [Ⓞ] | 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) |

| 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.

Ⓞ—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

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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 |
| | Benzene | 1.2 |
| K170 | 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

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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 quali-

fying 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 in-

crease 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 considered 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 Waxahachie 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 Waxahachie
Fire Department
Attn: David Hudgins
Fire Chief
Office: 972.937.1200

OPERATOR FORM

This form should be maintained and attached to the SWPPP.

Showbiz Cinemas (Waxahachie) in Waxahachie, TX

The dates when major grading activities occur:

Dates

The dates when construction activities temporarily or permanently cease on a portion of the site:

| Dates | Portion of the Site |
|--------------|----------------------------|
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |

Dates when stabilization measures are initiated:

(see ACTIONS TAKEN FORM)

| Dates | Stabilization Measures |
|--------------|-------------------------------|
| <hr/> | Construction Entrance |
| <hr/> | Silt Fence |
| <hr/> | Erosion Blankets |
| <hr/> | Slab Poured |
| <hr/> | Paving |
| <hr/> | 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: _____

SIGNATURE: _____

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 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:

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: _____

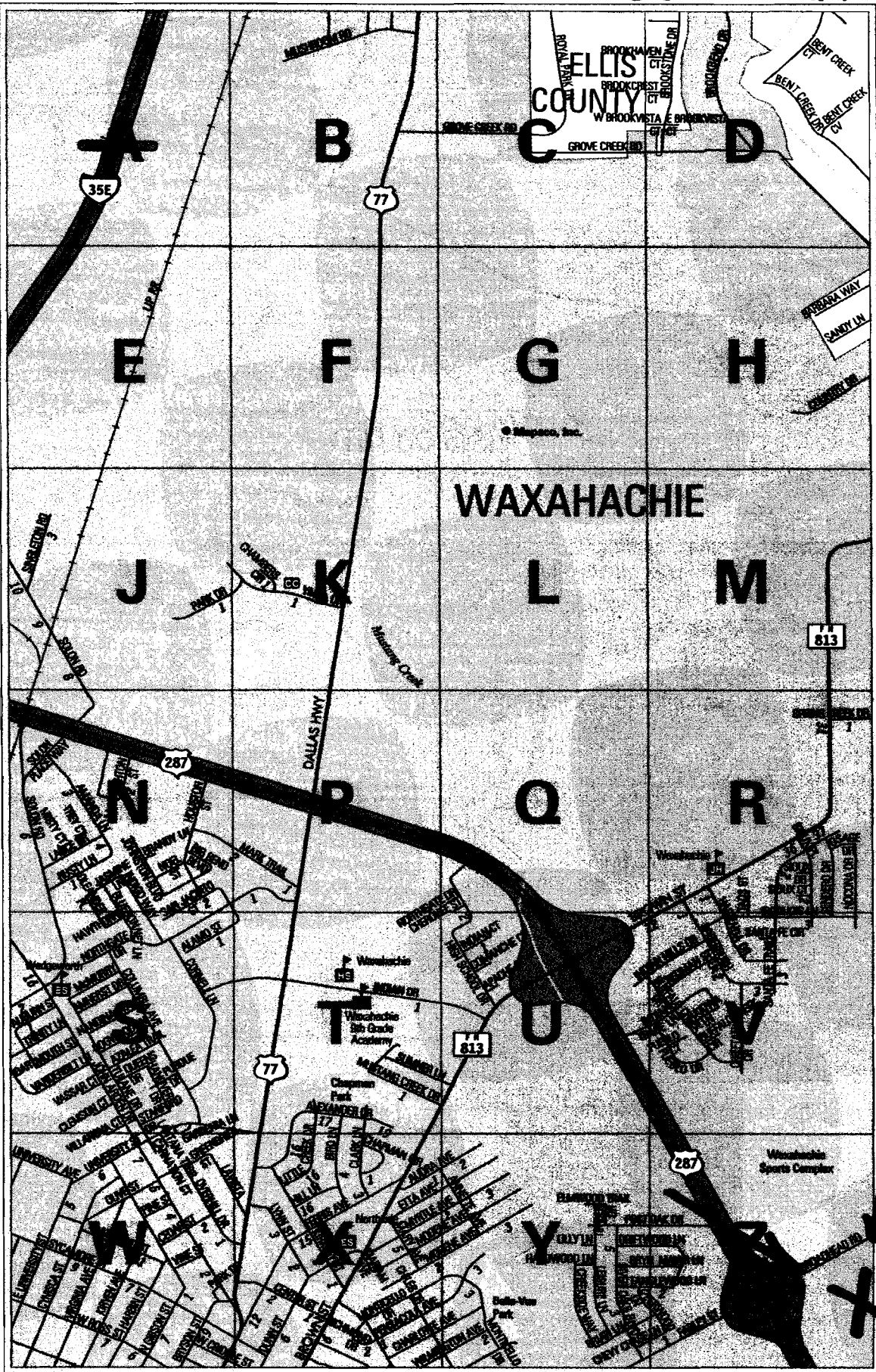
Actions taken as a result of inspections:

Date: _____

Actions taken as a result of inspections:

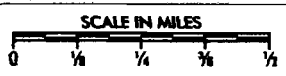
Date: _____

Actions taken as a result of inspections:

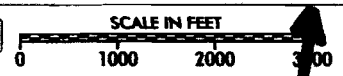


CONTINUED ON MAP 1080

CONTINUED ON MAP 1082



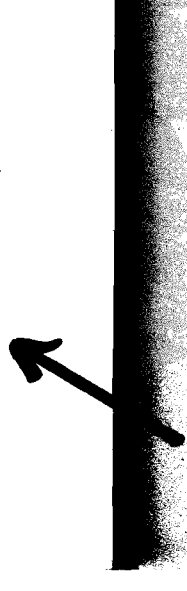
CONTINUED ON MAP 1131



SCALE: 1 inch = 2000 feet

BOOK PAGE 1103

SHOWBIZ CINEMAS (WAXAHACHIE)





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.